



New Horizons in International Business

A horizontal band showing a sunset or sunrise over a body of water, with a bright glow in the center and a gradient from light to dark purple on either side.

Governance, Multinationals and Growth

Edited by

Lorraine Eden and
Wendy Dobson

Governance, Multinationals and Growth

NEW HORIZONS IN INTERNATIONAL BUSINESS

Series Editor: Peter J. Buckley

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Governance, Multinationals and Growth
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NEW HORIZONS IN INTERNATIONAL BUSINESS

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Foreword

It is a great pleasure and an honour to write this Foreword for the Festschrift for Ed Safarian. When I first entered the field of international business preparing my PhD thesis on foreign direct investment in Ireland, Ed Safarian's works on Canada were an exemplar. My 1975 PhD thesis contains references to his 1966 volume on *Foreign Ownership of Canadian Industry* and his 1969 book on *The Performance of Foreign Owned Firms in Canada* and I was grateful for both of them! It is ironic that I missed the Conference on which this excellent book is based because I was organizing a special conference for my PhD supervisor!

Ed Safarian's influence on the field has not waned. In 1993 he completed a comprehensive account of policy development towards multinational enterprise, *Multinational Enterprise and Public Policy* in my Edward Elgar series 'New Horizons in International Business'. This was a comparative study of 15 industrial countries questioning the motivation and effectiveness of government policy. This masterly review is a monument to careful, comprehensive policy analysis which has rarely been attempted and which is unlikely to be accomplished again given the ever-narrowing focus of academics.

Ed's work covers over 40 years of publication and research in international business. The present work by a distinguished group of authors is a fitting tribute to the wide range of Ed Safarian's interests and to the achievements of his long career. I hope it will be as long enjoyed as Ed's own work will be.

Peter J. Buckley
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The papers in this volume are based on a conference held at the Rotman School in April 2004 honoring the work of A. Edward Safarian. The conference brought together leading scholars on foreign direct investment and multinationals, both from corporate and public policy perspectives and from around the world. The editors wish to acknowledge the outstanding contribution to all aspects of the conference and to this volume made by Walid Hejazi. We are grateful to Alan Rugman for his advice in the early stages of conference planning, to Vivien Choy at the Institute for International Business for incomparable logistical arrangements and support in the planning process, and to Loriann Pearce and Shirley Lee for their assistance in bringing the volume to the editors on time. The conference would not have been possible without the strong support received from Industry Canada and the Department of Foreign Affairs and International Trade in Canada, as well as from the Rotman School of Management. We are most grateful to them and particularly to Jonathan Fried (at the time Associate Deputy Minister) and Associate Dean Peter Pauly for their support.

Lorraine Eden and Wendy Dobson



(Left to right): Back row: Tom Wilson, William Strange, David Safarian, John Ries, Peter Pauly, Richard Caves. 5th row: Laurence Booth, Walid Hejazi, Nadia Soboleva, George Georgopoulos, Ignatius Horstmann, Steven Globerman, Bernardo Blum, Aaron Sydor. 4th row: Ann Dupré, Stefan Dupré, Edward Saraydar, Ronald Hirshhorn, Bernard Ostry, Maryann Feldman, David Crane, Jianmin Tang, Gerry Helleiner, Andrei Sulzenko, Robert MacIntosh, John Baldwin, Donald Brean, Randall Morek. 3rd row: Ashfaq Ahmad, Laura Repo, Kim Coulter, Hugh Arnold. 2nd row: Paul Safarian, Gary Sawchuk, Someshwar Rao, Bernard Wolf; Diana Lipsey, Richard Lipsey, Richard Harris, Lynn MacIntosh, Alan Rugman, Daniel Shapiro, Bernard Yeung. Front row: Wulong Gu, Maureen Molot, Joan Safarian, Edward Safarian, Sylvia Ostry, John Dunning, Lorraine Eden, John Crispo, Wendy Dobson, Varouj Aivazian, Vivien Choy.

(Photograph by Dario Ruberto taken at Massey College, University of Toronto, April 24, 2004.)

PART I

Introduction

1. Introduction and overview

Lorraine Eden and Wendy Dobson

INTRODUCTION

The touchstone for this volume is the work of Edward Safarian, widely recognized as the ‘Dean’ of Canada’s scholars who study foreign direct investment (FDI) and multinational enterprises (MNEs). A professor at the University of Toronto since 1966, Safarian has been President of the Canadian Economics Association (1977–78) and a Fellow of the Royal Society of Canada since 1973. From his pioneering works on *The Canadian Economy in the Great Depression* (1959) and *Foreign Ownership of Canadian Industry* (1966) to his later works on *Governments and Multinationals: Policies in the Developed Countries* (1983) and *Multinational Enterprise and Public Policy: A Study of the Industrial Countries* (1993), Safarian has been a major contributor to our understanding of multinational enterprises and public policy. The occasion of his eightieth birthday in 2004 provided an obvious opportunity, not only to celebrate his academic and policy contributions, but also to contribute new work that is forward looking.

Governance, Multinationals and Growth is a theme that reflects the main strands in Safarian’s work on multinationals. The springboard for many of the papers was Safarian (1966), which covered a broad range of issues concerning multinationals in a host country, including parent–subsidiary relationships, intrafirm trade, creation and transfers of knowledge within the MNE, and the impact of nationality on firm performance. The papers were designed to build on Safarian’s contributions by exploring the linkages among multinational enterprises, growth and governance, and by addressing issues that remain unresolved or under-researched in the thematic areas of his work. Some of the broad areas covered at the conference were:

- How does nationality affect firm performance?
- Does foreign ownership matter for economic growth and national welfare?
- What are the linkages between multinationals, productivity and economic growth; and how has trade liberalization and regional integration altered these linkages?

- How have trade liberalization and regional integration affected FDI patterns? In particular, how have the Canada–US Free Trade Agreement (FTA) and the North American Free Trade Agreement (NAFTA) affected FDI patterns and firm strategies?
- How are mergers and acquisitions different from other forms of FDI?
- How has the growth in foreign and domestic multinationals affected the capability for public governance?
- How has national and international governance of multinationals changed over time?
- What policies should national governments be adopting towards multinationals, in the context of globalization?
- How do small countries differ from large countries in terms of their public policy issues *vis-à-vis* multinationals and FDI?

The first paper in the book, by Edward Safarian, provides a retrospective on his research and teaching career. The book is next divided into three main groups of papers, each of which deals with a different sub-theme within the overall theme of governance, multinationals and growth. The first section covers corporate governance, multinationals and growth; the second section covers free trade, multinationals and growth; and the third section, public governance, multinationals and growth. The final paper in the volume was contributed by Richard Lipsey, who served as conference rapporteur. We turn now to an overview of each of the book chapters.

OVERVIEW

The first paper is contributed by Edward Safarian, ‘How to thrive in an international economy’, with a retrospective on his research and teaching career. He reflects on the fundamental research question that drove much of his research and teaching interests: ‘How best can a relatively small country thrive and pursue its objectives while being part of an international economy and while living next to a very large and dynamic neighbor?’

Safarian explored this question through four major projects. The first was an analysis of Canada in the Great Depression (Safarian, 1959). His second major project, Safarian (1966), was built on a database of foreign- and Canadian-owned firms in Canada, developed through interviews and surveys. This project, perhaps the one for which he is most famous, covered a broad range of issues concerning multinationals in a host country, including parent–subsidiary relationships, intrafirm trade, creation and transfers of knowledge within the MNE, and the impact of nationality on firm performance. The third project analyzed the national welfare effects of the

division of regulatory powers between the federal and provincial levels of government (Safarian, 1974). The fourth project was a history and analysis of government policies towards MNEs in industrialized countries since 1945, focusing on the determinants and effects of these policies (Safarian, 1983, 1993). In the latter two books, Safarian found that government policies towards MNEs were more likely to be the outcome of political decisions over issues such as income distribution and rent capture, electoral pressures, and attempts to maintain key sectors, rather than national welfare maximization. Moreover, countries varied significantly in their relative abilities to achieve their goals. He also found that government policies towards MNEs appeared to be cyclical, with periods of liberalization followed by periods of tightening.

Safarian concludes by asking where academic research fits into policy debates about ‘how a society makes its way in an increasingly integrated world’. He argues that it is important for academics to be involved in what are valid or invalid economic arguments, while recognizing that not all have the skills or desire to engage in public debates.

The theme of the first group of papers is corporate governance, multinationals and growth. The author of the first paper is Alan Rugman on ‘Continental integration and foreign ownership of Canadian industry: a retrospective analysis’. In his examination of Canada–US economic integration, Rugman provides an overview of the Canadian debate in the 1960s and 1970s, which pitted those supporting deeper integration against those who worried about loss of economic sovereignty and stimulated a debate about the role of multinationals in the Canadian economy. Rugman concludes that Safarian ‘virtually stood alone as a serious analyst of FDI’, and that he was right to ‘discredit the widespread fears of foreign control and anti-Americanism of the times’. Rugman provides extensive data on the strong economic linkages between Canada and the United States, and supplements the macro-level data with firm-level data on US and Canadian firms in the list of the world’s 500 largest firms. As he points out, Canada–US economic integration is not an exceptional event; rather deep integration in North America is part of a general worldwide trend to intra-regional integration.

‘Who owns whom? Economic nationalism and family controlled pyramidal groups in Canada’, by Randall Morck, Gloria Tian and Bernard Yeung, explores the conjecture that economic nationalism can aid the expansion of family controlled pyramidal groups.

Pyramidal groups are a phenomenon whereby a few rich families in a country can control multiple corporations through a pyramidal ownership structure, crossholding, and placing family members in key positions throughout the organization. Typically associated with family controlled

3. Continental integration and foreign ownership of Canadian industry: a retrospective analysis*

Alan M. Rugman

INTRODUCTION

The primary research focus of this chapter is an examination of the nature of regional economic integration in North America. In the sense that the Canadian–US bilateral relationship is the focus of this chapter, such regional economic integration is called ‘continental’ integration. Data are discussed which demonstrate extremely strong economic linkages between Canada and the United States. The traditional data at aggregate level, on trade and foreign direct investment (FDI), are supplemented here by firm-level data for the set of US and Canadian entries in the list of the world’s 500 largest firms.

In terms of the pioneering work of A.E. Safarian on foreign ownership of Canadian industry, it is apparent that the role of foreign-owned firms (mostly from the United States) has long been an issue for Canadian public policy. Yet the negotiation and implementation of the Canada–US Free Trade Agreement of 1988, and its subsequent passage into NAFTA in 1993, have reduced inward FDI into Canada. The foreign ownership numbers have been falling to the extent that it is no longer a serious public policy concern. A surge in bilateral trade has partly replaced FDI, leading to ever deeper economic integration.

A principal finding of this chapter is that the extent of continental integration, while of historical concern to many Canadians, is not an exceptional event. Indeed, the bilateral economic integration of Canada and the United States needs to be recognized as part of a worldwide system of deep regional economic integration. The bilateral experience of continental integration is shown here to be determined by worldwide regional integration into the economic blocks of Europe, North America and Asia (Rugman, 2000, 2005).

Finally, there is one interesting statistical observation that is unique in the bilateral relationship. While both intra-regional trade and FDI have

between those directed towards outward and inward FDI; and in the second and third phases, between those of three groups of countries, that is, developed, outward oriented developing and other developing countries. The first part of the title of my contribution suggests that, in the third phase, the policies are similar to those in the first. Yet the 'not quite' part of the title hints that there are some important differences; and it is the ways in which these are evolving on which we will focus our attention in the concluding part of the chapter.

THE 1950S AND 1960S: WELCOMING FDI – BUT NOT TOO MUCH!

The first two and a half decades following World War II were marked by a series of events and characteristics which generally favoured inward FDI into both developed and developing (or, as they were then called, less developed) countries. Curiously enough, at the time, there was rather more concern about the possible disbenefits of outward direct investment – mostly, but not wholly, by European countries with balance of payments problems.

The early post-war scenario was largely dominated by three features.

1. The economic supremacy of the US, and the efforts of war-torn Europe (and particularly Continental Europe) to rebuild its industrial base. Due to the dearth of (US) dollars and the absence of a viable international capital market, inbound FDI (initially from the US) was perceived to be the main source of investment capital, technological and managerial expertise, and as an entry vehicle into both dollar denominated and European markets. Let me cite just two statistics. First, the ratio of outbound FDI flows to exports from the US to Europe in the decade 1951–60 averaged 4.5 compared with 0.6 in the period 1935–39. Second, in my work on American investment in the UK, I found that 80 per cent of the exports of US manufacturing affiliates went to markets which were either short of dollar currency or could not be accessed by UK firms (Dunning, 1958, ch. X).
2. The emergence of several new sovereign states in the less developed world. For the most part, these countries were desperately short of the indigenous resources, entrepreneurship, capabilities and institutions, and/or access to foreign markets necessary for their future economic growth. As a consequence, they warmly welcomed the contribution of FDI to help them fill a number of deficiencies or 'gaps' in their wealth creating armoury.⁴ At this stage too, the UN and its agencies were

also lauding the benefits of FDI to less developed countries. For example, one of the recommendations of the first session of UNCTAD in 1964 was that capital importing countries should take 'all appropriate steps to provide favourable conditions for direct private investment'. Another was that capital exporting countries should stimulate outbound FDI to developing countries, by way of 'tax or reductions, giving investment guarantees to private investors, and by facilitating the training of managers and technical staff' (United Nations, 1964, pp. 49–50).

3. As a result of deliberations at Bretton Woods in 1944, a trio of supra-national entities, that is, the World Bank, the IMF and GATT, were set up, the primary purpose of which was to avoid a repetition of the destructive protectionism of the interwar period. In this, their actions were successful, as the following two decades were an era of gradual but unparalleled trade expansion. Although cross border capital movements were not included in GATT's terms of reference, the philosophy underpinning trade liberalization applied no less to FDI, and it grew faster than at any time since the first decade of the century (Dunning, 1993).⁵ At the same time, much of this MNE value adding activity, particularly in manufacturing, was of an import substituting kind. Although, from the later 1950s onwards, tariff walls began to fall – and several regional integration schemes, including the European Common Market (ECM), European Free Trade Area (EFTA) and Latin American Free Trade Area (LAFTA) were launched – many national markets, including those of individual European countries, remained highly segmented. As a consequence, most FDI was of a *resource seeking* or (domestic) *defensive market seeking* variety. Not until the later 1960s and 1970s did *rationalized* or *efficiency seeking* FDI, and one of its attributes – intra-firm trade – become significant.⁶

There were three main consequences of this policy environment of the late 1950s and 1960s. The first – as we have seen – was a marked increase in FDI as a mode of international economic transactions and resource transfer, particularly within the industrialized world. Between 1938 and 1967, the stock of inbound FDI into developed countries rose from \$8.4 billion to \$73.2 billion (8.7 times), while that directed to the less developed countries increased from \$16.0 billion to \$32.3 billion (2.0 times) (Dunning, 1993, pp. 30 and 118). The second was that, in some countries, the rate of increase in new FDI – particularly in the more dynamic sectors of the world economy – was outpacing that of its domestic counterpart, and giving some cause for concern. The response was perhaps most vocal in Canada and Australia, where in the 1960s, and in several industrial

sectors, e.g. autos, rubber tyres, electrical apparatus, pharmaceuticals and petroleum, foreign subsidiaries accounted for more than one half of total domestic production (Litvak and Maule, 1970; Perkins, 1970). However, in some European countries, notably France, there was increasing anxiety lest US owned firms should gain (or be seen to gain) dominance over indigenous firms in the more sensitive and high technology sectors (Servan Schreiber, 1968).

The third consequence was that, while part of this FDI was itself trade creating (e.g. of raw materials, components and parts), and was in tune with the trend towards more liberalization, part was most certainly the direct response to import barriers, and, as a result, was itself – to some extent at least – resource and income distorting.⁷

These events, and another which has its genesis more in the concern by home governments about the effects of outward FDI, were to produce a backlash to the international policy environment in the 1970s. In the early part of the decade, increasing evidence came to light which showed that not only was inbound FDI not always the first best way by which host countries might gain access to foreign resources, capabilities and markets, but that, when it operated in a non-competitive environment and was in response to (or indeed influenced by) inappropriate economic and/or social policies by home or host governments, it could actually be harmful to the interests of either or both of its constituents.

Certainly, as the characteristics and impact of FDI and MNE activity became better known, there was increasing disillusionment – particularly among many developing countries – about its benefits. Three dominant perceptions prevailed. The first was that MNE activity was leading to uneven development and fostering a dual economy. The second was that the bargaining market power of large foreign investors was allowing them to gain monopoly rents at the expense of indigenous stakeholders of the host country. The third was that the cross border division of labour forged by the MNEs, while being in the interests of the global shareholders of the MNEs – and possibly of home countries and the global economy itself – was not necessarily to the best advantage of the host country. This was particularly perceived to be so in respect of the transfer of technology, and in some of the business practices of the MNEs (UN, 1974a).

But perhaps the circumstances that sparked the most concern about the conduct and activities of MNEs in the 1970s occurred in the US where, although the policy environment to both inbound and outbound FDI was generally favourable, a series of scandals about the business practices and political chicanery of some leading US MNEs caused both the US government and, more generally, the international community to reappraise the value of their activities as an economic good. This is not the place

to catalogue the items of corporate malfeasance.⁸ However, concern over several actions of MNEs ranged along a spectrum from the (at the time, seemingly unconnected) Watergate scandal, through the investigations of the US Securities and Exchange Commission (SEC) to the interference of the International Telegraph and Telephone Corporation (ITT) in the political affairs of Chile, and the setting up of the Church Committee to study and report on the relationship between US MNEs and US foreign policy (Sagafi-nejad, 2005).

The contents of the Church Committee's hearings were published in 17 volumes between 1973 and 1976 (US Congress, 1973–76). They were to set the tone for subsequent attitudes in both developed and developing countries to the power and influence of large corporations. More particularly, they led to a series of Senate enquiries into the economic and social responsibilities of US MNEs; and added credence to a series of UN initiatives which *inter alia* endorsed the sovereignty of nation states, and spelled out the kind of international economic order in which MNE activity might best be conducted (Emmeriji et al., 2001).

Backed particularly by the Chilean government,⁹ it also led to the Secretary General of the UN commissioning a study on MNEs and economic development by a Group of Eminent Persons in 1972. The results of the Group's deliberations were contained in a report (UN, 1974a), which, *inter alia*, recommended the setting up of a permanent UN Commission on Transnational Corporations (TNCs) – the preferred UN nomenclature for MNEs – and a supporting secretariat, that is, the United Nations Centre on TNCs (UNCTC). In effect, the philosophy and work of the UNCTC set the tone for many of the attitudes towards, and views about the appropriate international policy environment as it influenced FDI and MNE activity for the next 15 years or so.

THE LATE 1960S TO LATE 1970S: A PERIOD OF UNNECESSARY CONFRONTATION

From the late 1960s to the early 1980s, the international policy environment to inbound FDI and MNE activity was at best lukewarm, and at worst downright hostile.

Some reasons for this change of heart, or perspective, have already been given. We have also described how they affected the attitudes and policies of governments of both developing and developed countries. As far as the former were concerned, perhaps the main influence in the 1970s was the decisions taken in the UN. Between 1972 and 1976 pronouncements such as the new *International Economic Order*, the *Permanent Sovereignty of*

National Resources, the *Declaration of Human Rights* and the Report of the Group of Eminent Persons on *The Impact of Multinational Corporations on Development and on International Relations* were all welcomed by those countries which felt they were not benefiting as they should from the presence and strategies of foreign investors. While these initiatives were not, in themselves, antagonistic to cross border trade and capital movements, they did legitimize the attitudes, policies and institutions of national governments to influence and control these flows; and also to limit the participation of the foreign affiliates of MNEs to activities which indigenous companies could not efficiently, or did not wish to, undertake. The UN initiatives, together with the scholarly insights of the *dependencia* school of Latin American economists,¹⁰ gave legitimacy and support to the import substitution development strategies pursued by several developing countries in the 1970s.

In the case of developed countries, the concern about inbound FDI was less to do with the issues of national sovereignty than with those to do with the potential domination of foreign (and many US) MNEs in sensitive and key technological sectors. This disquiet was voiced as far back as 1968 by Jacques Servan Schreiber,¹¹ and his views were persuasive enough to cause the French and other European governments both to limit some kinds of inbound FDI and to insist upon certain performance requirements of foreign affiliates (e.g. with respect to local sourcing, an R&D presence, exports, employment of local managerial talent etc.); and also to impose restrictions on their access to local capital markets, and on the repatriation of dividends.

Such requirements were also introduced by developing countries – often at the recommendation of the United Nations Center on Transnational Corporations (UNCTC), which, as we have said, in the 1970s and 1980s became the focal information provider, research organization and mouth-piece of the UN on MNEs (TNCs). The UNCTC also provided various training seminars and workshops for, and gave advice to, government officials from developing countries, with respect to such issues as taxation, technology transfer, joint ventures, transfer pricing, negotiation procedures, property rights and contractual arrangements. Up to a point, these were useful and productive; but the deliberations and recommendations of the UNCTC consultants were often thwarted in that they were not generally permitted to advise on the appropriateness of the general macroeconomic policies or micro-management strategies of their clients.

These were also years in which socialist governments held office in most European countries, and labour unions were particularly active in flexing their muscles against large MNEs. And, in spite of the movement towards closer economic integration, the European Union continued to impose

performance requirements (notably *à propos* local sourcing) on the burgeoning Japanese MNE investment in the UK and on the Continent.

For the most part, in the 1970s and 1980s, the leading trio of supranational entities took a back seat with respect to proffering policy advice on FDI and MNE activity. However, in their reviews of the microeconomic strategies and financial needs of various developing countries, both the World Bank and the IMF took a line in accordance with the neoclassical school of economics, as reflected in the Washington Consensus. What sympathy there was for the stance of developing countries towards MNEs – as, for example, was earlier articulated in the Church enquiry, and the US government's critique of (US) MNEs interfering in the domestic affairs of other countries – largely disappeared in the later 1970s. This was mainly because the economic ideology and actions of so many developing countries – not only in Latin America and Africa, but also in parts of Asia – had moved away from the pro-market stance of the US regime.

In reality, such a confrontational approach towards MNEs from both developed and developing countries¹² was based on a series of false premises. The first was that the gains of FDI to the recipient countries mainly consisted of the size of *their share* in the value added by foreign subsidiaries, and that this was a *zero sum game*. A recognition that other benefits, e.g. restructuring, spillover effects, the opening up of new markets and the upgrading of the competitiveness of indigenous resources and capabilities, might be no less important, and that these might work to the advantage of *both* MNEs and host governments, was played down. The second was that the existing domestic economic policies of the host countries – including those directed towards inbound FDI – were themselves best suited to meeting the objectives of these countries.

The third false premise was that the interests of MNEs were always aligned with those of the host countries. This was soon demonstrated not to be so in two main respects. First, in the kind of value added activities engaged in by foreign affiliates, the technology transferred by their parent companies, and their human resource development and trade strategies. Second, it soon became apparent that there were often quite significant differences in the societal values and cultural mores both between the countries which were host to MNE affiliates and between the investing and recipient countries. This lack of awareness made it difficult for both MNEs and governments to accept and reconcile each other's values, and for each to acknowledge the need for some adaptation to their existing institutions and enforcement mechanisms.

It was not until the international policy environment was reconfigured that some of the misconceptions and misunderstanding of the likely impact of the role of MNEs on development were removed. Nor was it

until national governments recognized that, to best benefit from the competitive advantages offered by FDI, their own micro-management policies, and the institutions underpinning them, might need to be reconfigured, that the era of unnecessary confrontational policies towards MNEs abated.

Yet it would be wrong to tar all developing countries – and for that matter all developed countries – with the same policy brush! During the later 1970s and 1980s, but before the current era of globalization came into being, there were major shifts in the economic policies and development strategies of many Asian countries, and their attitudes and incentive structures towards FDI. Singapore and Hong Kong, of course, have always welcomed FDI – though each has regularly revamped its micro-management policies to ensure that the right kind of MNE activity might be attracted – and perhaps, more importantly, to treat this activity as an integral part of their competitiveness upgrading strategies.

Other Asian countries too, notably Korea and, to a lesser extent, Taiwan, Thailand and the Philippines, tended to follow the post-war strategy of Japan in building up their essential indigenous sectors, before fully opening their doors to FDI and MNE activity. Such an evolving policy is entirely consistent with Teretomo Ozawa's East Asian 'stages of growth' model (Ozawa, 1992); and, in each case, it has led, or is leading, to above average rates of economic growth and improved competitiveness. By contrast, much of Latin America, India and China experienced below average growth rates for most of the 1970s. This was mainly because their governments failed to reap the benefits of global supply capabilities, and to meet the demands of the global marketplace by reconfiguring their own domestic economic policies.

In the early 1980s, a more conciliatory tone in MNE/national government relationships crept in. This was for three main reasons. The first was that advances in scholarly thinking were better pinpointing the type of benefits and costs MNEs might bring to host countries, and also of the government institutions and policies best able to ensure that the net benefits were maximized. The second was that MNEs were starting to recognize and accept the objectives and needs of particular host countries, and were pursuing less ethnocentric postures and strategies towards their foreign affiliates. The third was that host governments were not only modifying and refining their policy instruments to ensure that MNEs operated in their best interests, but were critically examining the suitability of their institutions and macro-organizational strategies, as the intensity and scope of their international economic involvement increased.

To begin with, this change in tone and approach was subtle and marginal. Towards the end of the late 1980s it accelerated, and in doing so ushered in a new era of MNE/nation state relationships.

TOWARDS A NEW GLOBAL POLICY ENVIRONMENT

The early 1980s to the present day has witnessed the emergence and gradual maturation of what we shall term 20/21 globalization. While there are several similarities between this latest stage of the evolution of capitalism and that of the nineteenth century and the early post-World War II period,¹³ today's globalization is unique in its scope and depth, and in its implications for the international policy environment affecting national macro and micro economic decision taking.

Beginning with the renaissance of market friendly policies of the Thatcher and Reagan administrations in the 1980s, followed by the fall of the Berlin Wall, the opening up of China to the outside world, the emergence of a new wave of market oriented developing countries, the mushrooming of regional integration schemes and, most recently, the recognition of the benefits of being part of the global economy by India and several Latin American and African countries, each event has contributed to a reconfiguration of the fashioners and drivers of MNE activity. Let us give just eight examples.

First, 20/21 globalization has led to greater competition between countries for the world's supply of income generating assets – particularly all kinds of knowledge capital. Second, it has promoted more understanding and awareness among both national governments and their constituents of the benefits of globalization, and of the ways in which FDI and MNE activity might (and might not!) contribute to upgrading the quality and usage of indigenous resources and capabilities, and to the promotion of economic restructuring and dynamic comparative advantage.

Third, globalization has forced national governments and supranational entities to re-examine not only their economic strategies, but also the institutions and enforcement mechanisms undergirding and fashioning these strategies. The East Asian crisis of the mid-1990s emphasized, most forcibly, the need to bring the quality of domestic institutions – both private and public – in line with international standards. Similarly, the lack of accountability and transparency, and unacceptable corporate practices are increasingly influencing host governments to pay more attention to the calibre of their social capital as a locational pull to foreign investors.

Fourth, globalization, and particularly the advent of e-commerce, has widened the options available to MNEs in their innovation, sourcing and production strategies. This has been further facilitated by the growth of cross border alliances and networks, which, in turn, has led to the appropriate reappraisal of the governance of MNE related activity (Dunning, 1997). Compared with nineteenth/twentieth century globalization, for example, 20/21 globalization has prompted flatter and more heterarchical

decision taking structures, and is placing an increasing emphasis on subsidiarity in decision taking (Birkinshaw and Hood, 1998; Rugman and Verbeke, 2001).

At the same time the extent, depth and form of cross border intra-firm relationships – most noticeably with respect to the location of higher value activities – is critically dependent on the form and quality of the institutions of home and host countries, and, in the case of larger countries, that of their sub-national authorities.¹⁴ While the 20/21 global policy environment has provided the impetus for a new international division of labour, the trajectory of the geography of the value added activity is still strongly influenced by these institutions. Perhaps the clearest example of countries whose institutions have adapted well to the demands of globalization (and indeed have helped fashion it) is the East Asia tigers. Those transition countries in Central and Eastern Europe that have fared the best are also those that have most successfully upgraded their institutional structures (Holland et al., 2000; Bevan et al., 2000, 2004; and Dunning, 2003b). By contrast, until very recently those embedded in the Latin American countries, India and most of sub-Saharan Africa lagged sadly behind.

Fifth, while the two previous stages of globalization were inextricably interwoven and shaped by the main international economic institutions of the day – that is, the gold standard in the nineteenth century and the trio of Bretton Woods organizations in the early part of the post-World War II period – this has not been so obvious in the case of 20/21 globalization. Indeed, there are misgivings about several of the contemporary initiatives to reconfigure their role and influence. No one has been more trenchant in his criticism of the failure of these organizations to meet the needs of (responsible) 20/21 global capitalism than Joseph Stiglitz (2002). Again, this is not the place to discuss or evaluate these criticisms, but rather to reiterate that supranational entities *are* part of the global policy environment which influences, for good or bad, national economic strategies of national governments towards, or in the light of, MNE related activity.¹⁵

So, for that matter, is civil society. The role played by the belief systems of the multiple stakeholders in economic prosperity, and the way in which these impinge on institutions, is our sixth observation about 20/21 globalization. Again it is true that both in the UK and in the US, civil society in the guise of philanthropic and activist organizations played a major role in ameliorating some of the less desirable effects of nineteenth-century capitalism; and, indeed, paved the way for the modern welfare state (Dunning, 2003c). Today the issues surrounding globalization are much broader; they involve increasingly complex partnerships, and more importance is given to such social issues as the environment, food and safety standards, justice, the health of the aged, the plight of the very poor, and

the reduction of such bads as international crime, drug trafficking, pollution and terrorism. Because of their communal character, the value added activities associated with these 'products' are usually best provided by public organizations, or at least by a partnership between them and the private sector. Our belief is that 20/21 globalization is necessitating new and more varied coalitions among its constituents, new methods of delivery and new modalities financing these value intensive goods.

Seventh, 20/21 globalization has been accompanied by a cross border merger and acquisition boom. Here there are some parallels with the late nineteenth century acquisition of US companies by European firms – and, to a lesser extent, those of European companies by US MNEs. In both eras, there was a relatively relaxed policy environment to such trans-Atlantic M&As, particularly where they were thought likely to upgrade the competitiveness of the acquiring and acquired firms. But in both cases, the trend was (and is being) accompanied by calls for a toughening of anti-monopoly enforcement mechanisms.¹⁶ At present, such mechanisms are largely the responsibility of national governments; and are currently taxing the policy makers in the faster growing developing countries – notably in East Asia. However, many commentators would argue that there is a case for a harmonization and strengthening of competition policy through the aegis of such organizations as the WTO (UN, 2000).

This brings us to the eighth and final reflection on the contemporary phase of global capitalism. That is, from a policy environment perspective, governments at all levels and supranational entities have a responsibility to ensure that the constituents of capitalism – and particularly the MNEs which account for such a large proportion of the globe's innovatory and production capacity, and of the world's trade in goods and services – play a socially accountable role in furthering their agenda. This is notwithstanding the increasing voice and activism of a multitude of non-governmental organizations (NGOs), and the collective action of individual consumers, investors and workers. The reprioritization, reconciliation and coordination of the goals, incentive structures and values of these diverse constituents is one of the most important challenges likely to face the global community and the international economic system in the years ahead.

I believe it is incorrect to assert that the global policy environment is reducing the role of national governments. Indeed, I would suggest that, perhaps more than ever before, the appropriateness of their macro- and microeconomic strategies, the quality of their location bound institutions and that of the incentive structures undergirding them, are critical determinants in their attempts to upgrade the quality of their indigenous resources and capabilities. This role is particularly important in two respects. First, it advances human capital and knowledge (via education and training,

CONCLUSIONS

Safarian's empirical answers that refuted the 1960s concern about US control of Canadian industry have been fortified over the last 40 years. As US FDI in Canada has declined relative to Canadian FDI in the United States, the issue of US foreign control has become largely redundant in Canadian public policy. The major trend over the last 40 years has been an increase in intra-regional trade within each regional block of the triad. This is especially noticeable in NAFTA. The US economy is now much more open (at 11 per cent exports to GDP and 15 per cent imports to GDP). This is similar to Japan, where exports account for 10.8 per cent of GDP, but it is behind the EU average of 35 per cent of GDP. Yet, due to increased intra-regional trade in NAFTA, US FDI stocks in NAFTA, as a percentage of worldwide FDI, have decreased over the last 20 years.

Yet intra-regional FDI stocks have continued to increase within the EU and Asian triad blocks. The unusual situation in NAFTA is dominated by the US–Canadian manufacturing relationship. In turn, this reflects the overwhelming importance of the automobile sector in North America. This sector accounts for one-third of US–Canadian trade. In this sector a type of managed free trade has existed for over 40 years, and it has largely replaced the need for FDI.

In contrast, across the service sectors affected by NAFTA, FDI is still important. Indeed, it remains the only viable mode of entry in sectors which are still nationally regulated such as financial services, transportation, cultural industries, health, education and social services. National treatment for FDI is still denied in these service sectors. This reduces the incentive for US FDI in the service sector in Canada but (due to size asymmetries) does not discourage Canadian FDI in services in the United States. Safarian (1966) was correct to dismiss concerns about inward FDI and foreign control. This was just the result of increased intra-regional activity, which continues today, but relatively more in the form of trade than FDI.

At firm level, data on foreign sales by MNEs reveal that very few of the world's largest MNEs are 'global' in the sense of operating in all three regions of the triad. The vast majority of large MNEs mainly operate in their home-triad market. Canada's MNEs are no exception – they are virtually indistinguishable from large US MNEs in terms of large intra-regional sales. Both sets of large MNEs have about three-quarters of their sales on average as intra-regional (Canadian firms at 74 per cent and US firms at 77 per cent). Furthermore, these large firms are 'flagship firms' at the center of clusters of hundreds of small to medium-sized firms, all of which are operating even more locally and intra-regionally. These firm-level data support the large degree of intra-regional trade in NAFTA.

firms in East Asia and Latin America (e.g. *grupos*, *zaibatsu* and *chaebol*), Morck, Tian and Yeung argue that Canada also has an unusually high proportion of family controlled pyramids relative to other developed economies, in particular the United States. The authors hypothesize that economic nationalism, which they define as privileging local products, investments and firms relative to foreign products, investments and firms, may have contributed to this anomaly.

The current explanation for the existence and growth of family controlled pyramids stresses the roles of capital market frictions and firms' desire for control. Capital market frictions make raising external financing expansion and internal seed money a necessity. To expand control, a family can instruct one firm that it controls to set up a second, new firm rather than use the family's own money. By doing so, the family can use the retained earnings of the first firm as seed money to raise expensive external funds, rather than pay out dividends. Additionally, the family ends up controlling both the existing firm and the new one.

Morck, Tian and Yeung argue that in the first half of the twentieth century, Canadian corporate governance evolved parallel to the United States, shifting from the so-called robber baron families to freestanding, widely held corporations. However, in the 1970s, Canada reversed course and corporate pyramids controlled by a few wealthy families expanded. By the end of the twentieth century, freestanding firms were a minority in terms of both numbers and assets, similar to the early 1900s.

In trying to understand the shift in Canadian corporate governance structure, the authors provide several speculative hypotheses. The most likely explanation, they conclude, is economic nationalism during the 1970s and early 1980s. Their data show that heightened economic nationalism, the introduction of stringent policies against foreign ownership of domestic corporations, the shrinkage of foreign ownership of Canadian corporations, and the absorption of widely held freestanding Canadian corporations into family pyramidal groups all occurred simultaneously with the rise of family controlled pyramid groups. With restrictions on foreign ownership, domestic firms were privileged relative to foreign firms in terms of mergers and acquisitions. Foreign firms were not able to compete rigorously for host country investment projects and investment funds.

The high proportion of family controlled pyramids in Canada is a problem, according to the authors. Family controlled pyramids, as a form of corporate governance structure, create conflicts between insiders that control the firm but own only a small percentage of it, and shareholders at large. Pyramid groups are also less vulnerable to takeovers, more insulated from shareholders, and more susceptible to forms of income shifting or tunneling. Morck, Tian and Yeung argue that restrictions on inward FDI

may therefore have had the unintended consequence of encouraging a less efficient form of corporate governance structure.

In the 1980s and 1990s, international mergers and acquisitions (M&As) became the dominant mode of foreign direct investment for both developing and (especially) developed countries. While policy makers have expressed concern in the past about the economic welfare benefits of M&As to host economies, at least in comparison to ‘greenfield’ investments or joint ventures, there is little empirical evidence concerning whether and how international M&As are a unique form of FDI. ‘Assessing international mergers and acquisitions as a mode of foreign direct investment’, by Steven Globerman and Daniel Shapiro, fills a hole in this regard.

Their paper evaluates whether the location determinants of FDI are sensitive to whether or not FDI takes the form of international M&As. The authors specify and estimate parsimonious models of the determinants of inward and outward M&A flows for a sample of 154 countries with data averaged over the period 1995–2001. In so doing, they identify variables that are potentially M&A mode-specific. The authors also address the degree of similarity between the M&A model and a model of aggregate FDI flows. Their results confirm the empirical significance of macro-governance variables as determinants of both inward and outward FDI *regardless of mode*. They also confirm the statistical importance of liquid and efficient capital markets as determinants of cross-border M&A activity, but show that good overall governance promotes more liquid stock markets.

Someshwar Rao and Jianmin Tang, in ‘Foreign ownership and total factor productivity’, examine the consequences of inward and outward FDI on a country’s competitive position, which they define as total factor productivity. Their paper focuses on several big research questions that have puzzled Edward Safarian and other students of FDI: are foreign-controlled firms more productive than domestic-controlled firms? Do they create productivity spillovers for domestic firms in host countries, and are there productivity spillovers at home from investments made abroad? How does inward and outward FDI affect other drivers of economic growth such as capital accumulation, trade expansion and R&D?

Drawing on ten years of research sponsored by Industry Canada (a department within the federal government), the authors analyze the contribution of foreign-controlled firms to a host country’s total factor productivity, using Canadian micro- and industry-level data as a case study. The authors find that foreign-controlled firms, after controlling for the influence of other factors, on average, are 10 to 20 per cent more productive than domestically controlled firms, which they attribute to the firms’ superior technological and managerial know-how. In addition, foreign-controlled firms do exert significant positive productivity spillovers on

firms in host countries. The authors do not find, however, significant productivity spillovers from home multinational enterprises to other firms in a country. Moreover, domestic and foreign MNEs do raise real incomes through their positive effects on variables such as trade flows, capital accumulation, innovation and net investment income.

Rao and Tang recommend that countries such as Canada should improve the investment climate if they want to attract and retain inward FDI, and should also work towards improving access for Canadian multinationals abroad. In particular, they argue that if Canada were to reduce its restrictions on inward FDI and remove many product regulations, it could significantly increase inward FDI flows.

The next group of papers focuses on free trade, multinationals and growth and begins with 'Factor price differences and multinational activity', by Ignatius Horstmann and Daniel Vincent, who develop a theoretical model of multinational activity and outsourcing. Their model assumes there is free trade (no tariff or FDI policy barriers) between countries, but the countries differ in their factor endowments. The authors' paper is motivated by the growing trend in North America to outsource stages of the value chain to foreign countries (e.g. manufacturing to *maquiladoras* in Mexico, back office functions to India).

Existing economic models of MNE activity explain trade and FDI patterns using scale economy and/or transportation cost differences, rather than factor price differences. Scale and transport cost arguments can explain horizontally integrated MNEs that engage in similar activities across countries (e.g. distribution and sales), but do not satisfactorily explain vertically integrated MNEs that perform different stages of the production chain in different countries. Factor price differences can be used to explain vertically integrated MNEs, but the multinational activity occurs in one direction: either country 1 firms have affiliates in country 2 or vice versa, but not both.

Horstmann and Vincent's approach solves this puzzle by unbundling MNE activity into a continuum of tasks that require different factor intensities. Their model assumes that production of any good involves the completion of a continuum of tasks and that each economy is endowed with a continuum of factor types, each type specific to a different task. In the presence of costs of coordinating tasks across countries, neither free trade alone nor free trade with outsourcing generates factor price equalization. The model produces outsourcing even between countries with very similar factor endowments, as well as two-way outsourcing. The model also suggests that the appropriate measure for multinational activity in each country is total factor payments or value added, not sales. These observations square well with data on multinational activity, generating MNEs that are both

vertically and horizontally integrated. The model also has the feature that outsourcing varies continuously and in a predictable manner as elements of the environment change. This outcome is in contrast to most previous models of multinational activity that involve discontinuities.

The paper by Richard Harris, 'FDI in an FTA with uncertain market access', explores some of the relationships between trade and FDI within a free trade area (FTA), where market access to the other member's markets is not secure. The real world puzzle that underlies this paper is Canada's experience in North America with the Canada-US FTA and NAFTA, where Canadian firms have less than secure access to the much larger US market.

Harris explores the implications of incomplete access on the pattern of inward FDI to a regional FTA where countries differ in size. He assumes firms must make *ex ante* sunk investments before uncertainty is resolved and firms know the degree of market access. Using a simple two-country model of trade within an FTA, where one country is much larger than the other, Harris examines the sensitivity of firm location decisions in the small country to the degree of access to the larger partner's market. With uncertain access, he argues excess capacity is likely to occur in industries with large sunk costs (e.g. steel, automobiles). If firms in the large country seek contingent protection through anti-dumping or countervailing duties, the threat of lost access to the large market can have large negative implications for location in the small country.

Harris simulates the impact of sunk costs and insecure market access on the viability of FDI in the small country relative to the large country using a range of estimates. For example, if sunk costs are 80 per cent of total costs, and the security of access to the large country's market increases by 10 percentage points, Harris finds that the level of costs at which FDI is competitive in the small country increases by 23 per cent. However, if firms are risk averse, the competitive position of the small country falls rapidly as the level of contingent tariff protection in the large country increases. Thus both security of access to the large country's market and the degree of risk aversion by firms affect the choice of location between large and small countries.

Since both insecure market access and firms' risk aversion encourage location in the large country, this creates a substantial policy problem for the smaller country seeking to attract or retain FDI. Harris discusses two policy options for the small country. These options – location subsidies and a market access insurance scheme – are designed to offset the market access disadvantage of location in the small country's market. Harris compares the two policies and argues that, while their welfare effects are similar, the market access insurance scheme is superior on practical grounds.

Walid Hejazi and Peter Pauly, in ‘How do regional trade agreements affect intra-regional and inter-regional FDI?’, review theories that explain the existence and location of FDI, and extend the discussion of those theories to the introduction of a free trade area. The authors argue that the effects regional trade agreements can have on trade and FDI is a complicated issue. Theoretically, the effects depend on several dimensions: the degree of trade integration prior to the implementation of the agreement, the horizontal versus vertical nature of FDI, the relative size and levels of development of countries in the agreement, as well as the distinction between intra-regional versus inter-regional FDI. Because of these complexities, it is impossible to predict *ex ante* the impact an FTA will have on the distribution of FDI. This means that the net impact on FDI patterns observed in the aftermath of an FTA is the result of many different underlying effects, not all of which reinforce one another.

Using two data sets, one for bilateral US outward FDI to each of 52 countries and a second for bilateral OECD data among 28 countries, Hejazi and Pauly measure the impact the Canada–US FTA and NAFTA have had on the attractiveness of North America as a destination for FDI, and on each of the three member countries. The results show clearly that Mexico and the United States were net beneficiaries of the NAFTA in terms of their ability to attract FDI. In contrast, Canada became less attractive for US (insider) FDI but more attractive to OECD (outsider) FDI. They conclude that existing theories are able to explain these results.

‘Responses to trade liberalization: changes in product diversification in foreign- and domestic-controlled plants’, by John Baldwin, Richard Caves and Wulong Gu, studies the impact that a small country joining a regional trade agreement might be expected to gain from the exploitation of plant-level scale and scope economies as firms scale up to meet the demands of the regional market. The real world puzzle behind this paper is how firms adapt multi-product production to plant-level scale and scope economies and to changing levels of production associated with trade liberalization.

The paper makes use of the experience of Canada, from the late 1980s through the late 1990s, over the period when the Canada–US FTA and the NAFTA were signed and implemented. In the 1960s and 1970s, high Canadian and US tariffs were both linked to greater plant diversification; that is, tariff barriers encouraged plants to produce too many products with too short production runs so that plant-level economies of scale were underutilized.

One of the predicted effects of free trade that the economics literature focused on was that manufacturing plants would be better able to exploit scale economies with increased access to US markets. In addition, the economics literature argued that foreign plants tended to produce an excessively

large range of products behind high tariff barriers and that free trade would lead to increasing specialization in this group. Tariff liberalization, therefore, should lead to longer production runs and more product specialization.

The authors find that there was a general increase in the pace of commodity specialization at the plant level around the time of implementation of the FTA and NAFTA. Plant diversity was higher in larger plants and in industries with assets that are associated with scope economies. Diversity was also higher in industries that had higher rates of tariff protection. Over the 1980s and 1990s, plant diversity decreased with reductions in both US and Canadian tariffs. The decline was greater during the post-NAFTA era than before, thereby suggesting that this treaty had an impact beyond that just engendered by the tariff reductions associated with NAFTA.

The study also found that foreign-controlled plants tended to be larger than domestic-controlled plants. Controlling for size of plant, foreign-controlled plants were more specialized than domestic-controlled plants, most likely because they were better able to optimize production for the whole North American market through their parent–subsidiary networks. With the introduction of the FTA and NAFTA, the decline in product diversification was faster for the foreign-controlled plants, and the tariff effect was stronger. Baldwin, Caves and Gu conclude that foreign-controlled plants adapted better to trade liberalization during the specialization process than domestic-controlled plants.

The theme of the third group of papers is public governance, multinationals and growth. For many years, international business scholars have studied the ways in which host country governments affect the extent and pattern of inbound FDI. While national policies differ, there are many common influences. John Dunning, in ‘FDI and the international policy environment. Back to the future? Not quite!’ identifies and analyzes these common influences, how they have evolved, and how they have affected (and been affected by) FDI and other MNE activities.

Dunning divides his historical analysis into three periods that roughly correspond to host country attitudes towards FDI and MNEs that are liberal (1950s and 1960s), regulatory (late 1960s to late 1970s), and global (early 1980s to the present). His analysis is organized both chronologically and cross-sectionally. In each period, he distinguishes between policies that focus on inward FDI and outward FDI. Within each period, he distinguishes between developed, outward-oriented developing, and other developing countries. He argues that the third period has policies that are similar to, but not the same as, the first period (hence the title, ‘Back to the future? Not quite!’).

In his historical review, Dunning argues that government policies towards FDI *per se* are becoming less important as governments concentrate more

on upgrading and restructuring in order to cope with the pressures of globalization. Governments are more concerned about the consequences of FDI for national competitiveness and economic and social development. As a result, FDI-specific policy is moving from the national to the regional and supranational levels, such as NAFTA, the European Union and the WTO (Dunning calls these top-down policies). Moreover, special interest groups such as NGOs are becoming more important actors influencing MNE activities and policies (bottom-up initiatives).

Looking ahead, Dunning believes MNE-state relations are becoming 'more challenging and problematic', along the lines foreseen in Vernon (1998). Moreover, international terrorism and other security concerns are raising further complications for MNEs. A major challenge will be how to reconcile different views about regulating FDI without 'killing the goose that laid the golden egg'.

Edward Graham's paper on 'Economic issues raised by NAFTA Chapter 11 investor-to-state dispute settlement cases having environmental implications' links multinationals, trade policy and the environment. The motivation behind this paper is the NAFTA, which in Chapter 11 introduced an investor-state dispute settlement mechanism. Multinationals that believe they have been damaged by national environmental regulations can sue the relevant government for compensation for these damages. Environmental NGOs therefore see Chapter 11 as diluting national environmental laws.

Graham attempts to determine whether public compensation of private investors is a socially optimal policy from a societal cost-benefit analysis. Looking at these cases as negative externalities, he asks whether Coase's theorem – that national welfare effects are identical regardless of whether the externality is eliminated through a 'polluter pays' or the 'public pays' approach – holds here. His conclusion, however, is that the two are different, and that the 'polluter pays' is preferable for several reasons, including government fiscal illusion and moral hazard arguments.

'Location incentives and inter-state competition for FDI: bidding wars in the automotive industry', by Maureen Appel Molot is the subject of Chapter 13. Competition among jurisdictions in the United States, and by extension to Canada, for new automotive assembly investment, which has long existed, has reached new heights. The large auto MNEs and state governments have become quite sophisticated at playing the location incentives game. However described – as a location incentives game or a locational tournament – the point is the same: the inter-jurisdictional competition or bidding to attract FDI. States, anxious to attract jobs (direct and indirect), actively compete with each other by offering a range of subsidies to European and Japanese assemblers to locate in their jurisdictions. One set of locational tournaments unfolded in the US in the 1980s; a second began

in Canada at the same time and a third in the US in the early 1990s that continues unabated in the early years of the twenty-first century. Using a number of propositions derived from the literature on MNE–state bargaining and that on firm- and country-specific advantages, Molot’s paper examines the political economy of locational tournaments. She argues that experience has enhanced the capacity of auto MNEs to play the incentives game. Moreover, the number of jurisdictions bidding for an investment enhances the capacity of the MNE to play off one bidder against another to its own advantage. An important additional consideration in auto MNE location decisions is the availability of untrained labor and the absence of a union environment.

The next paper consists of three short policy analyses contributed to a roundtable discussion examining Canada’s international economic policy options. Wendy Dobson, Grant Reuber and Andrei Sulzenko, in ‘Policy roundtable: life as neighbor to an economic giant – issues and options’, focus on Canada’s priorities as a country living next door to the US economic giant. They explore some of the generic issues that small economies located in proximity to very large economies can expect to face in managing their external relations. The key challenge facing small countries is to ‘identify and pursue their own economic objectives in a turbulent and uncertain economic environment’. The papers identify three general goals: (1) how the small economy manages its bilateral trade and investment relationship with the large economy so as to ensure that it maintains access to the larger (and wealthier) market; (2) how the small economy can globally diversify its trade and investment relationships so as to reduce its bilateral dependence on the large economy; and (3) how to develop and update domestic economic policy frameworks so the small economy can take advantage of opportunities in the changing world economy. The authors argue that Canada has achieved the first objective (see Rugman, Chapter 3, for a similar assessment and Harris, Chapter 8, for an opposing view), but at the cost of becoming ever more dependent on the United States. Thus the first goal has been met (unintentionally) at the expense of the second goal. The third goal – creating stronger innovation and growth through higher productivity and greater flexibility – is a continuing challenge.

In the concluding paper, ‘Issues on governance, multinationals and growth: thoughts on method, policy and research suggested by the Festschrift papers’, Richard Lipsey provides his own perspective on the preceding papers. Lipsey’s paper may remind some readers of Susan Strange’s famous article, ‘Cave! hic dragones (Help! here be dragons!): a critique of regime analysis’ (Strange, 1982). A ‘dragon’ was a pitfall for the unwary scholar. Her article criticizes international regime theory for harboring five dragons: a passing fad that makes no long-term contribution to knowledge,

imprecise and wooly, value biased, distorting by overemphasizing the static and underemphasizing the dynamic elements of change in world politics, and narrow-minded. While Lipsey's pitfalls for the unwary are not as devastating a critique as Strange's dragons, he does raise somewhat similar, and just as important, questions about potential research pitfalls that can affect scholars of FDI and multinationals in general, and in this book in particular.

Lipsey divides his paper into four topics: issues of method and interpretation, issues for further research, general issues of policy, and Canadian-specific issues of policy. In terms of methodology and interpretation, Lipsey highlights several possible dragons: language as a barrier to continuity, what theoretical models can (and cannot) tell us, internally driven versus externally driven research programs, how scholars deal with awkward facts, what we can learn from single-equation regressions, and the impact of how quantitative measures are reported. In terms of items for further research, he identifies four: industrial organization, outsourcing, factor price equalization, and total factor productivity. Four general public policy issues are identified and discussed (NGOs, competitive bidding for plants, competition policy and dealing with human capital). Lipsey's paper concludes with five Canadian-specific policy issues: small country problems, the decline in Canadian inbound FDI, relative efficiencies of foreign-controlled versus domestic-controlled management, Ontario's dependence on autos, and the need to rethink microeconomic policy in Canada.

CONCLUSION

This volume began with an innocent question at another conference, 'How is Ed Safarian?' The response to this question posed by one of the editors included reference to the approach of Ed's eightieth birthday. That conversation led to a celebratory conference in 2004 honoring Safarian and his work, and to the book you now hold in your hands. Conferees honoring Safarian included some of the world's leading scholars on multinationals. They contributed enriching and intellectually stimulating papers on governance, multinationals and growth to this book that make significant progress in our understanding of these issues.

While the book is aimed primarily at graduate students and faculty in business schools and economics departments that focus on international business, we believe public policy makers and corporate executives will also find it worthwhile reading material. We are confident this volume will prove worthy of Edward Safarian's pioneering efforts in the study of multinationals and foreign direct investment.

REFERENCES

- Safarian, A. Edward (1959), *The Canadian Economy in the Great Depression*, Toronto, Canada: University of Toronto Press.
- Safarian, A. Edward (1966), *Foreign Ownership of Canadian Industry*, Toronto, Canada: McGraw-Hill of Canada.
- Safarian, A. Edward (1974), *Canadian Federalism and Economic Integration*, Ottawa, Canada: Privy Council Office, Government of Canada.
- Safarian, A. Edward (1983), *Governments and Multinationals: Policies in the Developed Countries*, Toronto, Canada: British–North America Committee.
- Safarian, A. Edward (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot, UK: Edward Elgar.
- Strange, Susan (1982), 'Cave! hic dragons: a critique of regime analysis', *International Organization*, **36**(2): 479–496.
- Vernon, R. (1998), *In the Hurricane's Eye: The Troubled Prospects of Multinational Enterprises*, Cambridge, MA: Harvard University Press.

2. How to thrive in an international economy

A. Edward Safarian

My research and teaching interest throughout my career has been the question of optimum national policy development in a small open economy. How best can a relatively small country thrive and pursue its objectives while being part of an international economy and while living next to a very large and dynamic neighbour? That question led to four related studies over the years.

I was drawn to economics because of my curiosity and concern about the buffeting Canadians took in the Great Depression of the 1930s. The world economy prior to World War I had been highly internationalized in ways we have only managed to achieve again in recent decades. That internationalization was shattered by a decade of depression and a decade or more of war and reconstruction.

My doctoral thesis and related published work was on the sharp collapse and relatively slow recovery of Canada's economy in the 1930s (Safarian, 1959). While influenced by Keynes, the work was more clearly Schumpeterian. It was decidedly in the field of real business cycles. I am not impressed by the kind of monetarist thinking so dominant about this period. Such thinking explains little about the decade of agricultural drought reflecting policy decisions made many years earlier on settlement and transport, or the huge overinvestment in a number of major growth sectors such as power, railways, newsprint and automobiles.

Within a few years of the collapse, for example, the entire capacity in the newsprint industry was bankrupt. It was not until the mid 1950s that automobile production approached the capacity of the late 1920s. In the case of the railways, the government's decision in 1923 to merge a number of bankrupt lines and assume all the debt had two major effects. The competition between the public and the private firms greatly expanded capacity in rail and related investment in the 1920s. With the decline, the public railway debt payments rose to 10 per cent of national income, largely paid abroad in Canadian or foreign currencies at the option of the lender. Canada did not have a central bank until 1935, and the foreign debt complication just

noted made devaluation of the exchange rate problematic. These path-dependent problems were in addition to the egregious public policy thinking and errors late into the 1930s. Of course, the international collapse meant depression was unavoidable. Nevertheless, public policy decisions over several decades were critical to the relative severity of the collapse and slowness of recovery.

During this research, a number of gaps in information on the foreign-owned sector of Canadian industry became evident. My first journal publication on the subject was on the extent of foreign financing of Canadian industry (Safarian and Carty, 1954). A study for the Royal Commission on Canada's Economic Prospects allowed exploration, in a preliminary way, of both the determinants of such financing and the meaning and effects of foreign control of industry (Brecher and Reisman, 1957, part II). I realized I needed to start from scratch, that is, to use interviews, then questionnaires, to develop and analyze data on the operations of foreign-owned firms and of their Canadian-owned counterparts.

This substantial effort was almost derailed at the start, when the newly formed Canada Council declined initially to help finance it. The reviewers expressed their puzzlement at my wanting to study a topic on which there was virtually no journal literature. This research subsequently gained considerable publicity, even notoriety in some quarters, leading the Director of the Canada Council to ask me why I had turned to US sources for financial support.

The resulting study (Safarian, 1966) dealt with a number of issues such as the relationship between parent and subsidiary managers, subsidiary trade, creation and transfer of knowledge, finance, efficiency of subsidiaries, and how nationality of ownership affected performance. It was the last issue that caught the attention of researchers and the broader public, notably the frequent similarity of the performance of the foreign-owned and Canadian-owned firms. There were some obvious differences, for example, a higher propensity to import by the former. Nevertheless, the similarities stood out in such matters as exports and R&D (research and development), as well as the highly fragmented and inefficient structure of subsidiary production relative to the parent. The common Canadian view, namely that subsidiary performance measured by such tests was inferior to that of independent Canadian firms, did not hold up well. This was particularly interesting because the findings in other countries pointed to superior performance in several respects by US-owned firms (Safarian, 1969). How Canada came to emasculate the potential benefits of FDI (foreign direct investment) is a story that was better told by researchers such as Harry Eastman and Stefan Stykolt (1967), and Rick Harris (1983). I thought that extensive and extended protection was one reason for the inefficient outcomes, and that

buying out the foreign firm was inferior to focusing on freeing up trade and on improving Canadian capabilities to undertake investment, broadly conceived. Nor was I surprised that some of my findings differed from tests made later, since both the international context and the organization of MNEs had changed in the meantime.

Policy failure, at least in economic terms, had raised a number of questions about the institutions within which both public and private decisions were made. The most fundamental of these is the constitution of a country. Fortuitously, at this time the Privy Council Office asked me to consider what would be the optimum division of economic powers between the federal and provincial governments, assuming the objective was to improve economic welfare. My focus was on the regulatory powers. International economic theory was useful in this research, even when objectives other than wealth maximization were taken into account, given the barriers to the internal movement of goods, labour and even capital imposed by both levels of government and given the possibly incomplete nature of the federal treaty power. One example, which is still relevant, is the provincial licensing of the professions and skilled trades, which at times appears to go well beyond the preservation of standards to act as restrictions on labour mobility. Since formal constitutional reform is difficult, attempts to correct such situations would have to depend on intergovernmental agreement or on further court tests of the interprovincial, international and general trade powers.

I thought that *Canadian Federalism and Economic Integration*, published in 1974, was one of my more innovative efforts but was not very successful in convincing others. The issues involved keep resurfacing – currently in terms of the desirability of a national securities commission, for example – but have receded somewhat since an Internal Market Agreement was negotiated. Among other things, this agreement offers a dispute settlement process, but one whose decisions can be vetoed by governments.

The study attracted some interest from political science and law, but little from economics. Some of those who took it seriously noted that barriers between countries were larger than internal barriers, which is a separate issue, and that the measured welfare losses are small. I believe the measurement question is still open – the models used incorporate only some of the barriers, and do not deal well with the presence of imperfect competition and dynamic gains from trade and investment (Whalley, 1996).

There is useful work to be done here, because many domestic and international issues in Canada can only be understood by considering the federal–provincial aspects. In particular, my work on regulation could be extended to incorporate the possibly much larger losses incurred on the fiscal side by excessive competition between provincial and federal governments. It might be useful to model this as oligopoly with a fringe of smaller

competitors, for example Canada, as against monopolistic competition among US states. The former has the characteristic that outcomes are less certain, and that rents, as well as the competition for them, are more likely. Some of the theories developed in the US context need to be modified if applied here. One such theory puts the gains from responsiveness of governments to the demand for variety, on the one hand, against any trade gains, on the other. It is possible in many of the more highly populated parts of the United States to live in one state and work or shop (or both) in another. Try that anywhere in Canada, except Ottawa–Hull! Canada's major population centres are almost all a long way from the provincial borders or each other. In any case, decentralization to allow for diversity would presumably go well below the provincial level in principle. For example, in a province with the size and variety of Ontario, many uniform policies serve the interests of dense populations in the south, but not communities in the north or northwest.

By now, I had decided to tackle directly the processes involved in determining and executing public policies. The focus was the industrial countries' policies towards MNEs in the period since 1945, with the emphasis on the determinants and the effects of the policies. Once again, it was necessary to resort to interviews with government and company officials as well as intermediaries such as lawyers and financiers, since the published literature said little on the policy processes involved for either governments or firms.

Three of the broader conclusions can be noted (Safarian, 1983, 1993). First, questions of income distribution and rent capture, of electoral pressures, and of attempts to maintain a capacity to make effective policies in critical sectors – all of these loomed as large as or larger than the pursuit of general economic welfare. Second, in relation to the objectives involved, some countries were far more effective than others, for reasons explored at some length. Canada's policy performance does not compare well in this respect relative to several other countries. In Australia, for example, the trade-off between ownership and efficiency in the natural resource sector was more clearly defined, as was the federal government's role *vis-à-vis* the states, and there was much more continuity of policy. Third, policy towards MNEs appeared to be cyclical, so that the liberalization of the 1980s was not likely to be permanent.

Four new books in four decades – thank heavens for tenure! More recent work has concentrated on a number of ways in which FDI relates to economic growth – for example, on spillovers from R&D through trade and FDI (Hejazi and Safarian, 1999), the location decisions of MNEs including the effects of the NAFTA (Safarian and Hejazi, 2001), and the complementarity of trade and FDI (Hejazi and Safarian, 2001).

My criticism of certain Canadian public policies should not be taken as a general critique. There have been particular policies and even particular periods where economic policy has been far more successful. I have always been drawn by equal measures of curiosity and concern about how a society makes its way in an increasingly integrating world. People feel strongly about the appropriate policy approaches, and complexity and controversy abound. Where does academic research fit in this more public arena?

There is a fascinating exchange on strategic trade policy in Dan Treffer's interview of Elhanan Helpman (1999). Helpman agrees that it is important to engage in the public debate on what are valid or invalid economic arguments, but goes on to say that he did not want to get involved in such debate. I can sympathize with him from my own experience of extensive involvement in the debate on FDI in the 1960s and 1970s. Not all of us have the skills or desire for such involvement. Yet I think it is important that some are prepared to so engage and I am grateful for their activity. Canadian economists are fairly active in this respect, including important participation by some of those at this conference.

A final point – I had a lot of help along the way. My wife, Joan, was there for me always, in direct support of my research, in her acceptance of the places I chose to work and of my eccentric work habits.

John Dunning, Ray Vernon and Richard Caves have inspired much of my work on MNEs, from their early studies on. Along the way, I have relied on advice from a number of colleagues, particularly Alan Rugman, Sylvia Ostry, Richard Lipsey and Walid Hejazi. The Economic Growth and Institutions Program of The Canadian Institute for Advanced Research, a program established and led by Dick Lipsey, was a huge inspiration for the past dozen years. The University of Saskatchewan was very supportive of my 1966 volume and the University of Toronto's Department of Economics and Joseph L. Rotman School of Management have nurtured me ever since. I am especially grateful to those who prepared papers for this volume and to the Rotman School, Industry Canada and the Department of Foreign Affairs for their support for the Conference. It is a particular pleasure to recognize the contributions by long-time friends Lorraine Eden and Wendy Dobson, who have done outstanding research on public policy and who know how to communicate it widely.

REFERENCES

- Brecher, Irving and Simon Reisman (1957), *Canada–United States Economic Relations*, Ottawa, Canada: Royal Commission on Canada's Economic Prospects, Queen's Printer.

- Eastman, Harry C. and Stefan Stykolt (1967), *The Tariff and Competition in Canada*, Toronto, Canada: MacMillan Company of Canada.
- Harris, Richard G. with David Cox (1983), *Trade, Industrial Policy and Canadian Manufacturing*, Toronto, Canada: Ontario Economic Council.
- Hejazi, Walid and A. Edward Safarian (1999), 'Trade, foreign direct investment, and R&D spillovers', *Journal of International Business Studies*, **30**(3), 491–511.
- Hejazi, Walid and A. Edward Safarian (2001), 'The complementarity between U.S. foreign direct investment stock and trade', *Atlantic Economic Journal*, **29**(4), 420–37.
- Safarian, A. Edward (1959), *The Canadian Economy in the Great Depression*, Toronto, Canada: University of Toronto Press.
- Safarian, A. Edward (1966), *Foreign Ownership of Canadian Industry*, Toronto, Canada: McGraw-Hill of Canada.
- Safarian, A. Edward (1969), *The Performance of Foreign-Owned Firms in Canada*, Montreal, Canada: Canadian–American Committee.
- Safarian, A. Edward (1974), *Canadian Federalism and Economic Integration*, Ottawa, Canada: Privy Council Office, Government of Canada.
- Safarian, A. Edward (1983), *Governments and Multinationals: Policies in the Developed Countries*, Toronto, Canada: British–North America Committee.
- Safarian, A. Edward (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot, UK: Edward Elgar.
- Safarian, A. Edward and E. Bower Carty (1954), 'Foreign financing of Canadian investment in the post-war period', Proceedings of the Business and Economic Statistics Section, *American Statistical Association*, 72–79.
- Safarian, A. Edward and Walid Hejazi (2001), *Canada and Foreign Direct Investment: A Study of Determinants*, Toronto, Canada: University of Toronto Centre for Public Management.
- Trefler, Daniel (1999), 'An interview with Elhanan Helpman', *Macroeconomic Dynamics*, **3**(4), 571–601.
- Whalley, John (1996), 'Interprovincial barriers to trade and endogenous growth considerations', and 'Comment' by Robin Boadway in Peter Howitt (ed.), *The Implications of Knowledge-Based Growth for Micro-economic Policies*, Calgary, Canada: University of Calgary Press, pp. 163–85.

PART II

Corporate Governance, Multinationals and Growth

increased in Europe and Asia over the last 20 years, in North America only intra-regional trade has increased. In contrast, intra-regional FDI has fallen in North America. To this extent, Canada is an unusual case. Back in the 1960s, Canada was the world's largest recipient of inward FDI (from the United States), so a large stock of FDI and foreign control was built up. As Canada reduced barriers to FDI, starting with the 1985 abolition of the Foreign Investment Review Agency, the US inward FDI flows slowed up as US firms could do business with Canada through trade.

NORTH AMERICAN MULTINATIONALS

The unit of analysis in this chapter is the multinational enterprise (MNE). The 500 largest MNEs dominate international business, accounting for over 90 per cent of the world's stock of foreign direct investment (FDI) and about half of world trade (Rugman, 2000). In a North American context, there are 197 US- and 16 Canadian-owned MNEs in the top 500, as shown in Table 3.1. Canada's entry into the top 500 has increased, having been only six in 1996 and nine in 1991. The 'core' triad of the United States, EU and Japan accounts for 428 of the top 500 in 2001, and for even higher numbers in previous years; see Table 3.1. Since the Canada–US Free Trade

Table 3.1 The world's largest 500 multinational enterprises

Country	1981	1991	1996	2001
United States	242	157	162	197
European Union	141	134	155	143
Japan	62	119	126	88
Canada		9	6	16
South Korea		13	13	12
China			3	11
Switzerland		10	14	11
Australia		9	5	6
Brazil		1	5	4
Others	55	48	11	12
Total	500	500	500	500
Triad total	445	410	443	428

Note: This table reports the home country (or region) of each firm, as registered in its Annual Report.

Source: Compiled and adapted by the author from various issues of *Fortune: The Global 500*.

Agreement (FTA) of 1989 and the North American Free Trade Agreement (NAFTA) in 1993, it is appropriate to combine the Canadian and US MNEs into the 'broad' triad region of North America. The other regions in the broad triad are the EU and Asia. The broad triad then accounts for all but one of the top 500 MNEs.

It has been apparent for some time that the triad (either core or broad) of regional MNE activity needs to be the focus of theories of international business and related strategic management and public policy concerns (Rugman, 1981). The aggregate data on FDI and trade complement the MNE firm-level data showing that the majority of world economic activity is intra-regional, rather than global (Rugman, 2000). As shown later in Table 3.2, all three regions of the broad triad have a majority of the exports as intra-regional (62 per cent for the EU; 56 per cent for NAFTA; and 56 per cent for Asia). A similar story exists for stocks of FDI, with the exception of NAFTA, as discussed below.

What does this mean for Canada? The worldwide prevalence of intra-regional trade, FDI and MNE activity indicate that Canadian business is part of the North American business sector, which, in turn, is part of a world of regional, triad activity. Long ago, Safarian recognized the strong interdependence of the US and Canadian economies (Safarian, 1966). He argued that the performance of FDI was more important than its ownership. Analysis of the economic efficiency of MNEs needed to be on the table rather than just the issues of distribution and ownership of concern to Canadian economic nationalists.

SAFARIAN AND FOREIGN CONTROL OF CANADIAN INDUSTRY

To an extent, Safarian was ahead of his time. Only in the last 15 years (since the debate on the FTA) has mainstream Canadian public opinion caught up with the economic reality of North American interdependence recognized by Safarian. In only the second serious economic analysis of inward FDI into Canada, Rugman (1980) independently confirmed the net economic benefits of US FDI in Canada, at a time when the country was consumed by the operations of the Foreign Investment Review Agency (FIRA) implemented in 1975 due to the economic nationalism of the Trudeau–Broadbent axis of the 1972–74 minority Liberal government. This was a legacy of the economic consequences of former Canadian Finance Minister, Walter Gordon, which had led to the Watkins Report (1968) and the Gray Report (1972), both of which recommended an agency to screen inward FDI to assess its net economic benefits to Canada.

At the height of Canadian economic nationalism in the late 1960s and early 1970s, Ed Safarian virtually stood alone as a serious analyst of FDI. Confronted by highly articulate and intelligent advocates of Canadian nationalism such as Mel Watkins (1978), Abe Rotstein (1972) and Stephen Clarkson (1985) (all colleagues at the University of Toronto, the hotbed of international political economy in Canada at that time), Safarian relied on the evidence to discredit the widespread fears of foreign control and anti-Americanism of the times.

And what was the evidence? As shown in Safarian (1966), the threat of US foreign control of the Canadian economy was not confirmed by the data. Only in sectors such as energy was there majority foreign control. In manufacturing, US control of Canadian manufacturing was never over 50 per cent. Further, the US share of foreign control (although the largest) was not 100 per cent of foreign ownership. (The advocates of Canadian nationalism frequently used total foreign ownership instead of the US component.) Finally, the US control of the key sectors of Canadian economy (such as petroleum and mining) was falling over time. It peaked in the 1960s, and by the 1980s it was a relatively insignificant issue.

Essentially, Safarian was well aware of these points long ago. In Safarian (1966) he has both aggregate data and the detailed results of a long questionnaire on FDI in Canada. He includes small firms in his study, in contrast to my focus on the large MNEs. In Safarian (1993), Table 6.10 (p. 117), it is reported that the US control of capital employed in manufacturing in Canada fell from a peak of 47 per cent in 1969, to 36 per cent in 1981, and 35 per cent in 1990. Even more startling was the decrease in other sectors. In petroleum and natural gas it fell from 60 per cent in 1969, to 30 per cent in 1981, and 33 per cent in 1990. In mining and smelting it fell from 59 per cent in 1969, to 27 per cent in 1981, to only 9 per cent in 1990. As a public policy issue, foreign control of Canadian industry became redundant over time. In all non-financial industries, US foreign control was only 28 per cent in 1969, 19 per cent in 1981, and 17 per cent in 1990.

It was only in 1987 that the other side of the coin of US foreign control of the Canadian economy was examined. In a path-breaking public policy analysis of the dramatic increase in Canadian-owned FDI, Rugman (1987) demonstrated that Canada had reversed its dependence on inward FDI. He presented data showing a trend whereby the amount of Canadian FDI in the United States was approaching the amount of US FDI stock in Canada. Given that Canada is one-tenth the size of the US economy, Canada had ten times the amount of bilateral FDI as would be expected. Analysis in Rugman (1987) showed that most Canadian FDI in the United States was driven by the need for market access; Canadian MNEs were doing the same intra-regional activities as US MNEs. Today the data

confirm this. In 2001, the average intra-regional sales of the 16 Canadian MNEs in the top 500 is 74.1 per cent. The average intra-regional sales of 169 US MNEs in the top 500 is 77.3 per cent. The Canadian MNEs are indistinguishable from US MNEs: both are regionally based (this is discussed further in the last section).

Safarian was an adviser for Rugman's (1987) study for the C.D. Howe Institute, sponsored by Wendy Dobson. He advised on the theory and methods and fully supported the articulation of the growth of Canadian MNEs, which became an important selling point of the FTA in the Canadian federal elections of 1988. The focus on the increase in Canadian outward FDI into the United States was partly facilitated by a shift in research emphasis from the older economics departments to the emerging business schools in Canada in the 1970s. (It is perhaps significant that Safarian moved to the University of Toronto Faculty of Management Studies in 1989 upon his retirement from the Department of Economics.) While economists still relied on the more aggregate FDI work and a balance of payments approach to FDI, the business schools used firm-level analysis.

Related work on Canada-US trade and FDI appeared in Rugman (1990). It updated Rugman (1987) and confirmed that Canadian FDI in the United States was growing over the 1975-87 period at twice the pace of US FDI in Canada. Back in 1975, the percentage of Canadian FDI in the United States to US FDI in Canada (in stocks) was 18.7 per cent. Already by 1980 it was 33.7 per cent, by 1984 it was 48.0 per cent, and by 1987, at the start of the FTA, it was 57.6 per cent, Rugman (1990, p. 12). (Related data are discussed later, in Table 3.3.)

The theoretical explanation behind this dramatic reversal in the growth of the bilateral stocks of FDI was that Canadian MNEs needed to access the US market through FDI, as there was not free trade. Investing in a US business became a huge commitment for Canadian firms who needed to compete with larger US rival firms. However, access to the US market through FDI allowed Canadian MNEs to develop continental capabilities, following the example of Northern Telecom, Alcan, Bombardier and Seagram. An earlier explanation of this phenomenon of the growth of Canadian multinationals and Canadian outward FDI appears in Rugman (1985).

At the time of the FTA this information about the growth and maturity of Canadian multinationals was a counterpoint to the popular Canadian concern about US ownership of the Canadian economy. Building on Safarian (1966), Rugman (1990) found that US foreign control of Canadian industry decreased from 28.4 per cent in 1970 to 21.9 per cent in 1985. In manufacturing, US control fell from 46 per cent in 1970 to 39.8 per cent in 1985 and, in petroleum, from 77.0 per cent in 1970 to 39.6 per cent in 1985. These two events, the decline of US foreign control of Canadian industry,

coupled with the dramatic increase in Canadian FDI in the United States, reduced and alleviated Canadian concerns about US economic domination. These two trends indicated that Canadian business was capable of capturing an increased relative share of the North American business system.

The microeconomics industrial organization and transaction cost economics (TCE) approach to FDI was adapted by economists such as Buckley and Casson (1976), and Caves (1971, 1982). The resulting theory of internalization was first applied in a Canadian context in Rugman (1980), where the focus was mainly on inward FDI. By the time that Canada's 20 largest MNEs were examined in Rugman (1985), internalization theory was better understood, and it was possible to identify the firm-specific advantage of Canadian MNEs – basically in the marketing and managerial skills associated with the exploitation of country-specific advantage in natural resource-based products. I now turn to a more detailed discussion of the theoretical models available to Safarian (1966) and subsequently developed in the literature on FDI. I pay particular attention to internalization theory and its applications to Canadian business (Rugman, 1980, 1981, 1985).

FOREIGN OWNERSHIP AND THEORY

In the new Preface to his second edition of his classic book, Safarian states that the book 'was less analytical than one would want' (Safarian, 1973, p. xv). Here Safarian is too modest. The 1966 book is based on the conventional economic analysis of the time: a quantitative study of the aggregative net economic benefits of FDI, using the MacDougall (1960) benefit and costs of FDI approach. The questionnaire developed by Safarian is designed to quantify the efficiency aspects of FDI, and it is comparable to the unique earlier work of Dunning on the benefits and costs of US FDI in British manufacturing industry (Dunning, 1958).

Only in retrospect can it be seen that Safarian (1966) failed to bring to bear the insights of the theory of the firm as applied to MNEs, especially internalization theory. This is not surprising, as Buckley and Casson did not publish a coherent explanation of internalization theory until 1976. Further, Safarian's own doctoral student, McManus, did not publish his own insightful version of the TCE approach to MNE until the 1970s (McManus, 1972). As discussed in Safarian (2003), the brilliant work of McManus has been almost entirely ignored in the development of the theory of the MNE, with the work of Buckley and Casson (1976), Dunning (1980), Rugman (1981) and Hennart (1982) being more influential, as measured by citation counts and impact on the literature.

However, I do not see that Safarian's work of 1966 is any less valuable because of its neglect of firm-level internalization theory. In essence, the aggregative net benefits balance of payments approach and internalization theory both analyze the efficiency aspects of MNEs. As guides for public policy, the approaches are complementary and reinforcing. Indeed, internalization theory come to the same conclusions as Safarian (1966): MNEs are best judged by their performance, not their ownership.

Safarian's empirical work and analytical methods are also consistent with the more recent work on Canadian competitiveness. This was first initiated in Canada by Rugman and D'Cruz (1991). Subsequently it was somewhat popularized for Canadian business by Michael Porter and the Monitor Company in a misapplication of the Porter (1990) single country diamond framework, instead of the more empirically relevant and theoretically correct double diamond framework of Rugman and D'Cruz (1991). Canada's managers achieve competitiveness, not by building on the Canadian diamond alone, but by developing a double diamond analysis of both the US and Canadian diamonds, and by operating on a North American basis. The issue of foreign control and international competitiveness was first discussed in Rugman and Waverman (1991), where a double diamond framework was used.

Missing from Safarian (1966) was an explicit understanding of the importance of 'clusters' in building competitiveness although he was clearly aware of the significance of the auto sector, which has accounted for about one-third of US-Canadian trade throughout the last 40 years. In his questionnaire Safarian (1966) included small and medium-sized firms (SMEs). Today, these SMEs are usually involved in the clusters led by the large MNE 'flagship firms', as modeled by Rugman and D'Cruz (2000). In general the SMEs are even more local and intra-regional in their sales, R&D and other economic attributes than are the larger MNEs which, themselves, average about 75 per cent of their sales as intra-regional.

A related finding in Safarian (1966) was that R&D expenditures by foreign subsidiaries were as high as those by Canadian-owned firms. This point was re-tested and confirmed by Rugman (1981) for the large MNEs (Safarian included smaller firms). Rugman (1981) found that the US subsidiaries only did half as much R&D as their parents, on average, but the same amount as Canadian-owned firms. There was a country effect rather than an ownership effect. Canada had half the R&D of the United States (mainly as it had a relatively minor military sector).

I now turn to further analysis of North American economic integration, often described by Canadian nationalists as 'continentalism'. I show that North American continentalism is simply a consequence of the conventional international economic activity in today's three regions of the triad. It represents the same type of intra-regional activity as in Europe and Asia.

CONTINENTAL ECONOMIC INTEGRATION

Since 1994, when the North American Free Trade Agreement (NAFTA) came into effect, the economies of Canada and Mexico have become increasingly dependent on the larger US economy. Indeed, NAFTA's economic integration is growing at a faster rate than that of the EU.

Data on intra-regional and, more specifically, Canada–US economic integration allow us to examine a number of effects of FTA and NAFTA. First, free trade of goods and services has resulted in an increase in intra-regional trade in NAFTA, and this has occurred at a faster rate than integration in the EU or Asia. Second, free trade has not resulted in an increase in bilateral FDI. Instead, there has been a decrease in intra-regional FDI in NAFTA as a percentage of total FDI. The institution of NAFTA has led to a shift from FDI-based integration to trade-based integration.

Canada's dependence on the US market is well known. In 2002, 87.7 per cent of Canada's exports went to the United States (up from 76 per cent in 1991). In 2002, 23.2 per cent of all US exports went to Canada (see Rugman and Hodgetts, 2003, p. 513). Back in 1991, US exports to Canada were 20.2 per cent, and in 1981 they were 16.9 per cent of all US exports. Mexico is slightly more dependent on the United States as a market for its exports. In 2002, 89.4 per cent of Mexico's exports were destined for the United States (up from 79.5 per cent in 1991). US exports to Mexico for 2002 were 14.1 per cent of the total (up from 7.8 per cent in 1991). The data are discussed in greater detail in Rugman (2004).

Table 3.2 displays the recent increase in trade in all three regional blocks of the triad. Intra-regional trade in NAFTA as a percentage of total trade grew by an average of 2.3 per cent per year from 33.6 per cent in 1980 to 56.0 per cent in 2002. The EU and Asia, in turn, grew at the lower rates of 0.7 per cent and 1.6 per cent per year, respectively over the period. Over the last five years of available data, percentage intra-regional trade by NAFTA countries increased at a higher rate of 2.7 per cent per year. In contrast, the EU's rate of trade integration decreased to 0.1 per cent per year, and in Asia, there was actually a reduction in percentage intra-regional trade over the same period.

In contrast to the increase in intra-regional trade between Canada and the United States, the intra-regional FDI has been falling relative to FDI with non-NAFTA countries. As can be seen in Table 3.3, the percentage of intra-regional FDI in NAFTA declined from 30.2 per cent in 1986 to 18.4 per cent in 2000.

The main reason is that there has been a decrease in the percentage of US FDI to Canada, as discussed below. This decrease in the proportion of US FDI in Canada is a puzzle which merits more attention than has been paid

Table 3.2 *Intra-regional trade in the triad, 1980–2002*

Year	Intra-regional exports (%)		
	EU	NAFTA	Asia
2002	61.0	56.0	50.0
2000	62.1	55.7	55.7
1997	60.6	49.1	53.1
1980	52.1	33.6	35.3
Cumulative average annual change			
1980–2002	0.7	2.3	1.6
1997–2002	0.1	2.7	(1.2)

Note: For an explanation of the methodology used in calculating these data on intra-regional trade and FDI stocks, see Rugman (2000), ch. 7.

Source: IMF, *Direction of Trade Statistics Yearbook, 1983–2002*.

Table 3.3 *Intra-regional FDI in the triad, 1986–2000*

Year	Intra-regional outward FDI (%)		
	EU	NAFTA	Asia
2000	42.5	18.4	18.0
1999	45.7	18.2	26.2
1997	49.3	21.1	28.4
1986	35.8	30.3	20.5

Note: As for Table 3.2.

Source: OECD, *International Direct Investment Statistics Yearbook, 2001*.

to it, although a similar result appears in Safarian and Hejazi (2001) and in Hejazi and Safarian (2002). Safarian and Hejazi (2001) found that inward FDI into Canada has been falling in the 1990s, while outward FDI from Canada has been increasing. In a more recent study Hejazi and Safarian (2002), using a gravity model for trade and an augmented gravity model for FDI, found that NAFTA has led to less FDI between Canada and the United States, but to more intra-regional trade. Hejazi and Pauly (2003) also find that US MNEs are now better able to serve the Canadian market by trade rather than FDI. These studies are entirely consistent with the data and analysis in this chapter.

The NAFTA decrease in intra-regional FDI is almost entirely due to changes in the US–Canadian economic relationship. Canada’s public policy was very critical of US foreign ownership in the 1970s and early 1980s (Safarian, 1993; Rugman, 1980, 1990). Back in 1986 there were still major barriers to intercontinental business. In 1980 to 1981, following Canada’s discriminatory National Energy Program, there was a huge withdrawal of US FDI in energy-related goods and services. In fact, this was the largest single outflow of FDI in any sector in world history (Rugman, 1990). Not until the Mulroney government abolished the Foreign Investment Review Agency in 1985 was a strong signal sent welcoming US FDI in Canada. As the US–Canada investment relationship became solidified, many US MNEs chose FDI over trade to access the Canadian market. The Canada–US Free Trade Agreement of 1989 and NAFTA in 1994 served to open up both markets to trade, thereby reducing the need for FDI to overcome trade barriers.

Data from the US Survey of Current Business (US Department of Commerce, 2002) report only 10.0 per cent of the US outward stock of FDI was in Canada in 2000, compared to 20.9 per cent in 1982 (and 16.7 per cent in 1989 at the start of the FTA and 12.1 per cent in 1994 at the start of NAFTA). The US stock of FDI in Mexico was 3.8 per cent in 2002, up from 2.8 per cent in 1994, at the start of NAFTA. Canada has very little FDI in Mexico, and Mexico has little in the rest of NAFTA.

Table 3.4 relates Canada’s FDI stock in the United States to the US stock in Canada. The former has continued to grow at 10.4 per cent per year, higher than the US rate of 7.0 per cent per year. As a result the ratio of Canadian FDI in the United States to US FDI in Canada has continued to increase. In 1985 it was 36 per cent and by 2002 it had risen to 60 per cent. These data are from a US source which actually understates the ratio, compared to Statistics Canada data used in Rugman (1990), where these ratios are much higher. The reason, as discussed in Rugman (1987, 1990), is that the Canadian-based data evaluate the Canadian stock of FDI in the United States as about 50 per cent greater than the US evaluation, due to different methodological approaches.

In addition, the United States has increased its FDI position in the EU and Asia at the expense of Canada, as barriers to trade remain relatively stronger in these other parts of the triad. By 2000, the US stock of FDI in Europe was 52.1 per cent of its total (up from 44.5 per cent in 1982); in Asia it was 16.0 per cent (up from 13.6 per cent in 1982).

In terms of worldwide FDI stocks, OECD (2000) data support this analysis. By 2000, the US stock of FDI in the EU was up to 46.1 per cent (from 38.0 per cent in 1986); in Asia it was at 12.8 per cent (up from 10.3 per cent in 1986). In contrast, the US stock of FDI in the rest of NAFTA

Table 3.4 *Bilateral stocks of US foreign FDI: Canada and the United States, 1985–2002 (millions of US\$)*

Year	Canada's FDI position in the US 1	US FDI position in Canada 2	Net position [(1) – (2)]	(1)/(2)
1985	17 131	47 934	(30 803)	0.36
1990	29 544	69 508	(39 964)	0.43
1995	45 618	83 498	(37 880)	0.55
2000	114 309	132 472	(18 163)	0.86
2001	102 127	141 781	(39 654)	0.72
2002	92 041	152 522	(60 481)	0.60
Average % change (1985–2003)	10.4	7.0	4.0	3.1

Sources: Adapted from BEA, *Survey of Current Business*, May 2004, June 2002; June 1999 and July 1996. Data are on a historical-cost basis.

(Canada and Mexico) was 13.0 per cent in 1999 compared to 21.3 per cent in 1986. For Canada, its stock of FDI in NAFTA (almost entirely in the United States) in 2000 was 52.2 per cent compared to 68.7 per cent in 1986, 58.3 per cent in 1991 and 53.1 per cent in 1996. In 2000 Canada's stock of FDI in the EU was 18.5 per cent; in Asia it was 6.4 per cent.

We can also review Canada's FDI stock in the United States alone, not across NAFTA. In 2000, the Canadian stock in the United States was 51.1 per cent (as compared to 52.2 per cent in NAFTA, including Mexico with the United States). Other than a small increase in 1998, the 2000 figure reverses a steady decrease in Canada's share in the United States, which fell from 68.3 per cent in 1986 to 63.0 per cent in 1989 (with the FTA) and to 53.3 per cent in 1994 (with NAFTA). Rather than this relative decrease being offset by a marked increase in FDI to the other two triad regions of the EU and Asia, most of the Canadian FDI no longer going to the United States instead appears to be going into tax havens (listed as 'other'), which accounted for 22.1 per cent of Canada's FDI in 1999.

The data presented in the above tables indicate a pattern of increased intra-regional trade but decreased intra-regional FDI over the last 20 years. Similar trends exist in the EU; however, there is increasing inter-regional FDI between the EU and NAFTA. The latter is part of the regional 'triad' effect of large MNEs operating mainly within their home-market triads of NAFTA, the EU and Asia (Rugman, 2000), but also seeking to access each

other's triad markets. The data indicate that MNEs are strongly home-triad market based.

The service/manufacturing composition of international business between the countries and the provisions of NAFTA have also affected recent bilateral trade and FDI trends between the United States and Canada. In manufacturing, automobiles, auto parts, transportation equipment and affiliated industries account for a third of all US–Canada trade. If other industries in the chemicals, plastics, steel and other manufacturing sectors related to automobiles are included, the automobile sector probably accounts for half of all US–Canada manufacturing trade. The Canada–US Free Trade Agreement and NAFTA increased the extent of bilateral trade, including that in the automotive sector, and by doing so, removed the need to engage in as much FDI as before to access each other's markets. Moreover, the US–Canada automotive relationship prior to NAFTA resulted in FDI that already largely met the logistic plans of automotive manufacturers in the trans-border auto cluster. In contrast, in services, no individual sector dominates trade or FDI. A very large portion of services needs to be produced and consumed locally, making trade in services very difficult to achieve. Indeed, most services are acquired by FDI, not through trade. US FDI to Canada in services, furthermore, is hindered by exemptions from national treatment under NAFTA. These services include banking, healthcare, culture (including newspapers, book publishing and other media) and transportation. Overall, US FDI to Canada has been declining in both manufacturing and service sectors, relative to trade.

FIRM-LEVEL DATA ON INTRA-REGIONAL BUSINESS

A final complement to this aggregate data on intra-regional trade and FDI comes from looking into firm-level data. The largest 500 MNEs in the world account for well over 90 per cent of the world's stock of FDI and over half of the world's trade (Rugman, 2000). In a recent analysis of the intra-regional sales of the largest 500 MNEs it was found that 320 of the 380 for which data were available had a majority of the sales (80 per cent) in their home region of the triad (Rugman and Brain, 2003; Rugman and Verbeke, 2004).

Of the largest 500 MNEs, only nine were 'global' in the sense of having at least 20 per cent of their sales in each of the three parts of the triad; these include IBM, Sony and Nestlé. Another 25 are bi-regional, with 20 per cent of the sales in two parts of the triad and under 50 per cent in the home triad; these include BP, Toyota, Nissan and Unilever. A final set of 11 MNEs are

host-region oriented; these include Daimler–Chrysler, ING, Royal Ahold and Honda. Overall, this is confirmation of the importance of doing business in the home region of their triad, and it supports a focus on NAFTA for Canadian-based firms.

In a related study all 49 retail MNEs in the world's largest 500 were examined, including Wal-Mart, which is currently the largest MNE. It has 94 per cent of its sales in NAFTA. Only one of these 49 MNEs is 'global' in the above sense. This is LVMH, the luxury goods retailer (Rugman and Girod, 2003).

CANADA'S REGIONAL MULTINATIONALS

Table 3.5 lists Canada's 16 multinationals in the world's top 500 arranged in decreasing order by total sales. Of these multinationals, the vast majority, 14, are home-region based, defined as firms with over 50 per cent of their sales in North America. None of these 16 Canadian MNEs is 'global'. They do not have at least 20 per cent of their revenues coming from each region of the triad.

At best, two Canadian multinationals are bi-regional. These are Bombardier and Alcan. Bombardier has over 90 per cent of its sales in North America and Europe. Even then, with over 50 per cent of its sales in North America, it is better classified as a home-region-based MNE. This leaves Alcan with 41.1 per cent of sales in North America and 39.6 per cent in Europe as Canada's only true bi-regional MNE.

Foreign-owned firms in Canada (such as Ford Canada) are also intra-regional. Unfortunately, we cannot obtain data on the intra-regional sales of these subsidiaries of US multinationals, but most of these sales are to the United States. We know that Ford Canada has 68 per cent of its sales outside of Canada; Pratt and Whitney Canada has 85 per cent outside of Canada, and Cargill has 70 per cent outside of Canada. At the very least these foreign-owned firms in Canada have a majority of their sales in North America.

The average intra-regional sales for Canada's top 16 multinationals is 74.1 per cent. The comparable figure for the largest 169 US multinationals is 77.3 per cent. Clearly, Canada's dominant firms are just as focused on their home NAFTA region as are US ones. Canadian firms, and foreign-owned firms in Canada, are not in any fundamental sense global; they are regional.

Canadian and US multinationals now inhabit a common North American economic space. The 16 Canadian multinationals and the 169 US multinationals in the top 500 average about 75 per cent of all their sales

Table 3.5 The intra-regional nature of Canadian MNEs

500 Rank	Company	Revenues in bn US\$	F/T sales	% intra-regional	North America % of total	Europe % of total	Asia Pacific % of total
263	Nortel Networks	18.5	94.6	54.4	54.4 ^a	na	na
299	Royal Bank of Canada ^q	16.5	28.3	71.7	71.7 ^b	na	na
318	George Weston	15.9	10.5	100.0	100.0 ^a	–	–
327	Onex	15.4	77.0	65.0	65.0 ^a	22.0	na
339	BCE	14.9	14.7	90.5	90.5 ^a	na	na
360	Bombardier	13.9	92.2	60.7	60.7 ^a	30.9	4.5
361	Canadian Imperial Bank of Commerce ^q	13.9	39.8	79.7	79.7 ^a	na	na
366	Bank of Nova Scotia ^q	13.7	35.9	71.2	71.2 ^a	na	na
387	Toronto Dominion Bank	13.6	28.5	86.6	86.6 ^a	na	na
408	Alcan	12.6	95.4	41.1	41.1 ^a	39.6	13.9
432	Power Corp. of Canada	11.9	32.4	100.0	100.0 ^a	–	–
435	Transcanada Pipelines ^q	11.7	37.6	74.7	74.7 ^a	na	na
449	Bank of Montreal ^q	11.2	46.5	70.7	70.7 ^a	na	na
456	Magna International	11.0	67.2	67.9	67.9	31.5	na
465	Sun Life Financial Services	10.9	76.9	83.5	83.5 ^a	12.4	2.8
483	Manulife Financial ^q	10.5	70.3	71.1	71.1 ^a	na	20.1

Notes: Data are for 2001.

^a includes only US and Canada.

^b refers to Canada only.

^q refers to individual notes:

Royal Bank of Canada: revenues are estimated using gross revenues as reported in the Annual Report.

Canadian Imperial Bank of Commerce: revenues are estimated using total revenues as reported in the Annual Report.

Bank of Nova Scotia: revenues are estimated using income figures as reported in the Annual Report.

Transcanada Pipelines: data do not include Canadian sales for export, which might be intra-regional.

Bank of Montreal: estimated using net income business mixed as reported in the Annual Report.

Manulife Financial: data are estimated using sales by division (US, Canada, Asian) as reported in the Annual Report.

in North America. As both sets of multinationals depend for their success on the North American market (Canada is only one-tenth the size of the US market), Canadian multinationals in particular need to focus on bilateral issues, such as access to the US market, on NAFTA, and on border security measures, rather than on the WTO, and other multilateral agendas. Canada's business is in bed with the United States, and its interdependence shows no signs of decreasing.

Yet, under the Chrétien government, especially in its lack of support for US policy in Iraq, there was a flourishing of anti-American sentiment and actions. This can only penalize Canadian business interests in its largest market. While Canadian multinationals are just as locked into the North American market as are US multinationals, there is still a border with asymmetric policy implications. This political uncertainty can be a barrier to economic success, especially for Canadian firms needing market access. Canadian business needs to work to achieve better relations with the United States to deepen NAFTA.

The new political reality in the United States is that September 11, 2001 has changed both multilateral and bilateral government policy. The priority for the United States is its national security. As the Iraq war has illustrated, the United States places its unilateral security ahead of the slow multilateral political process at the United Nations. Canadians may not like this, but they must be realistic about it, and business needs to be responsive to this new reality.

One way to do this is for Canada to link security issues to the economic integration of NAFTA. Canada needs more border measures like the 'Smart Border' declaration and action plan of September 2002. As part of this agreement between the Canadian Prime Minister and President George W. Bush, multinational firms like General Motors, Ford and others have assumed responsibility for trans-border shipments. They certify the truck drivers and seal the contents of their containers, thereby gaining faster access through border crossings. Logically, this privatization of national security could be extended to the majority of US-Canadian trade, as 90 per cent of it is conducted by as few as 50 firms (Rugman, 1990).

The policy logic of this new reality is that Canada can become a true partner and thus an 'insider' with the United States. Canadian business already operates on a regional basis; the politics need to be adjusted to catch up with this. One bargaining chip for Canada is energy. The United States will be seeking even greater energy security in the future. Canada needs to seize the initiative by making plans to develop the Alberta Tar Sands and by arranging long-term contracts with US firms for energy supply. Regional politics need to follow from regional economics.

Overall, the years since Safarian (1966) have seen a continual decline in US control of the Canadian economy; a relative increase in Canadian FDI in the United States; and the partial replacement of US FDI in Canada with free trade. Any residual urge by public policy makers in Canada to respond to the anti-Americanism of Canadian nationalists continues to lack any economic basis in theory or fact. Canadians in general, and Canadian business in particular, enjoy great economic benefits from the intra-regional trade and FDI in the North American region of the world's triad economic system.

NOTE

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REFERENCES

- Buckley, Peter and Mark Casson (1976), *The Future of Multinational Enterprise*, London: Macmillan.
- Caves, Richard E. (1971), 'International corporations: the industrial economics of foreign investment', *Economica*, **38**: 1–17.
- Caves, Richard E. (1982), *Multinational Enterprises and Economic Analysis*, Cambridge: Cambridge University Press.
- Clarkson, Stephen (1985), *Canada and the Reagan Challenge*, 2nd edn, Toronto, Canada: Lorimer.
- Dunning, John H. (1958), *American Investment in British Manufacturing Industry*, London: Allen and Unwin.
- Dunning, John H. (1980), 'Toward an eclectic theory of international production', *Journal of International Business Studies*, **11**(1): 9–30.
- Gray Report (1972), *Foreign Direct Investment in Canada*, Ottawa, Canada: Government of Canada.
- Hejazi, Walid and Peter Pauly (2003), 'Motivations for foreign direct investment and domestic capital formation', *Journal of International Business Studies*, **34**(3): 282–9.
- Hejazi, Walid and A.E. Safarian (2002), 'Explaining Canada's changing FDI patterns', mimeo, Rotman School of Management, University of Toronto, June.
- Hennart, Jean-François (1982), *A Theory of Multinational Enterprise*, Ann Arbor, MI: University of Michigan Press.
- MacDougall, G.D.A. (1960), 'The benefits and cost of private investment from abroad', *Economic Record*, **36**: 13–35.
- McManus, John (1972), 'The theory of the international firm', in G. Paquet (ed.), *The Multinational Firm and the Nation State*, Ontario, Canada: Don Mills, Collier-Macmillan, pp. 66–93.

- OECD (1995 and 2000), *International Direct Investment Statistics Yearbook*, Paris: OECD.
- Porter, Michael (1990), *The Competitive Advantage of Nations*, New York: Free Press.
- Rotstein, A. (1972), *Independence: The Canadian Challenge*, Toronto, Canada: McClelland and Stewart.
- Rugman, Alan M. (1980), *Multinationals in Canada: Theory, Performance and Economic Impact*, Boston, MA: Martinus Nijhoff/Kluwer.
- Rugman, Alan M. (1981), *Inside the Multinationals: The Economics of Internal Markets*, New York: Columbia University Press.
- Rugman, Alan M. (1985), *Megafirms: Strategies for Canada's Multinationals*, Toronto, Canada: Methuen.
- Rugman, Alan M. (1987), *Outward Bound: Canadian Direct Investment in the United States*, Toronto, Canada: C.D. Howe Institute.
- Rugman, Alan M. (1990), *Multinationals and Canada-United States Free Trade*, Columbia, SC: University of South Carolina Press.
- Rugman, Alan M. (2000), *The End of Globalization*, London: Random House and New York: Amacom-McGraw-Hill.
- Rugman, Alan M. (2004), 'Intra-regional trade and foreign direct investment in North America', in A. Rugman (ed.), *North American Economic and Financial Integration*, Oxford: Elsevier, pp. 3-16.
- Rugman, Alan M. (2005), *The Regional Multinationals*, Cambridge, UK: Cambridge University Press.
- Rugman, Alan M. and Cecilia Brain (2003), 'Multinational enterprises are global, not regional', *Multinational Business Review*, **11**(1): 3-12.
- Rugman, Alan M. and Joseph D'Cruz (1991), *Fast Forward: Improving Canada's International Competitiveness*, Toronto, Canada: Kodak Canada.
- Rugman, Alan M. and Joe D'Cruz (2000), *Multinationals as Flagship Firms: Regional Business Networks*, Oxford: Oxford University Press.
- Rugman, Alan M. and Stephane Girod (2003), 'Retail multinationals and globalization: the evidence is regional', *European Management Journal*, **21**(1): 24-37.
- Rugman, Alan M. and Richard Hodgetts (2003), *International Business*, 3rd edn, London: Pearson Financial Times/Prentice-Hall.
- Rugman, Alan M. and Alain Verbeke (2004), 'A perspective on the regional and global strategies of multinational enterprises', *Journal of International Business Studies*, **35**(1): 3-18.
- Rugman, Alan M. and Len Waverman (1991), 'Foreign ownership and corporate strategy', in L. Waverman (ed.), *Corporate Globalization through Mergers and Acquisitions*, Calgary: University of Calgary Press, pp. 59-88.
- Safarian, A. Ed (1966), *Foreign Ownership of Canadian Industry*, Toronto, Canada: McGraw-Hill of Canada.
- Safarian, A. Ed (1973), *Foreign Ownership of Canadian Industry*, 2nd edn, Toronto, Canada: University of Toronto Press.
- Safarian, A. Ed (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot, UK: Edward Elgar.
- Safarian, A. Ed (2003), 'Internalization and the MNE: a note on the spread of ideas', *Journal of International Business*, **34**(2): 116-24.
- Safarian, A. Ed and Walid Hejazi (2001), *Canada and Foreign Direct Investment: A Study of Determinants*, Rotman School Centre for Public Management, University of Toronto, Canada.

- US Department of Commerce, BEA (July 1996); (June 1999); (June 2002), *Survey of Current Business*.
- Watkins, Mel (1978), 'The economics of nationalism and the nationality of economics', *Canadian Journal of Economics*, **11**, November Supplement: 87–120.
- Watkins, Mel et al. (1968), *Foreign Ownership and the Structure of Canadian Industry*, Ottawa, Canada: Queen's Printer.

4. Who owns whom? Economic nationalism and family controlled pyramidal groups in Canada*

Randall Morck, Gloria Tian and Bernard Yeung

By force of happy knack of clannish fancy, the common man is enabled to feel that he has some sort of metaphysical share in the gains which accrue to businessmen who are citizens of the same 'commonwealth'.

(Thorstein Veblen, *The Theory of the Leisure Class*, 1899)

INTRODUCTION

In the US and UK corporate governance problems often stem from the agency conflicts between managers who own few shares and diffused shareholders. Outside of these two countries, many firms have a controlling owner (LaPorta et al., 1999). The phenomenon is more intriguing than just a rich person owning a controlling percentage of a stand-alone corporation's shares. Rather, the phenomenon is that a few rich families manage to control a web of corporations by a pyramidal ownership structure, cross-holding, and placing family members in key executive positions. (In a later section, we shall explain the family pyramidal ownership arrangement.) Evidence that the phenomenon is globally prevalent is piling up in the literature. For example, beside the paper by LaPorta et al. (1999), Faccio and Lang (2002) report such evidence for Western European countries, Morck et al. (2000) for Canada, Claessens et al. (2000) for Eastern Asian countries, Ramos (2000) for Mexico, and many others. Financial economic research exposes that pyramidal ownership structures raise a different kind of corporate governance problem: conflicts between an insider who attained firm control of a corporation but owning only a small percentage of it, and shareholders at large.

Large family controlled pyramidal groups are arguably the least inefficient approach to corporate governance in developing economies, where markets and other institutions of capitalism function poorly. However, stand-alone, professionally managed and diffusely owned firms are probably subject

to less severe governance problems in developed economies with efficient financial markets, effective disclosure rules, sound corporate and securities law enforcement, and solid investor property rights protection. Moreover, since pyramidal groups entrust the governance of dozens or even hundreds of companies to a single wealthy individual or family, these structures can magnify corporate governance problems associated with a single individual or family into macroeconomic problems. Financial economics research has produced convincing evidence that family pyramidal ownership structure creates corporate governance problems and economy-wide resources allocation problems. See Morck et al. (2000) and the survey in Morck et al. (2003).

An important research question is why family controlled pyramids develop and grow. A popular avenue of investigation focuses on capital market frictions and the desire for control. Burkart et al. (2003) suggest that in locations where protection of investors' rights is very weak, corporations will be run by dominant owners themselves because there is little means to mitigate outside managers' agency behavior. The argument motivates the need for ownership control but not the development of pyramids. Almeida and Wolfenzon (2003) argue that weak investor protection makes external finance very costly and creates the need for internal funds as 'seed money'. If a wealthy family sets up a new stand-alone firm, it has only family wealth available as seed money, which would include dividends paid from firms it controls. But if it uses an existing firm it controls to set up a new firm, the accumulated retained earnings of that firm, not just paid-out dividends, are available as 'internal seed money'. In addition, the family ends up controlling both the existing firm and the new one. In the same vein, Landes (1949) points out that French family firms chose to use pyramids to expand control because issuing equity dilutes the family's control block and issuing debt raises the risk of bankruptcy. The above argument apparently relies on the fact that foreign interests are not able to compete rigorously for host country investment projects and funds. Obviously, policy measures are needed to discourage such competition from foreign firms.

This paper uses Canada as a case in point to illustrate a suspicion: economic nationalism is used to justify the introduction of such policies. We define economic nationalism as privileging local products, investments and firms relative to foreign products, investments and firms. Our data show that in Canada heightened economic nationalism, the introduction of stringent policies against foreign ownership of domestic corporations, the shrinkage of foreign ownership of Canadian corporations, and the absorption of widely held freestanding Canadian corporations into family pyramidal groups all occurred simultaneously. We see this co-evolution as a symptom of elite entrenchment as described in Morck et al. (2003).

In Canada, from 1975 to 1985, a succession of Trudeau governments (the Canadian Prime Minister was then the late Pierre E. Trudeau¹) strove to ‘Canadianize’ Canadian corporations. Their flagship initiatives included the FIRA (Foreign Investment Review Act), a broad based effort to discourage foreign ownership, and the NEP (National Energy Program), which explicitly promoted Canadian ownership of the energy sector. During these years, foreign ownership of Canadian corporations did decline, and net foreign direct investment into Canada dropped below \$1.75 billion from 1975 to 1979. For comparison, 1990 inward foreign direct investment was \$7.9 billions while the outflow was \$4.7 billions. Baldwin (1989) report in detail a similar finding: more restrictive regulations on inward foreign direct investment in the 1970s and early 1980s explain the decline in the presence of foreign controlled firms in Canada in the period. The paper argues that lack of political agreement in Canada about the sanctity of property rights made it risky to invest in social infrastructure (transportation, utilities, and so on) without political lobbying and payoffs. These political ties were then used to prevent competition.

More generally, Canadian governments of the Trudeau era adopted broad-based agendas of economic interventionism. For example, a series of laws required Canadian programming on radio and television stations, subsidized Canadian publications, and restricted Canadian firms from advertising in foreign owned magazines. Marginal personal and corporate tax rates rose sharply and the tax system grew immensely more complicated. State owned enterprises (crown corporations) were established, expanded and reinvigorated, often becoming major customers, suppliers and competitors to private sector firms.

Contemporaneous with this very high profile transformation of Canada from a liberal democracy into a social democracy, another transformation was occurring. From 1975 to 1985, the proportion of the top 100 Canadian firms that were widely held and freestanding² dropped from 48 percent to only 31 percent, while the fraction controlled by wealthy families through pyramidal corporate groups rose from 26 percent to 51 percent.

We suggest that these two transformations are related. This is because government activism raises the payoff to political rent-seeking, and a pyramidal group arrangement raises its controlling owner’s returns from rent-seeking and lowers her cost – or at least shifts it to others. In addition, family controlled pyramids have served as white knights to ward off corporate raiders – foreign or domestic. The energy shocks of the 1970s shifted economic power to the oil rich Western Canadian provinces. A cadre of ‘new rich’, with scant respect for established eastern Canadian business traditions or families, threatened the *status quo* and even launched takeover bids against ill run firms. Incompetent top managers whose jobs are threatened when their com-

panies become takeover targets often place control blocks with a friendly firm – a *white knight*. The white knight gains control of the firm's assets at a bargain price and the inept managers retain their jobs or retire in style. Moreover, it is possible that Trudeauvian nationalists in government orchestrated the expansion of Canadian family controlled pyramidal groups by encouraging them to step in as white knights to preempt takeovers by foreign firms. In the following, we first describe how nationalism disguises takeover defenses. We then provide a brief account of Canadian corporate history prior to, during and after the Trudeau era. In particular, we describe the shrinking proportion of widely held freestanding firms and the growing proportion of firms in family controlled pyramidal groups. After a brief presentation of the corporate governance problems associated with pyramidal groups, we consider possible explanations of this trend.

THE NATIONALISM GAMBIT

In 1987, the Japanese semiconductor firm Fujitsu announced a tender offer for 80 percent of Fairchild Semiconductor, the last large semiconductor maker in the United States at the time. Fairchild's management appealed to the Reagan administration to block the takeover, arguing that the United States should not allow a company essential to national security to fall under foreign control. Threatened with impending legislation, Fujitsu withdrew its offer and Fairchild's management team remained in charge. Shortly afterwards, it was revealed that Fairchild had been controlled by the French Schlumberger group throughout.

Amid heavy lobbying from defense contractors, the US Congress passed the Exon-Florio Amendment to the Defense Production Act in 1988, which empowers the US president to block corporate takeovers by foreign investors if they threaten 'national security', a term Congress chose not to define. The president's decisions in such matters are not subject to judicial review. The Fairchild case is often used in business schools as an example of the 'nationalism defense' in corporate takeovers. Manne (1965), Morck et al. (1990) and many others show that corporate takeovers, especially hostile ones, are disproportionately directed at troubled firms. The 'market for corporate control' theory of mergers and acquisitions (M&A) holds that takeovers are a last-ditch mechanism for unseating inept or self-interested corporate insiders. Hostile takeovers are usually quickly followed by large-scale turnover in the target firm's top officers, most of whom have difficulty finding comparable employment again. The 'nationalism defense', like the 'poison pill', 'greenmail' and 'white knight' defenses, is a tactic to stall or defeat a takeover bid so as to leave incumbent managers in charge.³

While top corporate executives generally claim that takeover defenses ‘protect’ shareholders from ‘unwanted’ bids, it is hard to understand why target shareholders need protection from takeover premiums that typically range 30 percent or more above the previous day’s closing price. A more cynical view is common in the academic literature on takeovers: takeover defenses ‘entrench’ top executives by protecting them from the career consequences their past errors merit. This view is buttressed by much empirical evidence.

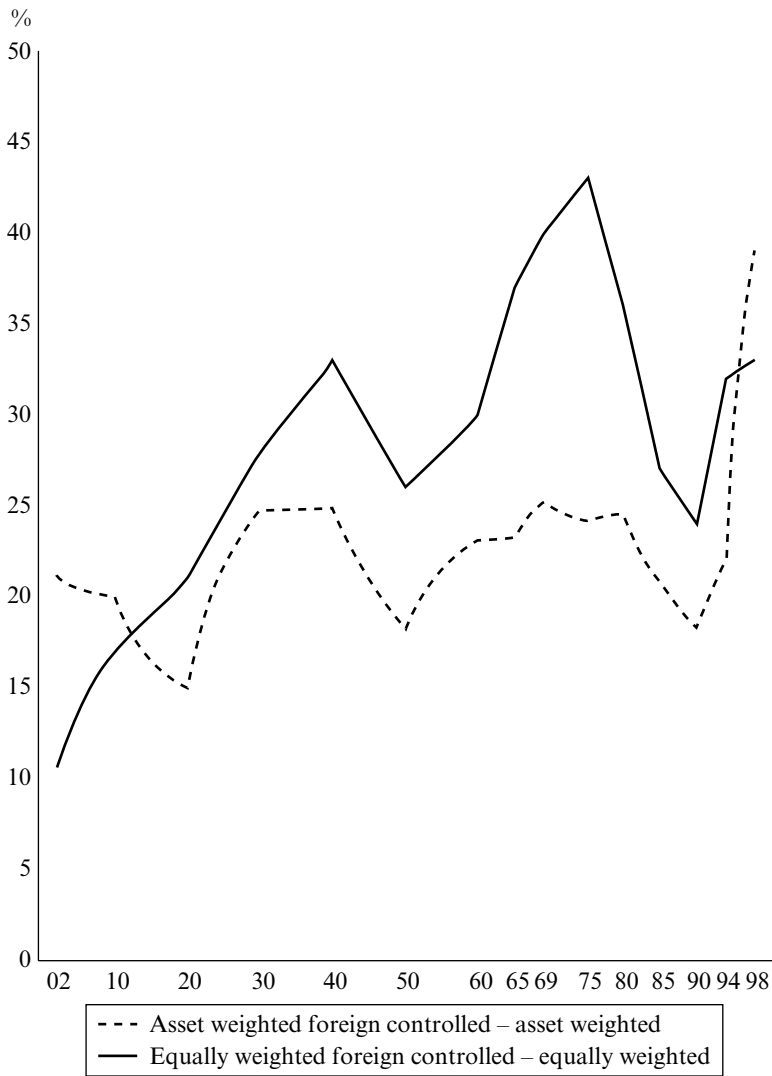
The nationalism defense in the United States seems largely restricted to the defense industry. Elsewhere, notably in Canada, the nationalism defense has much wider appeal. In part, this is likely because foreign control is larger as a percentage of the economy in Canada than in the United States. However, the nationalism defense may also be especially effective in Canada because of cultural and ideological biases.

FOREIGN CONTROL

Figure 4.1 shows the rising and ebbing of foreign control in the top 100 Canadian companies. Foreign control here is defined as a foreign national or corporation having a voting stake of 10 percent or more in the absence of any single Canadian shareholder with a greater voting stake. Local maxima occur during the Great Depression, the 1970s and at the end of the century.

The increase in foreign control in the 1920s was mainly due to the predominance of multinationals in new high-technology, high-growth industries like petroleum refining, where British American and Imperial dominated; artificial rubber, led by Dominion Rubber and Goodyear; and auto making, where Ford dominated. In the 1950s, foreign control ebbed as Aluminum Co.’s foreign parent divested its control block and as a host of new Canadian companies grew rapidly.

The resurgence of foreign control in the 1960s involved some takeovers, of Mexican Light and Power and Canadian Oil, for instance. But most of the rise was again due to the rapid growth of high-technology industries in which foreign firms dominated. Dow and DuPont reigned in plastics, Proctor and Gamble in home products, and IBM in computer sales. Foreign control ebbed again in the 1970s under the nationalist policies described by Safarian (1978). The upsurge in foreign control at the century’s close differs from the others, in that it is clearly due to three large acquisitions – the takeover of John LaBatt by Interbrew SA, a Belgian concern; the acquisition by US based GTE of a 17 percent block in Telus



Note: Firms are equally weighted. Control is assumed to be exercised by any shareholder with more than 10% voting rights.

Source: Morck et al. (2004).

Figure 4.1 Foreign control of large Canadian firms

when the latter acquired BCTel in a stock financed merger; and the takeover of Dominion Textiles by the US based Polymer Inc.

In both the 1920s and 1960s, technology transfer seems important – consistent with the views of Caves (1971, 1974), Dunning (1973), Rugman (1981), and of course Safarian (1972) that multinational firms conduct international expansion to capture the economies of scale intrinsic to their knowledge based capabilities. See Morck and Yeung (1991, 1992) and many others for empirical evidence supporting this view.

Be that as it may, Figure 4.1 shows two peaks in foreign control: one in the 1930s and another in the 1970s. Our concern here is the latter episode. Curiously it coincides, almost perfectly, with the expansion of family controlled pyramidal groups.

ECONOMIC NATIONALISM IN THE TRUDEAU ERA

Pierre Eliot Trudeau served Canada as Prime Minister from 1968 to 1984, with only a brief interruption in 1979. While Trudeau and Axworthy (1999) espouse a liberal philosophy of individual freedom as the foundation of the just society Trudeau sought to build, many of his economic policies especially seem aimed elsewhere. In particular, successive Trudeau governments drummed up nationalist sentiments to change Canada from a liberal democracy into a social democracy. In practice, nationalism in this context reduces to a rather illiberal anti-Americanism.

Two important instances of this are the Foreign Investment Review Agency (FIRA) that Trudeau established in 1975 and the National Energy Policy (NEP) that he set up in 1980. The FIRA screened foreign acquisitions of Canadian companies until 1985, when the newly elected Conservative government transformed it into Investment Canada and charged it with attracting foreign direct investment. The NEP expropriated the Canadian assets of foreign controlled energy companies and actively sought to increase Canadian control over the rapidly growing energy economy of Alberta.

Trudeau's popularity and political skills made the implementation of this agenda inevitable, and Canadian business leaders consequently sought to deflect it, where possible, to their advantage. Granatstein (1996) goes further, arguing that 'Anti-Americanism was almost always employed as a tool by Canadian political and economic elites bent on preserving or enhancing their power.' In the early decades of the twentieth century, he describes anglophile imperialists using the specter of American Manifest Destiny to frighten votes out of the electorate. Trudeau fanned a popular dislike of America's adventure in Vietnam to win elections, and wielded this

new left-leaning anti-Americanism to build socialism. Predictably, many intellectuals embraced Yankee-bashing as a proxy for attacking liberal democratic values. The important point to notice, within the context of this paper, is that the US is the most prominent source of Canada inward foreign direct investment.

Probably equally predictably, the leaders of corporate Canada sought to gain what advantage they could from the newly ascendant leftist political philosophy. Exactly how this played out is, at present, still unclear. However, the Trudeau years saw bigger changes in the ownership of large Canadian corporations than a decline in the importance of multinationals.

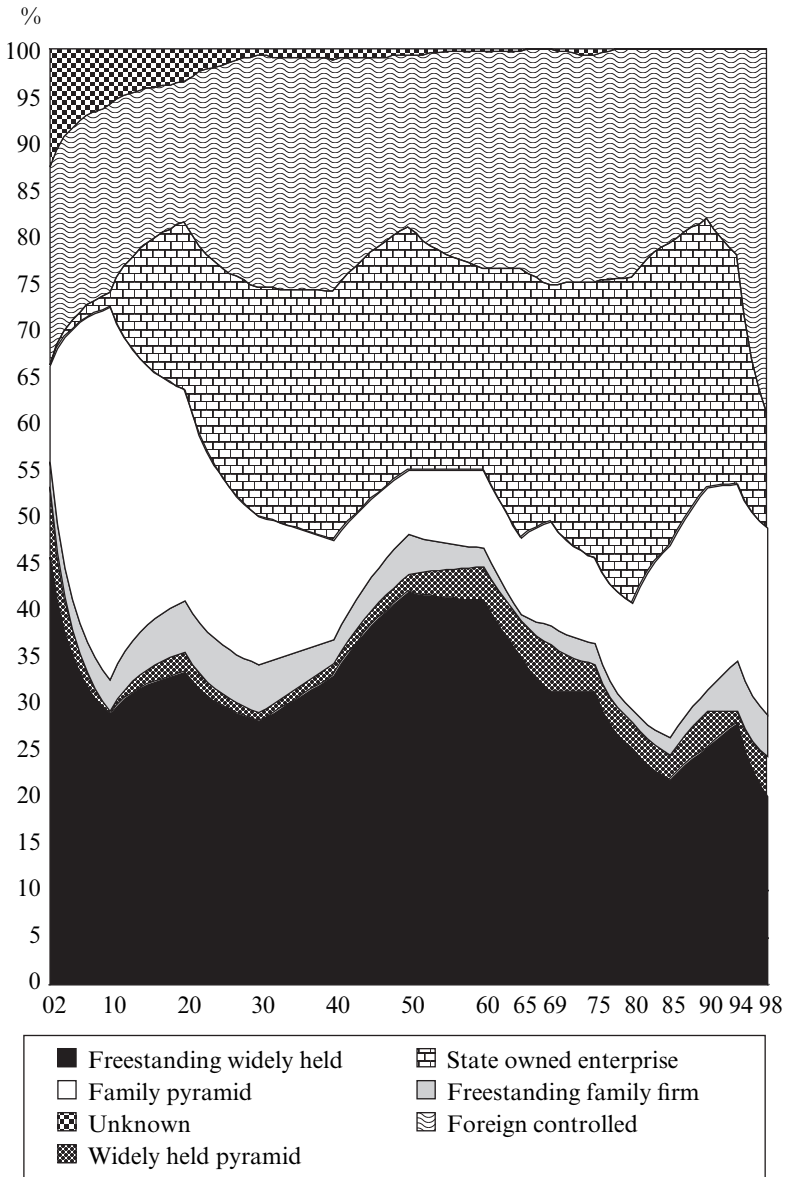
CHANGING CORPORATE CONTROL

Figures 4.2 and 4.3 illustrate the changing control over the large corporate sector through the twentieth century. Figure 4.2 graphs the fraction of the top 100 business enterprises, ranked and weighted by total assets. Figure 4.3 reproduces the same information, but with each business weighted equally.

The figures show that the importance of state owned enterprises increased since the beginning of the twentieth century, peaked in the 1980s, and declined in the 1990s when privatization became a global phenomenon. The increase in the importance of state owned enterprises coincides with the decrease in importance of foreign owned enterprises. These are expected results of the NEP and FIRA – the Canadian public economic policies in that era aimed at discouraging foreign ownership of Canadian corporations.

The striking observation, however, is that both figures show the importance of the widely held, freestanding firms that star in economics textbooks rising through most of the first half of the century, and then falling sharply during the Trudeau years. At mid-century, freestanding widely held firms contained 40 percent of the assets of the large corporate sector and constituted 35 percent of its firms. By the end of the century this had declined to a mere 20 percent of assets and 25 percent of firms. Figures 4.2 and 4.3 reveal that this is not because of any great expansion in the foreign control over large Canadian corporations. Nor is it due to state owned enterprises *per se*.

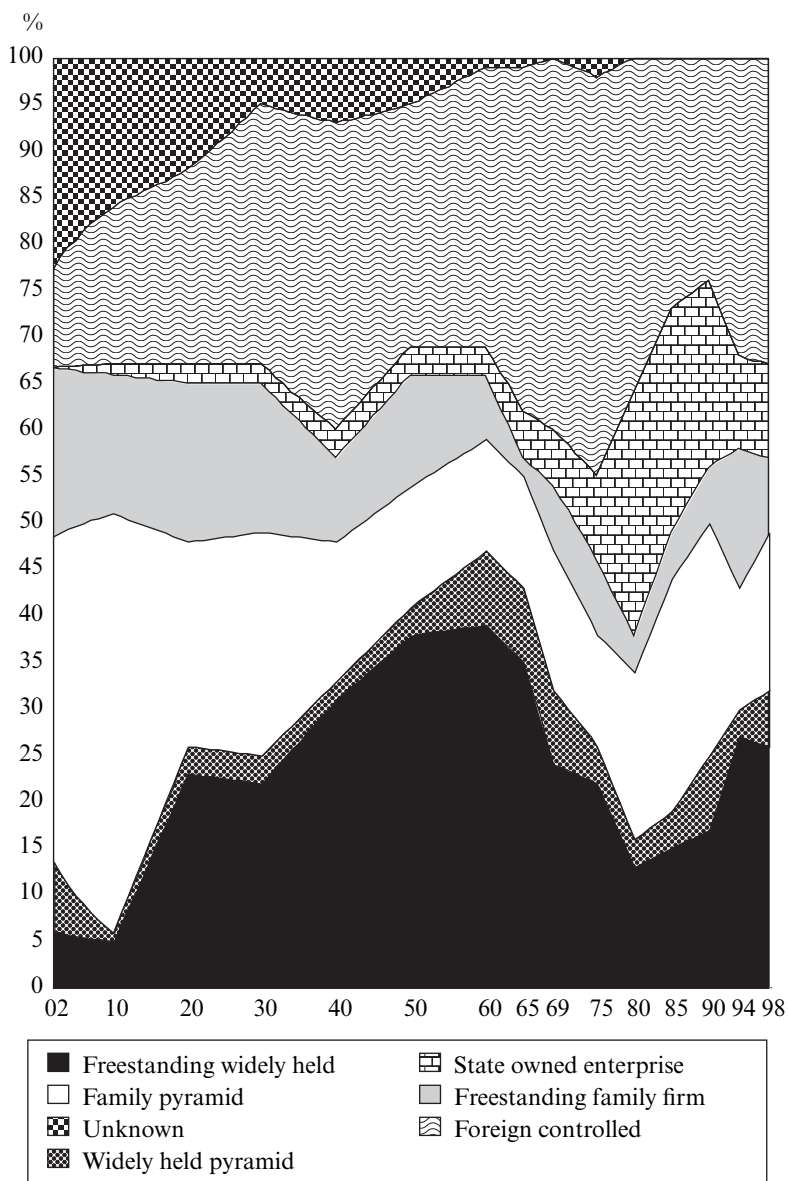
Rather, when foreign and state controlled firms are deleted from Figures 4.2 and 4.3, we see that Canada experienced a sharp decline in the importance of freestanding widely held firms and a matching increase in the importance of family controlled pyramidal groups. Figures 4.4 and 4.5 illustrate this. In 1965, more than three-quarters of the assets and about



Note: Firms are weighted by total assets. Control is assumed to be exercised by any shareholder with more than 10% voting rights.

Source: Morck et al. (2004).

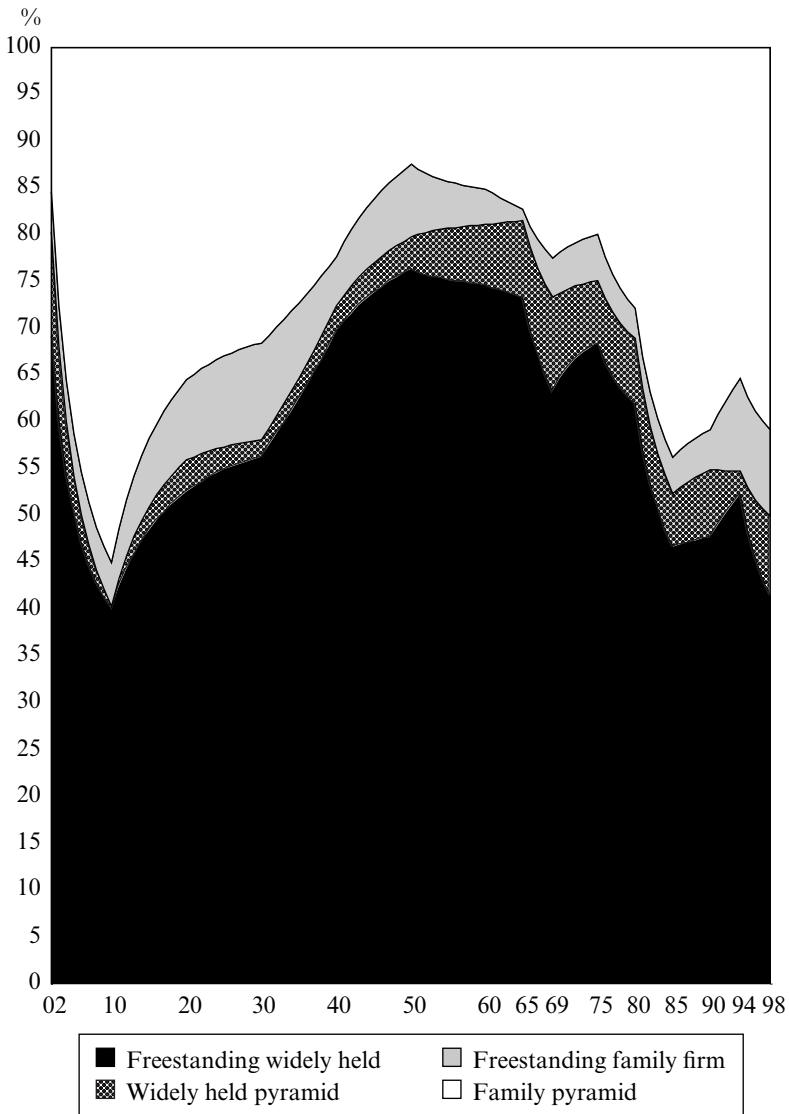
Figure 4.2 Governance structures of large Canadian firms



Note: Firms are equally weighted. Control is assumed to be exercised by any shareholder with more than 10% voting rights.

Source: Morck et al. (2004).

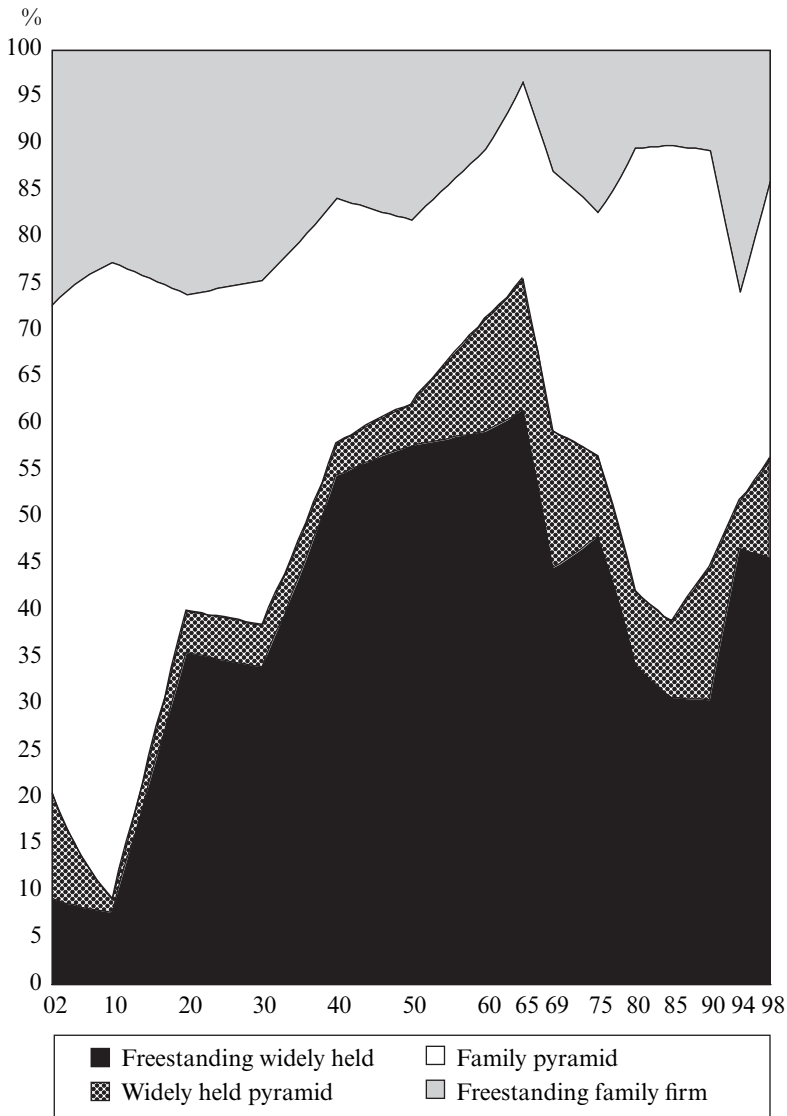
Figure 4.3 Governance structures of large Canadian firms



Note: Firms are weighted by total assets. Control is assumed to be exercised by any shareholder with more than 10% voting rights.

Source: Morck et al. (2004).

Figure 4.4 Governance structures of large Canadian private sector domestically controlled firms



Note: Firms are equally weighted. Control is assumed to be exercised by any shareholder with more than 10% voting rights.

Source: Morck et al. (2004).

Figure 4.5 Governance structures of large Canadian private sector domestically controlled firms

60 percent of large domestically controlled firms were freestanding and widely held. By the end of the century, these figures had fallen to 40 percent of assets and about 46 percent of firms. By the end of the century, freestanding widely held firms actually accounted for a smaller fraction of domestically controlled private sector assets than they did at the beginning of the century (63 percent).

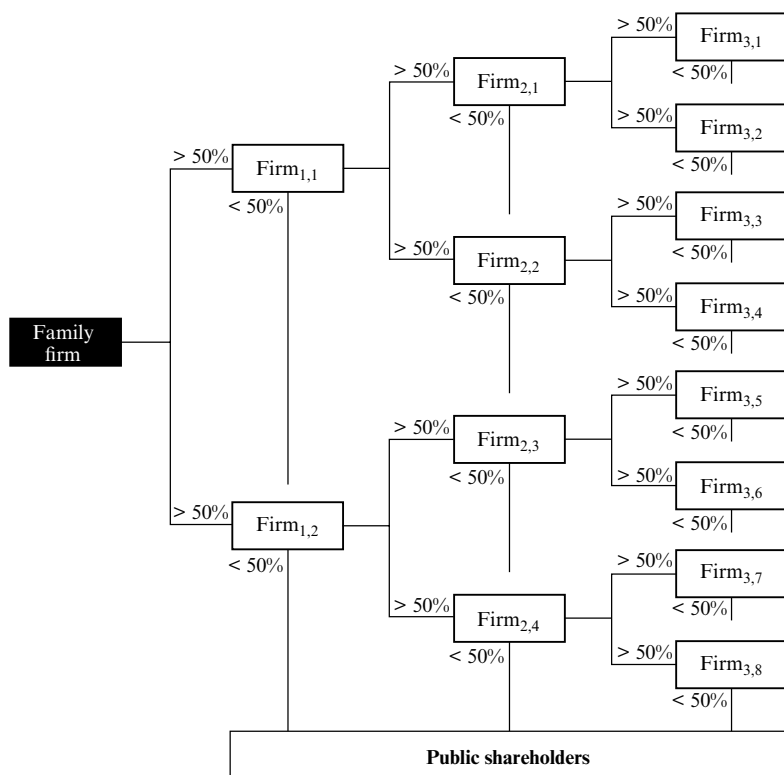
The data therefore depict an intriguing picture. First, Canadian public policies based on economic nationalism discouraged foreign ownership of Canadian corporations; second, they coincided with the absorption of widely held freestanding firms into family pyramids. What does this absorption mean for an economy? Also, what could explain the observation?

CORPORATE GOVERNANCE

Jensen and Meckling (1976) and many others stress the corporate governance problems to which widely held firms fall prey because their professional managers maximize utility, rather than firm value. However, these problems may often be the lesser of two evils. Bebchuk et al. (2000), Morck et al. (2000) and others point out that wealthy families in countries other than the United States typically control many firms, in the fashion of wealthy US families a century ago. These ‘family business groups’ are typically structured as pyramids, as illustrated in Figure 4.6, and this structure can permit serious governance problems, which fall into three categories.

First, pyramidal groups recreate the same governance problems that afflict widely held firms. This is because a \$100 increase in the value of any of the firms along the right margin of Figure 4.6 translates into a \$50 increase in its parent firm, which raises the value of that firm’s parent by \$25, which raises the value of the apex firm by only \$12.50. Figure 4.6 is highly simplified, and real pyramidal groups are often much larger and contain many more layers. For example, Morck et al. (2000) use 1998 data from Statistics Canada’s Directory of Intercorporate Ownership to show that the Canadian billionaire heirs Edward and Peter Bronfman

own Broncorp Inc., which controls HIL Corp. with a 19.6% equity stake. HIL owns 97 % of Edper Resources, which owns 60% of Brascan Holdings, which owns a 5.1% stake in Brascan, which owns 49.9% of Braspower Holdings, which owns 49.3% of Great Lakes Power Inc, which owns 100% of First Toronto Investments, which owns 25% of Trilon Holdings, which owns 64.5% of Trilon Financial, which owns 41.4% of Gentra, which owns 31.9% of Imperial Windsor Group. [The brothers’] actual equity stake in Imperial Windsor works out to 0.03%.



Note: A family firm controls a first tier of firms with dominant voting stakes, in this case greater than 50%. Each first tier firm controls several second-tier firms, each of which controls yet more firms. The overall effect is to extend the family’s control to encompass assets worth substantially more than its actual wealth.

Source: Morck and Yeung (2004).

Figure 4.6 A stylized control pyramid

That is, a \$100 increase in Imperial Windsor’s value raises the wealth of its ultimate shareholders by a mere three pennies. Like the professional managers of a widely held firm, the controlling shareholders of a corporate pyramid may prefer to maximize their utility rather than the values of the firms they control.

Second, pyramidal groups are invulnerable to takeovers and largely insulated against rebellious shareholders. Continuing the example above, although the Bronfmans own a mere 0.03 percent of Imperial Windsor, they control it,

and of all the other firms in the pyramid above and beside it. This is because they either own a dominant block of the stock at each stage, or wield sufficient votes to appoint the board via multiple-voting shares, inter-corporate cross-holdings, or other arrangements that reduce the minimum size of a control stake. This branch of the Bronfman family controls several hundred firms in this way.

If the family patriarch running the apex corporation of a pyramid is incompetent, he cannot be removed by a raider, institutional investor, proxy challenger, or any of the other means used routinely to fire the underperforming professional managers of widely held concerns. The same applies to the case where the patriarch pursues his self-interest at the expense of other shareholders. The patriarch is entrenched – his control locked in until he chooses to retire.

Third, and familiar to students of international economics, pyramidal groups are rife with incentives for the patriarch to engage in transfer pricing and other forms of income shifting, which in this context are collectively called *tunneling*.⁴ To see this, consider again a \$100 rise in the value of a firm in the rightmost tier of Figure 4.6, which translates into a mere \$12.50 gain for the apex shareholder. However, if that firm could overpay for supplies from a firm at or near the apex of the pyramid, that \$100 might be transferred to a firm in which the patriarch's financial interest is greater. This systematic 'tunneling' of money from firms low in pyramids to firms near their apexes is much like the tax avoidance income shifting observed in multinational firms. The only difference is that here the objective is to avoid sharing profits with public shareholders, rather than tax authorities.

Just as some widely held firms are largely free of governance problems and others are rife with them, some pyramidal groups appear well governed – Daniels et al. (1995) find no evidence of governance problems in the Edward and Peter Bronfman group mentioned above – and others appear to have serious governance problems. Morck et al. (2003) summarize a large literature that shows these governance problems to be especially important in countries with weak investor protection laws, such as developing countries. The agency and entrenchment problems described above, aggravated by tunneling activities, lead to serious conflict of interest between controlling shareholders and shareholders at large. The problems manifest as low public float values and high control premiums.

MACROECONOMIC PROBLEMS

Morck et al. (2003) argue further these corporate governance problems can attain macroeconomic proportions in economies dominated by a few large

pyramidal groups. In many economies, pyramidal ownership structures concentrate control of corporate assets in the hands of a tiny elite. Poor governance by this elite means poor governance of a vast swath of the corporate sector, not of just a few firms. Several other problems at the economy-wide level also emerge.

First, pyramidal groups distort capital markets and perhaps limit the financing of innovation. Pyramidal firms may have privileged access to capital while too little capital is allocated to outside firms, as Morck et al. (2000) show. Morck and Yeung (2004) also hypothesize that pyramidal groups might undermine innovation by internalizing the destruction in creative destruction. Second, the controlling owners of pyramidal groups understandably prefer the *status quo*, and might lobby politicians to preserve it. For example, they might oppose corporate transparency, outside shareholders' property rights, and foreign competition in both the capital and the goods markets. These efforts to lock in their advantage under the *status quo* in essence suppress the institutions that permit competitive capital markets, protect outsiders' property rights, and promote free competition. Morck et al. (2003) dub successful lobbying to these ends *economic entrenchment*. Their survey of the literature shows that entrusting the governance of a high proportion of the corporate sector to a small elite via pyramidal groups can be detrimental to long-term prosperity.

FINANCIAL DEVELOPMENT

Economic historians, such as Chandler (1993) and Landes (1949), write of an evolution in corporate control whereby economic development accompanies the displacement of family owned and controlled firms by widely held firms with professional managers. Thus the United States large corporate sector at the beginning of the twentieth century was typified by wealthy so-called *robber baron* families – like the Vanderbilts, Morgans and Rockefellers – controlling huge constellations of interconnected companies. By the end of the twentieth century, the typical large firm in the United States is freestanding, in that no other firm controls it, and widely held, in that it has no controlling shareholder. While some revisionists, notably Anderson and Reeb (2003), argue that family firm roots are more important than generally believed among the ranks of great US corporations, the tenuous nature of the links to founding families they rely upon only serves to underscore the vastly greater importance of professional management in the US. Since diffused ownership requires that small investors view stocks as acceptably safe investments, the rise of widely held firms is often regarded as a tribute to the regulation and practice of

corporate governance in the United States (e.g. Burkart et al., 2003). For the first half of the twentieth century, Canadian corporate control evolved much like corporate control in the United States. But, beginning in the 1970s, Canada reversed course. Corporate pyramids controlled by a handful of wealthy families began expanding – taking over previously widely held firms. Canadian corporate governance reverted to that of an earlier era. By the end of the century, freestanding widely held firms were again a minority of the corporate sector – both in number and by assets.

FINANCIAL ATAVISM

What might have caused this financial atavism – the displacement of widely held freestanding firms by family pyramidal groups – in Canada? Figures 4.4 and 4.5 show that the sharpest decline in the importance of widely held firms took place between 1965 and 1985. Whatever reversed the diffusion of corporate ownership must have happened in this period, which neatly corresponds to the Trudeau years.

One possibility is that the many nationalizations of this era disproportionately targeted freestanding widely held firms. There is some sense in the data that this might have been so, for the federal government acquired control of Westcoast Transmission, Québec acquired control of Dominion Textile, and Alberta acquired control of Pacific Western Airlines – all previously widely held. But this begs the question of why governments refrained from targeting more firms with controlling shareholders for nationalization.

But this is not the most important part of the story. During this period, family controlled pyramidal groups grew rapidly by purchasing control blocks in previously widely held firms. Thus the Bronfman group took control blocks in Brascan and Noranda, while the Reichman group acquired control of Abitibi Paper. Something seems to have happened that changed the competitive landscape to favor family controlled pyramidal groups once again.

CAUSES?

To explain this corporate financial atavism, we are reduced to speculation. We begin with plausible explanations that we nonetheless cannot reject, and then move on to more plausible ones.

First, the decline in widely held firms might reflect a decline in investor protection in Canada. If protection of investors' property rights weakens,

professional managers can divert more of a widely held firm's resources to fund private benefits, and so are less trustworthy in the eyes of small shareholders. The firm's share value therefore drops. Any shareholder who wishes to prevent this must amass a control block. If protection for investors' rights is extremely weak, even a controlling shareholder cannot trust professional managers, opts to run the company herself – or entrust management to family insiders. This theoretical argument, advanced by Burkart et al. (2003) and LaPorta et al. (1999) to explain the prevalence of family pyramids in third world economies and some European countries, suggests that weak investor property rights lead to more concentrated ownership and perhaps to family controlled pyramids.

The NEP did compromise investors' property rights, but only for foreign owners. It contained provisions to expropriate the property of foreign controlled energy companies and/or levy extra taxes to discourage foreign ownership. Also, the FIRA raised the transaction costs, and sometimes erected outright restrictions, on foreign ownership of Canadian firms. However, we find no evidence that Canadian public shareholders' property rights weakened during this period. Indeed, in the mid-1960s, just prior to the NEP and FIRA, the Ontario government, under heavy federal and United States pressure, established the Ontario Securities Commission, mandated standardized disclosure, and moved to curtail insider trading.

The second possibility is the repeal of the inheritance tax in 1972. While the inheritance tax was readily evadable, doing so generally required divesting control blocks. The abolition of the inheritance tax, and its replacement by a capital gains tax avoidable through family trusts, allowed the ready transmission of corporate control from one generation to the next. This perhaps stabilized family pyramidal groups, and better positioned successive generations to build upon their forefathers' work. However, some problems weaken this explanation. In the first place, the inheritance tax was already eroded because of interprovincial competition to attract family business. In addition, family pyramid group assets more than doubled from 1965 to 1985. If the ratio of family wealth to pyramidal group assets remains roughly constant, this implies that the tax savings exceeded the controlling families' wealth. This seems unlikely.

The third possibility arises from increased labor union activism in the 1970s. Labor union activism means that laborers are represented by one strong voice in collective bargain. However, companies are not allowed to mimic the act because of anti-combine constraints. The asymmetry means that unions would have a stronger bargaining position than diffused shareholders. To counteract is to have one owner maintaining control and thus representing a collection of companies. That would raise the bargaining power of capital owners. Thence conglomerates can rise, as Mark Roe

(2001, 2003) has argued. The interesting observation is that this matching bargaining power argument can apply to multinationals, whose multiple locations can be a means to counter unionism. However, foreign owned subsidiaries' share of Canadian corporations declined in the period. Perhaps, the Roe (2001, 2003) argument could have applied to foreign controlled Canadian firms too but for the public policy restrictions on foreign ownership of Canadian firms.

The fourth possibility is that the increasing scope and scale of government intervention in the economy during the Trudeau years raised the returns to political rent-seeking. Morck et al. (2003) argue that pyramidal groups have a series of natural advantages in political rent-seeking over other organizational forms, especially freestanding professionally managed widely held firms. The controlling owner of a pyramidal group can use not only her own wealth to fund lobbying, but the full retained earnings of all the firms in the group. Also, the controlling owner of a family pyramidal group can use indirectly controlled firms to finance lobbying for benefits accruing to directly owned firms. In addition, because pyramids concentrate corporate control with a small number of players, coordination is easier than in an economy of freestanding firms. Finally, wealthy, old families may be better 'favor trading' partners for politicians and officials than are the CEOs of freestanding widely held firms, whose careers last an average of seven years. These considerations imply that family control pyramidal ownership structures ought to be favored in an environment that makes political rent-seeking more profitable.

Scholars like Bhagwati (1982) and Krueger (1993) and many others argue that highly interventionist governments, no matter how noble their motives, necessarily increase the intensity and return to political rent-seeking. There is little point in investing in influencing a *laissez-faire* government, but a huge return from successfully influencing a socialist or mercantilist one. According to CALURA, state ownership in Canada rose from \$21.5 billion in assets in 1968 to \$137.5 billion in 1987. The NEP program pushed for Canadian ownership of the energy sector using a mixture of taxation, regulatory measures and subsidies. The size of government also rose dramatically, from 16.3 percent of GNP in 1968 to 22.6 percent in 1985. When we use GNP as the denominator, the corresponding numbers are 16.6 percent and 23.3 percent.⁵ The complexity of government and its penetration into all parts of the economy rose accordingly. Sawatsky (1987) presents a series of case studies detailing the rising importance of political lobbying during this period, and the rapid development of a lobbying industry.

The fifth possibility is that the use of wealthy families' pyramid firms as white knights might have picked up. There are two variants of this.

The first variant is related to the surge in new money and the rich of the ‘new rich’ in the oil-rich provinces – mainly Alberta. The managers of existing widely held firms might have feared for their job security as ‘new money’ firms began doing takeovers. Incompetent professional managers might place control blocks with old families to prevent raiders from gaining control. In return for continued employment as submissive servants, this might have been done at low prices and preemptively to avoid bidding wars. The result would have been a resurgence of family pyramidal groups.

The second variant is that the government might have orchestrated, or even subsidized, the placement of control blocks with wealthy Canadian families to prevent foreign takeovers. Since the FIRA complicated or blocked foreign firms from taking over mismanaged or non-innovative Canadian firms, it left the market for corporate control to ‘Canadian owned’ widely held firms and family pyramidal groups. Since the former were themselves susceptible to foreign takeovers, nationalist politicians might have seen wealthy Canadian families as the best way of preventing corporate assets from falling into foreign hands. We are unaware of any formal program of subsidies to finance the ‘Canadianization’ of corporations, save the NEP. However, it is not inconceivable that Trudeau era politicians found ways of favoring Canadian families who helped them achieve pre-announced ‘goals’ for repatriating corporate control over specific sectors. Indeed, the high-profile announcement of such goals may have forced politicians to this course.

CONCLUSIONS

Since the work of Berle and Means (1932), much research on corporate governance focuses on the agency conflicts between managers and diffused shareholders. However, outside of the US and UK, many firms have a controlling owner. Moreover, these controlling owners use pyramidal ownership structures, cross-holdings, and placing family members in key executive positions to amass control of many corporations. A different kind of corporate governance problems emerges: conflicts between entrenched controlling owners, who actually own little of the companies they control, and shareholders at large. Modern financial economics research draws our attention to the firm-level and economy-wide resources allocation inefficiency associated with the phenomenon.

A key question of the research program is why family controlled pyramids develop. A popular avenue of investigation focuses on capital market frictions and the desire for control. Weak investor protection makes external funds costly and internal funds are needed as seed money to raise

outside financing. This makes pyramidal structure attractive. To expand control a family can instruct a firm it controls to set up a new firm rather than using its own money to set up a new firm. Doing so it can use all retained earnings of firms it controls as seed money to raise expensive external funds, rather than just pay out dividends. Therefore pyramidal groups have an advantage over individuals in bidding for corporate assets. In addition, the family ends up controlling both the existing firm and the new one.

The argument apparently relies on the fact that foreign interests are not able to compete rigorously for host country investment projects and funds. Obviously, policy measures are needed to discourage such competition from foreign firms. This paper uses Canada as a case in point to illustrate a suspicion. In Canada during 1975 to 1985 economic nationalism is used to justify the introduction of such policies. Our data show that heightened economic nationalism and the introduction of stringent policies against foreign ownership of domestic corporations coincide with the absorption of widely held freestanding Canadian corporations into family pyramidal groups.

We advance the following conjectures to explain the observation. First, heightened government economic activism raised the returns to political rent-seeking, which pyramidal groups have an advantage over widely held freestanding firms. That motivates active expansions of family pyramidal groups. In addition, government policies might have orchestrated or even subsidized the placement of control blocks with wealthy families to prevent foreign takeovers, besides explicitly discouraging foreign firms from taking over Canadian corporations.

Since diffuse ownership and freestanding firms are considered characteristic of developed financial systems, and family controlled pyramidal groups are associated with developing economies and developing countries with stunted financial systems, this resurgence of family controlled pyramidal groups is a sort of financial atavism. This entrusting of the governance of a larger part of the Canadian economy to a small elite of wealthy families is, in a very real sense, a retreat from economic democracy to a more feudal variant of capitalism. The consequence is poor resource allocation at the firm and the economy-wide level, and generally poor economic growth.

The co-evolution of declining foreign ownership of Canadian corporations and the absorption of widely held freestanding Canadian corporations into family pyramidal groups could be a symptom of elite entrenchment as described in Morck et al. (2003). Is nationalism a disguise for the protection of the inefficient and economic entrenchment in general?

NOTES

- * We would like to thank the conference participants and particularly Lorraine Eden for helpful comments; all errors are our responsibility.
1. Canada's Prime Minister then was the late Pierre Elliott Trudeau. He was first elected Canada's Prime Minister in 1968 and remained in power over the following 16 years until 1979. He led Canada again from 1980 to 1984.
 2. In the current context, 'freestanding' means not being a part of a pyramidal group, a term that we shall describe in greater detail later.
 3. There are other explanations for takeovers, ranging from managerial agency behavior to insiders of bidding firms taking advantage of overpriced stocks. These theories and the implied negative connotation of takeovers do not overrule the validity of the concept that hostile takeovers are a means to unseating inept or self-interested corporate insiders. Hostile takeovers were particularly prevalent in the late 1970s and early 1980s.
 4. The term tunneling was first coined by Johnson et al. (2000).
 5. Source: The GDP and GNP data are from CANSIM and the government expenditures data are from STATCAN's Historical Statistics and CANSIM.

REFERENCES

- Almeida, Heitor and Daniel Wolfenzon (2003), 'A theory of pyramidal ownership and family business groups', Stern NYU Working paper.
- Anderson, Ronald C. and David M. Reeb (2003), 'Founding family ownership and firm performance: evidence from the S&P 500', *Journal of Finance*, **58**(3): 1301–28.
- Baldwin, John (1989), *Regulatory Failure and Renewal: The Evolution of the Natural Monopoly Contract*, Ottawa: Economic Council of Canada.
- Bebchuk, Lucian, Reiner Kraakman and George Triantis (2000), 'Stock pyramids, cross-ownership, and dual class equity: the mechanisms and agency costs of separating control from cash-flow rights', in Randall Morck (ed.), *Concentrated Corporate Ownership*, National Bureau of Economic Research Conference Volume, Chicago: University of Chicago Press. Also circulated as National Bureau of Economic Research Working paper 6951.
- Berle, Adolph A. and Gardiner C. Means (1932), *The Modern Corporation and Private Property*, New York: The McMillan Company.
- Bhagwati, Jagdish (1982), 'Directly-unproductive profit-seeking (DUP) activities', *Journal of Political Economy*, **90**: 998–1002.
- Burkart, Mike, Fausto Panunzi and Andrei Shleifer (2003), 'Family firms', *Journal of Finance*, **58**(5): 2167–201.
- Caves, Richard E. (1971), 'International corporations: the industrial economics of foreign investment', *Economica*, **38**: 1–27.
- Caves, Richard E. (1974), 'Causes of direct investment: foreign firms' shares in Canadian and United Kingdom manufacturing industries', *Review of Economics and Statistics*, **56**: 279–93.
- Chandler, Alfred Dupont (1993), *The Visible Hand: The Managerial Revolution in American Business*, Cambridge, MA: The Belknap Press of Harvard University Press.
- Claessens, Stijn, Simeon Djankov and Larry H.P. Lang (2000), 'The separation of ownership and control in East Asian corporations', *Journal of Financial Economics*, **58**(1–2): 81–112.

- Daniels, Ron, Randall Morck and David Stangeland (1995), 'High gear: a case study of the Hees-Edper corporate group', in R. Daniels and R. Morck (eds), *Corporate Decision Making in Canada*, Calgary: Industry Canada and the University of Calgary Press.
- Dunning, John H. (1973), 'The determinants of international product', *Oxford Economic Papers*, **25**: 289–336.
- Faccio, Mara and Larry H.P. Lang (2002), 'The ultimate ownership in Western European corporations', *Journal of Financial Economics*, **65**(3): 365–95.
- Granatstein, J.L. (1996), *Yankee Go Home? Canadians and Anti-Americanism*, Toronto: HarperCollins.
- Jensen, C. Michael and William H. Meckling (1976), 'Theory of the firm: managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, **3**: 305–60.
- Johnson, Simon, Rafael LaPorta, Florencio Lopez-de-Silanes and Andrei Shleifer (2000), 'Tunneling', *American Economic Review*, **90**(2): 22–7.
- Krueger, Anne O. (1993), 'Virtuous and vicious circles in economic development', *American Economic Review*, **83**(2): 351–5.
- Landes, David (1949), 'French entrepreneurship and industrial growth in the nineteenth century', *Journal of Economic History*, **9**: 45–61.
- LaPorta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny (1999), 'Corporate ownership around the world', *Journal of Finance*, **54**(2): 471–517.
- Manne, Henry (1965), 'Mergers and the market for corporate control', *Journal of Political Economy*, **73**(2): 110–20.
- Morck, Randall and Bernard Yeung (1991), 'Why investors value multinationality', *Journal of Business*, April: 165–88.
- Morck, Randall and Bernard Yeung (1992), 'Internalization: an event study test', *Journal of International Economics*, **33** (August): 41–56.
- Morck, Randall and Bernard Yeung (2004), 'Family control and rent-seeking society', *Entrepreneurship: Theory and Practice*, June, **28**(4): 391–409.
- Morck, Randall, Andrei Shleifer and Robert Vishny (1990), 'Do managerial objectives desire bad acquisitions', *Journal of Finance*, March, **45**(1): 31–48.
- Morck, Randall, David Stangeland and Bernard Yeung (2000), 'Inherited wealth, corporate control, and economic growth: the Canadian disease', in Randall Morck (ed.), *Concentrated Corporate Ownership*, National Bureau of Economic Research Conference Volume, Chicago: University of Chicago Press. Also circulated as National Bureau of Economic Research working paper 6814 (1998).
- Morck, Randall, Daniel Wolfenzon and Bernard Yeung (2003), 'Corporate governance, economic entrenchment and growth', NYU Stern School of Business. Also available as National Bureau of Economic Research working paper W10692 (2004).
- Morck, Randall, Michael Percy, Gloria Tian and Bernard Yeung (2004), 'The rise and fall of the widely held firm: a history of corporate ownership in Canada', in NBER Conference Volume, *History of Corporate Ownership*, Chicago: University of Chicago Press.
- Ramos, Gonzalo Castaneda (2000), 'Corporate governance in Mexico', Latin America Corporate Governance Roundtable in São Paulo Stock Exchange, April 26–8.
- Roe, Mark (2001), 'Rents and their corporate law consequences', Discussion paper, Columbia Law School.

- Roe, Mark (2003), *Political Determinants of Corporate Governance*, Oxford: Oxford University Press.
- Rugman, Alan (1981), 'Internalization as a general theory of foreign direct investment: a reappraisal of the literature', *Weltwirtschaftliches Archiv*, **116**: 365–75.
- Safarian, A.E. (1964), 'The exports of American-owned enterprises in Canada', *American Economic Review*, **54**(3): 449–58.
- Safarian, A.E. (1971), 'Some myths about foreign business investment in Canada', *Journal of Canadian Studies*, **6**: 3–21.
- Safarian, A.E. (1972), 'Perspectives on foreign direct investment from the viewpoint of a capital receiving country', *Journal of Finance*, **28**(2): 419–38.
- Safarian, A.E. (1978), 'Policy on multinational enterprises in developed countries', *Canadian Journal of Economics*, **11**(4): 641–55.
- Safarian, A.E. and Joel Bell (1973), 'Issues raised by national control of the multinational corporation', *Columbia Journal of World Business*, **8**: 7–18.
- Sawatsky, John (1987), *The Insiders: Government, Business, and the Lobbyists*, Toronto: McClellan and Stewart.
- Trudeau, Pierre Elliott and Thomas Axworthy (1999), *Towards a Just Society: The Trudeau Years*, Markham, Ontario: Viking.
- Veblen, Thorstein (1899), *The Theory of the Leisure Class: An Economic Study in the Evolution of Institutions*, London: Macmillan & Co.

5. Assessing international mergers and acquisitions as a mode of foreign direct investment*

Steven Globerman and Daniel Shapiro

... we believe that it is possible to formulate a general paradigm of MNE activity which sets out a conceptual framework and seeks to identify clusters of variables relevant to an explanation of all kinds of foreign-owned output.

(Dunning, 1993, p. 68)

INTRODUCTION

A major and long-standing focus of scholarly research in the international business area is the identification and evaluation of the determinants of the location of international production (Dunning, 1993; Caves, 1996). Most empirical studies in this area attempt to identify and evaluate the most significant variables associated with inward and outward FDI. The empirical studies are primarily carried out at the country and industry levels and generally concentrate on overall flows without distinguishing among different modes of FDI. Conclusions about FDI location choice drawn from the studies therefore largely ignore the possibility that some locations may be more attractive than others for specific modes of FDI (Lall, 2002). If there are significant mode-specific location advantages, and the relative importance of specific modes changes over time, existing empirical evidence on the location determinants of FDI may be misleading. Moreover, government policies designed to encourage FDI may not produce the anticipated results if mode-specific location determinants are ignored.

In fact, the majority of aggregate FDI flows are created through cross-border merger and acquisition (M&A) activity (Kang and Johansson, 2000; Letto-Gillies et al., 2001; Chen and Findlay, 2002).¹ However, there are relatively few empirical studies examining the determinants of cross-border M&A activity at the country level. Our specific purpose in this paper is to evaluate whether the location determinants of FDI are sensitive to whether or not FDI takes the form of international M&As. In this respect, our paper

focuses on the location decision of foreign investors rather than on the choice of specific FDI mode. Nevertheless, we draw upon the literature examining mode choice to assist in developing specifications of potential mode-specific location determinants of FDI.

Accordingly, we specify and estimate parsimonious models of the determinants of inward and outward M&A flows among a sample of 154 countries averaged over the period 1995–2001. In so doing, we identify variables that are potentially M&A mode-specific. As a related focus, we address the degree of similarity between the M&A model and a model of aggregate FDI flows. Specifically, we evaluate whether variables that are statistically significant in the M&A models are also significant in models of overall FDI. Therefore, we are implicitly evaluating whether the determinants of international M&A activity are sufficiently similar to the determinants of other forms of FDI, e.g. greenfield investments, such that researchers can effectively focus on measures of aggregate FDI when evaluating the determinants of cross-country FDI activity.

As Dunning (2001b) notes, the growth of mergers and acquisitions, strategic alliances and a host of network relationships has led academic researchers to incorporate these modes into the received theories of FDI; however, to our knowledge, there has been no systematic attempt to assess the degree to which empirical models of overall FDI at the country level apply to individual modes of FDI, in particular cross-border M&As. Our paper attempts to fill this gap in the literature. In doing so, it draws upon a large sample of developed and developing countries, as well as a new statistical database that, to our knowledge, has not yet been used in empirical studies of cross-border M&As.

Perhaps the most important contribution of our paper is the empirical identification of broad measures of country-level governance as important determinants of all forms of FDI. Previous research on international M&As has emphasized the potential relevance of specific governance attributes such as protection of minority shareholder rights. We find that the impacts of specific governance initiatives on FDI are substantially subsumed by the greater importance of broad indicators of governance of the type developed by the World Bank and used by us in previous research (Globerman and Shapiro, 2002). In this regard, our finding that broad, or ‘macro’, governance attributes at the country level strongly condition location decisions for all modes of FDI parallels discussions found in Safarian (1993) and Safarian and Bertin (1987) that emphasize the linkages between host government policies toward foreign investors and the economic impacts of FDI.

The paper proceeds as follows. The next section provides an overview of the relevant literature. We then present the model to be estimated, distinguishing between mode-encompassing (applicable to all modes) and

mode-specific (specific to M&As) explanatory variables. This is followed by a description of the FDI and cross-border M&A data utilized in this study. The statistical results are then presented and evaluated. The final section offers a summary and conclusions.

REVIEW OF THE LITERATURE

Although there have been many empirical studies that examine the location determinants of aggregate FDI flows across countries, relatively few have focused explicitly on identifying the determinants of FDI flows through the M&A mode at the country level. A larger number of studies identify potential mode-specific determinants at a conceptual level. Still others provide empirical evidence on FDI mode choice using samples of individual firms rather than using data at the country level.

Statistical Studies of Cross-border M&A Activity

Evenett (2003) presents evidence that the value of American outward M&A in a recipient country depends on the recipient nation's gross domestic product, the distance from the United States, the recipient nation's corporate tax rate and average tariff rate, and whether or not the recipient nation was once a British colony. The last variable is taken to identify whether the recipient nation is more likely to use English as the language of business and to have a common law system. The presence of merger review laws in the host country was also found to reduce the amount of American M&A received.

Blomström et al. (2000) examine the choice of Swedish MNEs to initiate affiliate activities abroad in two different ways: either by building a new establishment (greenfield investment) or by taking over an already existing firm (acquisition). They relate this choice to characteristics of the individual Swedish MNE, as well as to characteristics of the host country. They identify two groups of host-country characteristics that merit particular attention: (1) those affecting the probability of finding suitable firms for acquisition which, in turn, is related to the size of the host country's stock market; and (2) the possible effects on local output and prices of acquisitions and new ventures. The latter effects are proxied by the growth rate of production in the host market immediately before entry. Among other things, they find that market size of the host country, as indicated by the country's gross domestic product (GDP), does not appear to have any significant influence on the choice of form of entry. They speculate that this result may arise because GDP is not an especially good proxy for the size of the host country's stock market in the sample of countries used.

In a related study, Feliciano and Lipsey (2002) examine inward FDI in the United States for 50 industries over the period 1980–90. They estimate equations for the share of US corporate assets acquired by foreign entities and the share of US corporate assets accounted for by new foreign establishments. Several differences are identified. In particular, a higher price for the US dollar discourages takeovers, whereas the exchange rate is not significantly related to foreign investment in new establishments. Higher US stock prices are a stronger positive influence on foreign investment in new establishments than on foreign acquisitions. However, acquisitions and establishments of new firms both tend to occur in periods of high US growth.

More recently, Rossi and Volpin (2003) and di Giovanni (forthcoming) report the results of econometric analyses of cross-country determinants of international M&As. With reference to location-specific determinants of international M&A activity, Rossi and Volpin find that firms in countries with weaker investor protection are more likely to be acquired than those in countries with stronger investor protection, whereas buyers are more likely to be from countries with relatively strong investor protection. They also find that countries with more concentrated ownership have more M&As, including international M&As. Di Giovanni finds that the size of financial markets, as measured by the ratio of stock market capitalization to GDP, has a strong positive association with domestic firms engaging in foreign acquisitions.

Conceptual Distinctions among FDI Modes

Dunning (2001a) identifies the importance of cross-border M&As in the FDI process and offers a broad conceptual distinction among different modes of FDI. Specifically, he suggests that the location requirements of strategic asset-seeking FDI are different from those of natural-resource-, market- or efficiency-seeking FDI. In particular, the presence of high-quality physical and human infrastructure and a favourable political and commercial ethos towards M&As and cooperative alliances are especially important for strategic asset-seeking FDI.

Other studies also suggest a variety of possible factors that conceptually make M&A activity a more likely mode of FDI in some countries than in others. For example, Pugel (1985) hypothesizes that the depressed US stock market made entry by acquisition more attractive and more prevalent in the United States in the 1970s. Mody and Negishi (2001) argue that a recent upsurge in M&As in East Asia, particularly in Korea, can be attributed to government policy changes, including the introduction of international accounting standards and shareholding systems. Bridgeman (2002) asserts

that the fact that many multinational businesses are UK-based and that London has a leading position in the international financial markets means that a disproportionately large volume of cross-border M&As will include UK businesses.

Firm-level Studies of Mode Choice

Empirical evidence on the relevance of location-specific determinants of the M&A mode of FDI is indirectly supplied by studies of FDI mode choice.² Such studies typically identify firm-specific factors conditioning the choice of FDI mode; however, to the extent that the characteristics identified differ across populations of firms in various host and home countries, they contribute to potential differences in location-specific differences across host- and home-country firms in choosing the M&A mode of FDI.

For example, Harzing (2002) identifies the importance of MNC global strategy as an important determinant of mode choice. Specifically, MNCs pursuing a 'multi-domestic' strategy are more likely to favour the M&A mode, while those pursuing a 'global' strategy are more likely to choose greenfield investments. An inference one might draw is that countries with relatively large numbers of MNCs pursuing global strategies will be characterized by outward FDI largely comprised of greenfield investments, whereas countries that are home to MNCs primarily following a multi-domestic strategy will exhibit a strong preference for the M&A mode in its outward FDI activity.

As another example, Hennart and Reddy (1997) identify the accumulated international business experience of a company as an important determinant of that company's choice between M&As and joint ventures as an FDI mode. Firms with more international business experience are more likely to choose the M&A mode, *ceteris paribus*. The inference one might draw is that countries home to 'experienced' MNCs will have higher shares of outward FDI taking the form of M&As than will countries home to relatively inexperienced MNCs, other things constant.

Finally, Brouthers and Brouthers (2000) identify a number of institutional and cultural factors that influence the choice of greenfields versus M&A diversification for FDI. They hypothesize that firms entering markets with small cultural differences from their home countries should perceive low country risk and, therefore, use greenfields investments to maximize firm-specific advantages. However, cultural distance was a statistically insignificant variable in their estimation results. They also hypothesize that in slow growth markets, there is little room for capacity expansion, but there may be opportunities to acquire weaker competitors that are

struggling with market conditions. They find significant empirical support for this latter hypothesis.

Overall Assessment

In summary, the literature suggests that while certain country attributes seem relevant to all forms of FDI (mode-encompassing), there may be location-specific differences in the attractiveness of FDI through the M&A mode relative to other modes (mode-specificity).³ Even if true, this does not necessarily mean that empirical studies of FDI that ignore differences in major FDI modes will yield biased results. In particular, if the share of FDI represented by cross-border M&As is relatively constant across countries over time, econometric models of FDI that focus on changes in overall FDI at the country level will not necessarily produce biased results. Put differently, if the shares of FDI associated with cross-border M&As are constant across countries over time, location-specific determinants of the M&A mode will be captured in the constant terms of representative FDI equations.

Cross-country differences in the share of FDI represented by specific modes will be constant, among other things, if the market for international corporate mergers and acquisitions is efficient and competitive. If this is the case, differences in location-specific determinants of the relative advantage of the M&A mode of FDI should be fully reflected in the prices paid for mergers and acquisitions in home-country markets. For example, if M&As are expected to be more profitable than other modes of FDI in a specific country, foreign investors should bid up the relative prices of potential corporate acquisitions, over time, such that the profitability of M&As should be no different, at the margin, than the profitability of other modes of FDI. In this case, the shares of FDI accounted for by M&As across countries should converge to constant values over time.

In fact, the limited available evidence suggests that markets for international M&As are not perfectly competitive and efficient. For example, Harris and Ravenscraft (1991) find that acquirers' gains on foreign takeovers of US companies are significantly higher when the buyer's currency is strong relative to the dollar. This finding suggests that exchange rate valuations segment the ability of firms from different countries to compete for international acquisitions. More recently, Baker (2004) finds that temporary 'overvaluation' of source-country capital promotes FDI, whereas temporary 'undervaluation' of host-country assets has no significant impact on FDI flows.

In sum, there are potential reasons for concern that models of overall FDI determinants at the country level may yield biased statistical results by

failing to acknowledge explicitly differences in mode-specific location determinants of FDI choice, particularly international M&As. The associated biases, if present, should be non-monotonically related to the quantitative importance of M&As in overall FDI. At one extreme, to the extent that all FDI takes the form of international M&As, estimation of an M&A model is perforce equivalent to the estimation of a total FDI model. Variables that determine investment behaviour will be identical in both models. At the other extreme, if there is no M&A activity in FDI, ignoring mode-specific determinants of M&A activity will impart no bias to the overall FDI equation. Between these extremes, any specification bias should first increase and then decrease, as M&A activity becomes an increasing share of overall FDI activity.

The relevant statistical biases associated with ignoring mode-specific determinants of FDI behaviour will also be a function of the constancy of the shares of FDI owing to M&A activity across countries over time. Greater constancy of the shares mitigates the magnitude of any statistical biases associated with ignoring mode-specific determinants of FDI in country-level studies.

MODELING DIRECT INVESTMENT INFLOWS AND OUTFLOWS

Our empirical strategy is to specify and estimate two different equations to identify the cross-country determinants of M&A inflows and M&A outflows, and to compare the results with similar equations using FDI inflows and FDI outflows as the dependent variables. In order to do so, we extend the parsimonious models of FDI and FDI developed in Globerman and Shapiro (2002, 2003a). Thus, we estimate four separate sets of equations of the general form:

$$\begin{aligned} \text{Ln } Y_{it} = & \beta_0 + \beta_1 \text{Ln } GDP_{it-1} + \beta_2 \text{Growth } GDP_{it-1} \\ & + \beta_3 \text{Governance Index } (GI)_{it} + \beta_4 \mathbf{X}_{it} + \varepsilon_{it} \end{aligned} \quad (5.1)$$

Y represents the four dependent variables noted above, and \mathbf{X} represents a vector of control variables that measure mode-specific location advantages. These are described below, as are the other independent variables, which we refer to as mode-encompassing.⁴ Mode-encompassing variables should be interpreted as variables that conceptually affect all FDI modes to the same extent.

We have elsewhere suggested, with supporting evidence, that FDI inflows and outflows are, to a large extent, symmetrical (Globerman and

Shapiro, 1999, 2002). The presumption is that capital outflows may be stimulated by the same factors that encourage capital inflows. For example, superior governance encourages inward flows, as well as increased capital investment more generally. In particular, successful firms created through the domestic investment process are likely to invest abroad as world-class multinational companies. In effect, superior governance encourages capital investment and the expansion of businesses that, in turn, stimulates increases in both inward and outward FDI. In the next sub-section, we discuss in more detail how the statistical model was chosen and specified.

Determinants of Investment Inflows and Outflows

In specifying the list of independent variables, we drew upon both previous studies of aggregate FDI flows as well as recent studies that have focused on cross-country determinants of M&A activity. We therefore include variables that are mode-encompassing, as well as those that are M&A-specific, although, as we discuss below, in practice the conceptual distinction is not always sharp. These variables and their hypothesized signs are summarized in Table 5.1.

Mode-encompassing determinants

Mode-encompassing variables are those that might be expected to increase FDI, regardless of mode. We follow Rossi and Volpin (2003) in controlling for the size of the economy and its rate of growth as mode-encompassing

Table 5.1 *Expected signs of explanatory variables*

Variable	Inbound M&A	Inbound FDI	Outbound M&A	Outbound FDO
GDP	+	+	+	+
GDP growth	+	+	-	-
Governance Index	+	+	+	+
Development Index	+	+	+	+
Stock market capitalization*	+	+	+	+
Privatization*	+	+	Not included	Not included
Common law*	+	+	+	+
Investor protection*	+(-)	+(-)	+	+
China	+	+	0	0

Note: * indicates variables believed to be mode-specific.

variables. Country size is measured by the logarithm of gross domestic product (GDP). Large market size is expected to attract FDI because of economies of scale in production and distribution for products sold in the host market. In addition, larger markets may be associated with agglomeration economies that lower costs for all producers in that market. These advantages conceptually enhance the attractiveness of inward FDI regardless of mode. Additionally, large host-country market size suggests that a relatively large number of firms participate in the economy and represent potential acquisition targets. This implies that the effect of market size may include both agglomeration effects and procurement effects (Roberto, 2004). At the same time, multinational companies headquartered in large domestic economies are more likely to undertake outward FDI to the extent that location in a large domestic economy conveys firm-specific advantages to those companies, possibly related to agglomeration effects. For these reasons, we expect that GDP is positively associated with all four dependent variables.

The growth of GDP is included to capture potential future economic opportunities and the existence of economic rents. Specifically, rapid economic growth can contribute to disequilibria in input and output markets that create above average profit potential for investors who identify the opportunities and possess the resources to exploit those opportunities. We therefore expect growth to be positively related to the two variables measuring capital inflows, but negatively related to capital outflows, because a growing economy not only attracts investors from abroad, but also encourages domestic firms to invest locally. However, to the extent that successful acquisitions reflect unique synergies between specific acquirer and acquiree companies, the overall growth rate of the host economy might be a less important determinant of the M&A mode of FDI compared to other modes, especially greenfield investments (Blomström et al., 2000). This latter hypothesis is consistent with the argument in Brouthers and Brouthers (2000), identified in an earlier section, that market growth should promote greenfield investments.

The overall governance environment of the host and home economies can be expected to affect both FDI and FDO flows (Globerman and Shapiro, 2002, 2003a). Specifically, 'well-governed' host countries can expect to attract more inward FDI compared to other countries that offer 'less attractive' environments for private investment. Similarly, well-governed countries can be expected to spawn companies with the capabilities to be competitive in foreign markets. Hence governance should also be positively related to FDO. Whether or not governance is a mode-specific location factor may depend upon the precise way in which the measure is defined, as discussed below.

In previous work, we report on the importance of governance infrastructure as a determinant of FDI and FDO (Globerman and Shapiro, 2002, 2003a). Governance infrastructure refers to a country's political, institutional and legal environment, as well as to the policies that accompany them. We found that governance infrastructure is a critical (positive) determinant of both FDI and FDO. The governance infrastructure measure that we employ is a broad composite index that encompasses a wide diversity of country-specific factors, including political risk, macroeconomic and regulatory policies, rule of law and the extent of corruption. The governance index is sufficiently comprehensive that it accounts for a number of specific variables often included in studies of this kind.⁵ This broad measure is likely to be equally relevant for all modes of FDI, including M&As. Thus we expect that countries with strong governance structures will attract capital in all forms, and will also be capital exporters, again regardless of mode.

Previous studies have identified factors such as per capita GDP, physical infrastructure and human capital as determinants of FDI inflows. In order to control for all of these in a parsimonious way, we employ the Human Development Index (HDI) published by the United Nations. HDI is composed of three sub-indices: GDP/population, educational literacy and enrolment, and life expectancy at birth. The health and education components are direct measures of human capital. The GDP/population component is a measure of wealth that we use as a proxy measure for the amount of physical infrastructure. Although we include the HDI as a proxy measure of human capital and physical infrastructure, the HDI is also a development outcome that may itself be the result of good governance. It is therefore not surprising that HDI and GII tend to be positively correlated (see below). Nevertheless, we include both measures because development outcomes are also relevant to any discussion of FDI flows. We expect a positive relationship between HDI and both measures of capital inflows.

In general, we expect that measures of human capital and physical infrastructure should also encourage FDI outflows. These factors are likely to be associated with the ability of domestic firms to generate the firm-specific advantages that have been identified as necessary for international production (Dunning, 1993; Caves, 1996). Accordingly, we posit a positive relationship between HDI and the two measures of capital outflows.

Finally, we include a dummy variable for China in our basic estimating equation. Much publicity has attended large recent FDI inflows to China, particularly given the fact that China's governance infrastructure is not strong. Thus it is possible that China is receiving more FDI than would be

forecast by the model. We believe that this is so primarily because so much FDI in China has been undertaken by firms owned by Chinese expatriate families resident in countries that are themselves characterized by weak governance infrastructures (Thailand, Malaysia, Indonesia). Shapiro et al. (2003) have argued that expatriate Chinese family firms have developed particular skills in operating in environments with weak governance infrastructure. These advantages, together with their cultural familiarity, have resulted in capital inflows to China exceeding what our basic model would forecast. The same argument does not hold for capital exports from China, where we suggest no relationship between the China variable and the two measures of capital outflows.

We note that our model does not include a variety of country-level variables often included in other studies (albeit with mixed results).⁶ This is either because such variables are unavailable for a sample as large as ours (for example, corporate tax rates), or because they are correlated with one of the included variables. For example, a standard measure of openness to trade (imports + exports/GDP) is highly correlated with the governance variable. Further, Kaufmann (2003) has argued that governance is in fact more important to FDI than are indicators of macroeconomic and exchange rate stability.

Mode-specific determinants

Of the potential variables that make entry via the M&A mode more attractive, the most obvious are those associated with the liquidity and efficiency of capital markets. The ratio of stock market capitalization to GDP is one possible measure of stock market liquidity (di Giovanni, forthcoming). One would expect inward M&A activity to be greater in countries with more liquid stock markets, all other things constant. Likewise, liquid stock markets should make it easier for companies to raise financial capital that can be used, in turn, to acquire foreign companies. In short, we would expect both inward and outward M&A activity to be positively related to stock market liquidity.

The ability of firms to raise capital in liquid capital markets could also facilitate their ability to make other types of foreign investments besides acquisitions of foreign companies. Hence overall outward FDI could be positively related to stock market liquidity. While there is no reason to expect overall inward FDI to be directly related to stock market liquidity, liquid stock markets might be indicative of relatively liquid markets for other types of host-country assets that are sought out by foreign investors, including highly skilled domestic labour. If this is true, one might observe overall inward FDI to be positively related to stock market liquidity for reasons additional to the impact on M&A activity. In short, whether the

liquidity of capital markets is a mode-specific determinant of FDI is ultimately an empirical issue.

Rossi and Volpin (2003) suggest that cross-border acquisitions may be facilitated by the legal regime and degree of investor protection in both home and host countries. A country's legal regime has been identified as a critical determinant of financial market development. In particular, it has been argued that countries whose legal system originates in English common law offer better shareholder protection, better protection of property rights, and are more flexible in adapting to economic change, thereby offering better financial intermediation (LaPorta et al., 1998, 2000; Beck et al., 2003). Thus we expect that common law countries will host more cross-border mergers, and will also be the source of more cross-order mergers. Because M&A activity is a component of overall FDI and FDO, the same positive relationship should exist in the overall equations, although the magnitudes of the estimated coefficients might differ when comparing the overall FDI and M&A estimated equations.

To the extent that a country's legal regime conditions the development of financial markets, it may act as mediating variable in our FDI and M&A equations. Specifically, legal regime might enhance the liquidity of stock markets, and its impact could be felt indirectly through this channel. Alternatively, to the extent that the legal regime directly conditions the property rights regime, legal regime might also be seen as a subset of broader governance measures. However, the correlation between the broad governance index, GII, and the common law dummy is small, supporting Kaufmann's (2003) assessment that there are many common law countries with generally inferior levels of governance. In either case, one might fail to observe any direct relationship between legal regime and either cross-border M&A activity or overall FDI activity.

Similarly, LaPorta et al. (1997, 2000) find that strong shareholder protection is associated with more developed stock markets, higher valuation and lower capital costs. These developments are likely to facilitate M&A activity in general, including *both* inward and outward cross-border transactions (Rossi and Volpin, 2003). In addition, lower levels of shareholder protection are associated with higher levels of ownership concentration, which can retard acquisition activity (LaPorta et al., 1998, 2000).

Bris and Cabolis (2004) document that an international takeover of a firm characterized by weak investor protection by a firm characterized by strong investor protection leads to an increased market value for the acquired firm, with no decrease in market value for the acquiring firm. The inference one might draw is that strong investor protection should directly encourage increased 'outward' M&A activity from a country, while weak investor protection should encourage increased acquisitions in a country.

Thus we include in all equations a measure of investor protection, defined as the interaction of an index of shareholder rights with an index of the rule of law, both taken from LaPorta et al. (1998) and Pistor et al. (2000). The interactive term follows Johnson et al. (2000), who suggest that it reflects the difference between *de jure* measures of shareholder rights, and their *de facto* importance after controlling for the effectiveness of the legal system in enforcing contracts. To the extent that strong investor protection primarily enhances capital market efficiency, the impact on both inward and outward M&A activity is hypothesized to be positive, but indirect. To the extent that differences in shareholder protection facilitate wealth gains through asset ownership reallocations, companies headquartered in countries with strong shareholder protection should be observed to acquire companies headquartered in countries with weak protection (Rossi and Volpin, 2003), resulting in a positive (negative) effect in the outbound (inbound) M&A equation.

One additional variable that should be directly related to inward acquisitions is the degree of privatization activity in the host country. Privatization directly increases the number of potential companies that can be acquired by foreign investors and, therefore should be positively and directly related to inward M&A activity. However, countries pursuing privatization also usually engage in liberalization of regulations and policies that discourage capital investment, including investment by foreigners. Hence the privatization variable might well represent a broad and favourable change in governance that attracts various modes of foreign direct investment. In this context, it would be a mode-encompassing variable. We therefore include the ratio of privatization revenues to GDP in both the inbound FDI and M&A equations, with the expectation that the effect is positive. This variable is not included in the outward equations because domestic privatizations are not in theory related to outbound M&A activity.

In general, the hypothesized pattern of signs is the same for total inward (outward) flows and the inbound (outbound) M&A component of those flows, as can be seen in Table 5.1. However, we would also expect that the estimated impact of the mode-specific determinants would be higher in the M&A equations.

DATA

Definitions of the variables we use, their sources and descriptive statistics for the variables are provided in Tables 5.2, 5.3 and 5.4. We discuss these in two stages, beginning with the data on M&A activity, FDI and FDO (the dependent variables).

Table 5.2 Variables, definitions and data sources

Variable	Definition	Source
M&A (inbound)	Value of cross-border sales, average 1995–2001	United Nations Conference on Trade and Development (UNCTAD), <i>World Investment Report</i> , various years
M&A (outbound)	Value of cross-border purchases, average 1995–2001	UNCTAD
FDI (inflows)	Foreign direct investment inflows, average 1995–2001	UNCTAD
FDO (outflows)	Foreign direct investment outflows, average 1995–2001	UNCTAD
GDP	Nominal GDP, 1991–95, measured in natural logarithms	IMF, <i>World Economic Outlook Database</i> , 2003
GDP growth	Logarithmic growth rate, 1991–95	IMF
Governance Index	First principal component of six governance indicators (government effectiveness, political instability, rule of law, graft and corruption, voice and accountability, regulatory burden). Averaged 1996–2000	Kaufmann et al. (2003)
Development Index	Human Development Index, combining GDP per capita, education levels, and life expectancy. Averaged 1995–2001	United Nations Development Program (UNDP), various years
Common law	Dummy variable equals 1 if the legal regime of the country is based on English common law	LaPorta et al. (1998)
Stock market capitalization	Ratio of stock market capitalization to GDP, averaged 1995–99	Beck et al. (1999)
Investor protection	The interaction of an index of shareholder rights and an index of the rule of law. Available for only 70 countries, with one observation per country	LaPorta et al. (1998, 1999); Pistor et al. (2000)
Privatization	Average ratio of privatization revenues to GDP, for either 1988–98 or 1990–2000	Brune et al. (2003); OECD (2002)

Table 5.3 Correlation matrix of FDI variables (N = 154)

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)
(1) FDI (inflow)	7.62	2.50	1.00					
(2) FDO (outflow)	4.78	3.90	0.75	1.00				
(3) M&A (inbound)	5.62	3.66	0.86	0.73	1.00			
(4) M&A (outbound)	4.09	4.15	0.63	0.82	0.81	1.00		
(5) In ratio	0.33	0.32	0.50	0.47	0.76	0.59	1.00	
(6) Out ratio	0.43	0.44	0.34	0.49	0.58	0.73	0.44	1.00

Notes:

FDI, FDO, M&A (inbound) and M&A (outbound) are measured as natural logarithm (US dollars).

The in ratio is the ratio of cross-border sales to FDI; the out ratio is the ratio of cross-border purchases to FDO.

Foreign Direct Investment and Cross-border M&A Activity

The data, published by UNCTAD, cover both cross-border acquisitions of domestic companies (inbound investment) and cross-border purchases by domestic companies (outbound investment). These categories therefore augment the traditional aggregate measures of inbound foreign direct investment flows (FDI) and outbound foreign direct investment flows (FDO). The recent availability of data on cross-border M&A activity by country permits a comparison between these data, and overall foreign direct investment flows.

We have compiled data for all four series over the period 1995–2001, for a sample of 154 countries. It is important to recognize that although the data are collected by UNCTAD, they come from different sources, and are not strictly comparable. The FDI (FDO) series are compiled from IMF data, while the M&A data come from Thomson Financial. FDI and FDO flows include investment funds transferred between a parent and an affiliate. Negative flows can therefore be recorded if funds are withdrawn from an affiliate. The M&A series record the value of the transaction at the time it is finalized, and therefore cannot be negative. It is therefore possible that the value of recorded cross-border activity exceeds the value of recorded FDI (FDO) activity, despite the fact that the latter is the more comprehensive measure. In addition, the two series may not involve coincident temporal flows of funds if an M&A transaction involves staged payments, or if the date recorded by Thomson as the final date does not coincide with the recording of funds transferred in the balance of payments.⁷ Thus, use of a single year's data can be misleading, particularly for small countries, where a single remittance by an affiliate in a given year can

Table 5.4 Correlation matrix, independent variables (N = 154)

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) GDP (log)	2.77	2.19	1.00							
(2) GDP (growth)	0.12	0.25	-0.10	1.00						
(3) Governance index	-0.004	1.00	0.51	-0.15	1.00					
(4) Development index	0.68	0.19	0.56	0.05	0.65	1.00				
(5) Common law	0.31	0.46	-0.08	0.06	0.09	-0.06	1.00			
(6) Stock market cap	0.21	0.38	0.54	-0.14	0.58	0.41	0.22	1.00		
(7) Investor protection	19.39	11.68	0.42	-0.02	0.69	0.47	0.32	0.47	1.00	
(8) Privatization	0.05	0.07	0.21	-0.09	0.38	0.26	0.10	0.28	0.20	1.00

create temporary and possible large changes (negative) in recorded FDI. Likewise, a single large M&A can create large recorded inflows/outflows even for relatively large countries. In order to minimize problems created by negative inflows, non-coincident payments, and single large transactions, and to facilitate comparisons among the variables, we chose to average the various series over the sample period.

Broad characteristics of the data series are summarized in Table 5.3. The (US) dollar values of total FDI and cross-border M&A flows are expressed as natural logarithms. It can be seen that the four measures are strongly correlated. Thus countries that record large FDI (FDO) flows are on average more likely to have recorded large amounts of cross-border sales (purchases). In addition, countries that on average are large recipients of foreign capital by whatever means are also more likely to be capital exporters.

Table 5.3 also reports the ratio of inbound M&A to FDI, and outbound M&A to FDO. It suggests that across countries, inbound (outbound) M&A represents about 33 per cent (43 per cent) of total FDI (FDO) on average. It is important to recognize that because the original data are collected by different countries and agencies, it is not necessarily the case that aggregate outflows equal aggregate inflows, as one might expect. Further, some countries are omitted from our sample, also leading to non-equality of aggregate measures. Importantly, for most countries, M&A activity is not the major source of FDI, and there are large cross-country differences in the ratios.

The relative shares of M&A flows in total FDI and FDO reported in the preceding paragraph are substantially lower than those that have been reported in some other studies. For example, Kang and Johansson (2000) report that, for developed countries, the share of M&As in inward FDI increased almost continuously from around 62 per cent in 1991 to virtually 100 per cent in 1997. For the entire period, 1991–97, this share averaged around 84 per cent. Inward cross-border M&As as a share of inward FDI was lower for developing countries, but the average share was around 70 per cent over the period 1991–98.

The most plausible explanation of the differences between our estimates and those of Kang and Johansson (and others) is that our estimates are obtained as the simple averages of the relevant ratios across our sample of countries, whereas Kang and Johansson simply divide the value of all international M&As by the value of total FDI flows. Given substantial variation in the relative importance of M&A activity across our sample of countries, it is econometrically feasible to identify variables that are specifically relevant to the M&A mode to the extent such variables exist.

In addition, it proved necessary to adjust the data in order to create the relevant ratios. For example, when FDI flows were negative, but the country recorded positive M&A amounts, the M&A to FDI ratio was recorded as

one. Similarly, when recorded M&A amounts for a country exceeded total FDI or FDO flows, a value of one was assigned. This procedure was necessary because, for some countries, very small reported FDI flows were accompanied by large reported M&A amounts, resulting in implausibly large ratios.

The data suggest that FDI and FDO flows are less concentrated than are M&A flows across our sample of countries. The variance of logarithmic outcomes is often used as a measure of concentration (or convergence, if used over time). The variance of the logarithm (the standard deviation, squared) of the FDI series is lower than that of the inbound M&A series, and that of the FDO series is lower than the outbound M&A series. Cross-border M&A activity, both inward and outward, is therefore concentrated among a smaller number of countries compared to FDI and FDO. Indeed, when examining the raw data, one finds that of the 154 countries, 27 recorded no inbound M&A activity and 31 no outbound M&A activity over the entire period. On the other hand, all countries recorded some FDI activity, and although 31 countries also recorded no FDO activity, the rest was allocated more evenly among the remaining countries than was the comparable M&A activity.

The fact that M&A activity is concentrated is consistent with previous evidence. Globerman and Shapiro (2003b) highlight the surge of acquisitions made by EU-based investors in the late 1990s. UK-based firms were especially active acquirers. They also identify the growing prominence of US-based firms as acquisition targets. Likewise, Kang and Johansson (2000) indicate that there is a marked concentration of international M&A activity in a relatively small number of developed countries. The result is also consistent with the observation by Head et al. (1995) that new ventures may locate anywhere, but acquirers are limited by the location of potential targets.

In order to analyze whether this concentration might be expected to persist, we examined the correlation coefficients of the series over time. Specifically, we examined the correlation between FDI flows in 1995 and each subsequent year until 2001. For each series, the correlation coefficients declined over time, but the decline was less pronounced for the M&A series. For FDI flows, the correlation coefficient between 1995 flows and 1996 flows was $r = 0.81$; by 2001 it was $r = 0.55$. The correlation pattern for the FDO series was similar. In contrast, the correlation coefficient between 1995 M&A inflows and 1996 inflows was $r = 0.89$; by 2001 it was $r = 0.80$. Even higher values were recorded for the M&A outflow series where the 1995/1996 and 1995/2001 correlation coefficients were 0.90 and 0.85, respectively. Thus cross-country patterns of M&A activity tend to exhibit greater 'persistence' than patterns for overall FDI.

In summary, given the prominence of M&A activity as a source of FDI, and given the high correlation between the measures across our sample of countries, one might expect to find strong similarities in the estimated equations for M&A and overall FDI activity. Nevertheless, there are significant differences in the M&A and overall FDI series across our country sample, and those differences might reflect mode-specific country advantages that are potentially identifiable through econometric analysis.

Correlation among Independent Variables

Table 5.4 presents descriptive statistics and correlation coefficients for the independent variables. It is evident that many of the variables are quite highly correlated, and that multicollinearity represents a potential problem. However, even the highest correlation coefficient (0.69) is not that high when compared to the R^2 values of above 0.7 for the estimated equations (reported below). In addition, we calculated the Variance Inflation Factor (VIF) for each variable (Greene, 2003). No VIF exceeded 2.5, indicating that multicollinearity is not likely of general concern.

The highest correlation coefficients are observed between the Governance Index (GII) and the measure of investor protection, the Human Development Index (HDI) and the stock market capitalization rate. Likewise, the highest VIF values were typically found for the GII and stock market capitalization. These results likely indicate the generality and scope of the GII. Because of this, we report results below where the GII is excluded. We also explore further the relationship between the governance index and stock market capitalization.

We also note the relatively low correlation between the GII and the common law term (0.09), despite the fact that the former contains a rule of law component. This suggests that common law countries may possess advantages in terms of specific legal outcomes (such as property rights), but that they are not necessarily superior when considered in a broader legal context that includes such things as the right to trial, the ability to confront accusers etc. (Kaufmann, 2003). Nevertheless, we did remove the rule of law component from the GII, although this does not change the results reported below.

ESTIMATION AND RESULTS

In this section, we report regression results focusing first on inflows of foreign investment and then outflows. Our primary interest is in comparing the estimated results for the inward FDI and M&A equations and the

outward FDI and M&A equations, although differences in the determinants of inward and outward flows are also of some interest.

FDI and M&A Inflows

The basic results for the two inflow models are found in Table 5.5. Because of the relatively large number of countries that reported no inbound M&A activity, the M&A equation is estimated using Tobit. The FDI inflow equation was estimated by OLS (ordinary least squares), with heteroscedastic-consistent standard errors. We tested a variety of alternative specifications to those reported, mainly through the use of a variety of interactive terms, including interactions of governance measures and stock market capitalization. None proved to be statistically significant, and they are not reported. Furthermore, the HDI was never statistically significant in any of our equations (unless entered alone with log GDP), and so no results including that variable are reported in Table 5.5.

One primary concern with respect to Table 5.5 is whether specific variables are statistically significant in the M&A equations but not in the overall FDI equations, in particular the variables we characterize as mode-specific. When comparing estimation results of the M&A and FDI models, they are clearly similar, if not identical, at least in terms of the signs of the coefficients, and their levels of statistical significance. Specifically, GDP, privatization, good governance and stock market capitalization all have positive coefficients (the expected signs) and, with the exception of the privatization coefficient in equation 5.2, the coefficients are always statistically significant.

The common law variable is never statistically significant, which may support Kaufmann's (2003) claim that broad measures of governance are more statistically robust than measures of common law in models of investment behaviour. As noted above, the impact of common law might be indirect, in any case, through its influence on the growth of domestic capital markets. To assess this possibility further, we regressed stock market capitalization on the common law term (controlling for GDP and GDP growth). The relevant coefficient was positive and statistically significant, thereby providing support for an indirect influence of common law.

The investor protection coefficient is significant only when the stock market variable is excluded from the model. This latter result suggests that the impact of investor protection may be largely experienced by the conditioning role it plays in encouraging liquidity in capital markets.⁸ However, given the relatively high correlation between the governance index and the index of investor protection, we cannot confidently separate the effects of the two variables statistically. In any case, there is no evidence that investor protection is a mode-specific variable.

Table 5.5 FDI and M&A inflows

	M&A inflows (Tobit estimates) Cols 1–6				
	(1)	(2)	(3)	(4)	(5)
Log GDP	1.17** (0.106)	1.07** (0.113)	1.21** (0.096)	1.38** (0.089)	1.20** (0.107)
Growth GDP	0.218 (0.714)	-0.222 (0.721)	0.163 (0.711)	-0.078 (0.748)	-0.671 (0.743)
Privatization	10.27** (2.59)	5.34** (2.49)	10.13** (2.58)	13.14** (2.59)	6.32** (2.48)
Governance Index	0.708** (0.238)	0.544** (0.262)	0.784** (0.216)		
Common law	-0.057 (0.399)	-0.301 (0.464)		0.131 (0.405)	
Investor protection		0.020 (0.968)			0.050** (0.017)
Stock market capitalization	0.516* (0.288)	0.860* (0.499)			
China	-0.426 (2.137)		-0.519 (2.13)	-1.28 (2.24)	
Intercept	1.66** (0.380)	2.56** (0.606)	1.67** (0.361)	0.999** (0.352)	1.73** (0.498)
Adjusted R^2					
Log likelihood	-296.73	-117.35	-297.01	-303.16	-120.99
N	150	68	150	150	68

Notes:

Values in parentheses are standard errors.

** indicates significance at 5% levels;

* at 10% levels. For OLS estimates, standard errors are adjusted for heteroscedasticity.

Two clear differences are identifiable when comparing the M&A and the FDI equations in Table 5.5. First, fast-growing economies attract FDI in general, but apparently not *via* mergers and acquisitions. Although this result seems anomalous, it may be consistent with our *a priori* reasoning for including the growth term. We suggested that the growth of GDP represents the potential for economic rents to be created by the growth process. However, such rents may be tied primarily to the establishment of new businesses, perhaps in new or radically restructuring industries. In this case, the capture of extant rents might primarily motivate greenfield investments. This interpretation is consistent with Brouthers and Brouthers's (2000) argument that there is room for capacity growth in faster-growing markets.

A second difference is that the China dummy variable is positive and

FDI inflows (OLS estimates) Cols 7–12						
(6)	(7)	(8)	(9)	(10)	(11)	(12)
1.26**	0.726**	0.725**	0.763**	0.881**	0.817**	0.783**
(0.105)	(0.064)	(0.073)	(0.059)	(0.047)	(0.060)	(0.058)
0.115	1.17**	0.871**	1.09**	0.929**	0.518*	1.08**
(0.737)	(0.499)	(0.353)	(0.500)	(0.462)	(0.266)	(0.489)
12.72**	4.11**	1.91	3.91**	6.09**	2.33**	5.71**
(2.53)	(1.21)	(1.23)	(1.16)	(1.56)	(1.10)	(1.44)
	0.492**	0.327**	0.569**			
	(0.183)	(0.160)	(0.173)			
	-0.151	-0.337		0.026		
	(0.223)	(0.292)		(0.213)		
		0.003			0.023**	
		(0.012)			(0.008)	
1.31**	0.557*	0.525**				1.07**
(0.622)	(0.321)	(0.210)				(0.339)
-0.847	1.86**		1.78**	1.23**		1.59**
(2.21)	(0.385)		(0.379)	(0.318)		(0.342)
1.12**	5.28**	5.83**	5.26**	4.83**	5.30**	4.89**
(0.334)	(0.187)	(0.402)	(0.177)	(0.211)	(0.256)	(0.180)
	0.733	0.852	0.733	0.698	0.820	0.714
-301.02						
150	150	68	150	150	68	150

statistically significant in the total FDI equation, but not in the M&A equations. As expected, China has received more FDI than would be forecast for a country with its governance profile and level of financial development. This is almost surely the result of investments by expatriate Chinese. However, these inflows have apparently not assumed the form of M&A, since the China coefficient is not statistically significant in the M&A equation. This is not a surprising result, since, over much of this period, M&A activity was restricted in China, so that most of the inflows were in the form of greenfields investments or joint ventures.

The OLS and Tobit coefficient estimates are not directly comparable, in part because the dependent variables are defined differently, but also because the marginal effects are different for the two estimation methods

(Greene, 2003, p. 764). In order to compare the marginal effects of each variable, the Tobit coefficients must be adjusted to account for the probability that a non-zero outcome is observed. We did so, following Greene (2003, p. 765). On average, the marginal impact of each Tobit coefficient in the M&A equations is the value of the coefficient times 0.82. For the most part, the *marginal* impact of the relevant independent variable in the M&A equation is slightly higher than that for the FDI equation. For example, one might compare equations 5.1 and 5.7 by multiplying each coefficient in equation 5.1 by the 0.82 factor. For the single most important variable (GDP), the adjusted coefficient in equation 5.1 equals 0.936 compared to 0.726 in the first equation. The adjusted governance coefficient in equation 5.1 (0.566) is somewhat higher than the comparable coefficient in equation 5.7 (0.492). The coefficients for privatization are substantially different (8.22 in equation 5.1 and 4.11 in equation 5.7). Interestingly, the marginal impact of the stock market term is lower in the M&A equation when compared to the FDI equation (0.413 and 0.557, respectively).

In order to determine how statistically important these effects were, we regressed the difference between Ln FDI and Ln M&A on the explanatory variables. The only statistically significant coefficients were Ln GDP, the Governance Index and the privatization term, with negative signs indicating that the impact was higher in the M&A equations.

In summary, there is a substantial overall qualitative correspondence between models of inward M&A activity and models of inward overall FDI. For the most part, they share a common set of significant variables, including those that we characterized as mode-specific. Although one must be cautious in drawing precise comparison of the coefficients in the two models, it does appear that large market size, effective governance and privatization efforts are associated with relatively higher levels of inbound M&As. Thus we are unable to identify with confidence uniquely mode-specific determinants of cross-border M&A activity. However, the results emphasize the importance of governance infrastructure in the FDI process, including its impact on M&A inflows.

FDI and M&A Outflows

The basic results for the outflow estimations are reported in Table 5.6, which is organized in the same manner as Table 5.5. The outflow results are both similar to, and different from, the inflow results. There is considerable symmetry arising from the positive and significant effects on outflows arising from market size, governance and stock market capitalization. Larger economies experience both more inflows and more outflows with respect to overall FDI and M&As. Likewise, better governance and more liquid stock

markets not only encourage foreign-owned MNCs to establish affiliates in a country, but they also facilitate the growth of domestically owned MNCs that then establish their own affiliates abroad. Investor protection also acts symmetrically in the outflow equations. The sign is positive, but only statistically significant when the more general governance term is omitted. In general, an effective domestic governance infrastructure and well-functioning capital markets likely encourage capital outflows by successful domestic firms.⁹

The finding that countries characterized by more effective capital markets are likely to be capital exporters, including M&A outflows, is further reinforced by some evidence suggesting that common law countries are more likely to support outbound M&A activity. As was the case for inflows, the common law coefficient is never significant for total FDO. However, unlike the inflow case, it is at times statistically significant and positive in the M&A outflow equations. These results are consistent with the view that good governance is exported through M&A activity (Rossi and Volpin, 2003; Bris and Cabolis, 2004), and with the view that stock market liquidity in the home-country facilitates cross-border M&A activity (di Giovanni, forthcoming). However, it must also be borne in mind that the number of countries whose firms are in fact subject to takeover is relatively restricted.

Differences between the inflow and outflow equations are also observable. In particular, the GDP growth coefficients are negative and (mostly) statistically significant in both the FDO equations and the M&A equations. These results suggest that the lure of larger economic rents in fast-growing home countries outweighs any advantages that faster home-country economic growth may provide in the form of increased internal financing capabilities that, in turn, permit relatively low-cost financing for overseas' investments.

Unlike the case for FDI, we have some evidence that HDI affects capital outflows, in particular those accomplished by M&A. For total FDO, the HDI coefficient is statistically significant only when the governance term is absent. However, in the M&A outflow equations, the HDI coefficient is positive and statistically significant, even in the presence of GII. This is consistent with the view that HDI measures the ability of domestic firms to generate firm-specific advantage that can be transferred abroad. Finally we note that the China dummy variable, included for completeness, is not statistically significant in the outflow equations. The 'China' effect is limited to total FDI inflows.

The two sets of outflow equations lead to broadly similar qualitative results. The important determinants of outward M&A activity, by and large, also determine other modes of outward direct investment. As in the case of the inflow equations, the coefficients obtained through the Tobit estimation do not measure marginal effects. The deflation factor for the

Table 5.6 FDO and M&A outflows

	M&A outflows (Tobit estimates) Cols 1-6				
	(1)	(2)	(3)	(4)	(5)
Log GDP	1.37** (0.115)	1.39** (0.12)	1.40** (0.116)	1.52** (0.113)	1.64** (0.141)
Growth GDP	-1.88** (0.786)	-1.71** (0.787)	-1.43* (0.833)	-2.53** (0.835)	-2.53** (0.943)
Human Development Index	7.79** (1.65)	-1.34 (2.79)	6.15** (1.68)	8.07** (2.35)	4.57** (2.23)
Governance Index	0.976** (0.264)	1.46** (0.352)	1.30** (0.264)		
Common law	1.88** (0.427)	0.462 (0.536)		2.43** (0.437)	
Investor protection		-0.023 (0.022)			0.053** (0.021)
Stock market cap	0.366 (0.575)	1.00** (0.46)			
China	0.788 (2.07)				
Intercept	-6.29** (1.20)	1.30 (2.12)	-4.64** (1.15)	-9.80** (1.09)	-4.69** (1.53)
Log likelihood	-230.4	-114.51	-241.72	-238.00	-128.55
N	154	70	154	154	70

Notes:

Values in parentheses are standard errors.

** indicates significance at 5% levels;

* at 10% levels.

equations in Table 5.4 is (0.8) or approximately the same as for the M&A inflow case. However, since the impacts of all variables in both sets of equations are overstated by the same relative amount, a direct comparison of coefficients is meaningful. For the most part, the estimated coefficients are quite similar in the two sets of equations, with the M&A coefficient being mostly higher (although the stock market term is an important exception). A regression of the difference between Ln FDO and Ln M&A on the explanatory variables revealed that the Ln GDP, governance and common law terms were statistically negative, indicating higher values in the M&A equations. Larger economies with better governance infrastructure have relative advantages in attracting cross-border M&As, and in serving as a source of cross-border M&As.

FDO outflows (Tobit estimates) Cols 7-12						
(6)	(7)	(8)	(9)	(10)	(11)	(12)
1.36**	1.10**	1.23**	1.18**	1.28**	1.43**	1.12**
(0.130)	(0.127)	(0.163)	(0.117)	(0.121)	(0.168)	(0.128)
-1.86**	-1.70**	0.868	1.13	-1.91**	0.108	-1.51*
(0.871)	(0.787)	(1.055)	(0.865)	(0.896)	(1.123)	(0.879)
9.96**	-1.34	-1.08	1.71	5.07**	4.52*	4.27**
(1.56)	(2.79)	(3.83)	(1.57)	(1.41)	(2.72)	(1.38)
	0.895**	1.16**	1.09**			
	(0.300)	(0.482)	(0.281)			
	0.462	-0.037		0.687		
	(0.536)	(0.747)		(0.471)		
		-0.002			0.057**	
		(0.030)			(0.025)	
1.98**	1.08*	1.18*				1.86**
(0.590)	(0.630)	(0.647)				(0.637)
	1.19					
	(2.51)					
-7.59**	0.086	1.82	0.302	-2.41**	-3.57*	-1.66**
(1.05)	(1.040)	(2.93)	(1.014)	(0.871)	(1.89)	(0.841)
-247.72	-314.70	-141.73	-316.29	-322.27	-147.58	-319.12
154	154	70	154	154	70	154

Extensions

The results for both inflow and outflow equations suggest that although the qualitative determinants of M&A and total FDI (FDO) flows are the same, the quantitative effects can differ. In particular, our results indicate that increases in market size and governance will increase the relative importance of M&A inflows and outflows to a particular country. In addition, we find little evidence that stock market capitalization acts as a mode-specific variable.

In order to shed further light on these results, we first re-estimated all the equations on a sample of developing countries (defined by excluding OECD members plus Singapore, Hong Kong and Israel). This exercise was designed

to determine whether our results were dependent in any way on the development cycle. In fact, the results were nearly identical in all ways to those reported above. The only important exception was that the stock market capitalization term is not always significant in the M&A inflow equation. Thus we conclude that the results are robust to sample composition and development cycle effects. More specifically, the correspondence in results between the overall FDI and the M&A equations is not unique to developed countries that account for a disproportionate share of M&A activity.

Secondly, we searched for evidence of mediating and moderating variables (James and Brett, 1984; Fox, 1997). We searched for moderating variables by including a variety of interactive terms (such as interactive terms between governance and GDP, and governance and stock market capitalization), but none were found to be statistically significant. In the case of mediating variables, we focused on the relationship between the governance index and stock market capitalization. We did so because our previous results suggested that they were correlated, and that the hypothesized impact of stock market effects did not appear to be strong in the presence of the governance term, and vice versa. We therefore tested the proposition that the relationship between governance and M&A inflows or outflows is mediated by the degree of stock market capitalization. We found that governance and stock markets both have independent direct (positive) effects on M&A inflows and outflows, and that governance has a direct positive effect on stock market capitalization. When jointly included in an M&A equation, the governance variable has a reduced impact, indicating partial mediation. We conclude that effective governance infrastructures are associated with efficient and liquid capital markets. The impact of governance on inbound and outbound M&A activity is therefore both direct and indirect. Effective capital markets are indeed an important determinant of cross-border M&A activity, but their measured impact is reduced when governance variables are included.

SUMMARY AND CONCLUSIONS

The purpose of this paper is to identify the determinants of cross-border M&A inflows and outflows, and to compare them with the determinants of other modes of FDI. In doing so, we consider whether there are mode-specific determinants of FDI. We use a new database on M&As for a large sample of countries to accomplish this purpose. On balance, we find that most of the important variables influencing inward and outward M&A flows are the same variables that are prominent in models of aggregate inward and outward FDI flows. However, coefficient values for those variables differ when comparing the M&A equations to the overall FDI equations.

Our results in this paper confirm the empirical significance of macro governance variables as determinants of inward and outward FDI regardless of mode. They also identify potential interactions among measures of governance. For example, the statistical importance of liquid and efficient capital markets in models of M&As has been identified in a number of studies. While we confirm this finding, we also show that good overall governance promotes more liquid stock markets. The importance of common law as a determinant of investment behaviour has also been prominently mentioned in the literature. We show that common law is a relatively poor empirical determinant of FDI compared to overall governance. As such, our paper contributes to a better understanding of the relationships among various measures of governance and their impacts on investment behaviour.

To be sure, there are some differences in the structure of the M&A and aggregate FDI models. In particular, economic growth is an important determinant of aggregate FDI flows but not M&A flows. Another prominent difference between the equation structures is the identification of a strong 'country effect' for China with respect to aggregate FDI but not with respect to M&A flows. To the extent that China continues to liberalize its restrictions against foreign acquisitions of domestically owned companies, this difference is likely to disappear.

In the absence of evidence from simulation studies, it is difficult to evaluate how much more accurate models of overall FDI would be if more explicit attention were paid to mode-specific determinants. Our evidence at least suggests that the convenience of being able to estimate aggregate FDI models might well outweigh any modeling improvements associated with disaggregating FDI into its mode components and estimating equations for each individual mode. However, our results do indicate that the effects of some variables, notably governance, are stronger in the M&A equations. Thus countries with strong governance infrastructures will not only attract relatively more inbound M&A; they will generate relatively more outbound M&A.

It is worth reemphasizing that our empirical approach focuses on identifying the receiving and sending locations for M&A flows, as well as for overall FDI flows. In effect, we assume that the decision regarding where to invest is independent of the decision regarding how to invest. While this implicit assumption governs almost all studies that focus on location choices of foreign investors, it is possible that some investors make both decisions simultaneously. As such, the estimated coefficients from our reduced-form equations may be biased. In this context, it is wise that we do not claim too much for our results. In future work, we intend to examine whether and how conclusions about location choice change if FDI mode and location decisions are modeled as being made simultaneously.

As an indirect outcome, our study reinforces the findings of a growing literature that documents the role that governance plays in the FDI process. In particular, our study suggests that broad measures of governance are more informative than relatively narrow measures, such as a country's legal heritage or ownership protection. Nevertheless, narrow measures of governance may condition important institutions, such as capital markets, which, in turn, are directly important influences on FDI behaviour.

NOTES

- * We are grateful to Lorraine Eden, John Dunning, Richard Lipsey and most of all to Ed Safarian for comments and encouragement. Thanks to Gregory Brown and Yao Tang for research assistance.
1. We use the term 'M&A' without distinction between 'mergers' and 'acquisitions'. In fact, acquisitions dominate cross-border M&A transactions. See Chen and Findlay (2002).
 2. Examples include Harzing (2002), Chang and Rosenzweig (2001), Davis et al. (2000) and Hennart and Reddy (1997).
 3. Mayrhofer (2004) summarizes a substantial number of recent empirical studies that discuss how the FDI mode choice might be influenced by the national environment of firms.
 4. The model is specified such that both FDI flows and GDP are measured in logarithms, with the GDP coefficient measuring the elasticity of FDI flows. Numerous studies document the overwhelming empirical importance of GDP as a determinant of FDI. Given its GDP level, a country will be more or less attractive to foreign investors depending upon the extent and nature of its infrastructure and quality of life. Alternative specifications to (5.1) were considered and tested. In particular, we estimated models in which the dependent variable was specified as the ratio of FDI (inflows or outflows) to GDP, and the Ln GDP term was dropped as an explanatory variable. This specification was rejected because the dependent variable was typically clustered within a narrow range, and the limited variation produced very unreliable parameter estimates and low degrees of explanatory power when either OLS or Tobit estimation methods were employed. As an alternative, the logisitic transformation of the FDI/GDP ratio was calculated and employed as the dependent variable. This specification produced results that are similar to those reported below.
 5. The governance index we use was first developed by Kaufmann et al. (1999a and 1999b), and recently expanded upon and updated by Kaufmann et al. (2003), hereafter KKM. They estimate six separate indices (which we will refer to as KKM indices) including measures of political instability, rule of law, graft, regulatory burden, voice and political freedom, and government effectiveness. The indices have been estimated (using an unobserved components model) employing 31 different qualitative indicators from 13 different sources, including BERI, DRI/McGraw-Hill, the Heritage Foundation, the World Bank, the World Economic Forum and the Economist Intelligence Unit. The indices are highly correlated with each other such that it is very difficult to use them all in a single equation (Globerman and Shapiro, 2002). We therefore created an aggregate measure estimated as the first principal component of the six measures. We refer to this aggregated governance infrastructure index as GII. The data are available at: <http://www.worldbank.org/wbi/governance/datasets.htm#dataset>
 6. Such variables include relative labor costs, trade intensities, exchange rate regimes and volatility and tax rates.

7. Similar caveats are discussed in Calderon et al. (2002).
8. Note that the investor protection variable was available only for a truncated sample of 68 countries.
9. There is no notion implied here that FDI is necessarily good while FDO is bad for a country. Both flows contribute to an increased specialization of international production that should improve real incomes internationally.

REFERENCES

- Baker, M. (2004), 'Stock market valuation and foreign direct investment', Cambridge: Harvard Business School, mimeo.
- Beck, Thorsten, Asli Demirguc-Kunt and Ross Levine (1999), 'A new database on financial development and structure', World Bank.
- Beck, Thorsten, Asli Demirguc-Kunt and Ross Levine (2003), 'Law and finance: why does legal origin matter?', *Journal of Comparative Economics*, **31**, 653–75.
- Blomström, Magnus, Ari Kokko and M. Zejan (2000), *Foreign Direct Investment*, New York: St. Martin's Press.
- Bridgeman, J. (2002), 'International mergers and acquisitions', *European Business Journal*, **14**(2), 58–63.
- Bris, A. and C. Cabolis (2004), 'Adopting better corporate governance: evidence from cross-border mergers', Yale School of Management, mimeo.
- Brouthers, Keith D. and Lawrence Eliot Brouthers (2000), 'Acquisition of greenfield start-up? Institutional, cultural and transaction cost influences', *Strategic Management Journal*, **21**, 89–97.
- Brune, Nancy, Geoffrey Garrett and Bruce Kogut (2003), 'The international monetary fund and the global spread of privatization', mimeo.
- Calderon, Cesar, Norman Loayza and Luis Servén (2002), 'Greenfield FDI vs. mergers and acquisitions: does the distinction matter?', Central Bank of Chile, Working Paper No. 173, mimeo.
- Caves, Richard E. (1996), *Multinational Enterprise and Economic Analysis*, Cambridge: Cambridge University Press.
- Chang, Sea-Jin and P. Rosenzweig (2001), 'The choice of entry mode in sequential foreign direct investment', *Strategic Management Journal*, **22**, 747–76.
- Chen, C. and C. Findlay (2002), 'A review of cross-border mergers & acquisitions in APEC', Canberra: The Australian National University, mimeo.
- Davis, E., A. Desai and J. Francis (2000), 'Mode of international entry: an isomorphism perspective', *Journal of International Business Studies*, **31**(2), 239–58.
- Di Giovanni, Julian (forthcoming), 'What drives capital flows? The case of cross-border M&A activity and financial deepening', *Journal of International Economics*.
- Dunning, John H. (1993), *Multinational Enterprises and the Global Economy*, Wokingham, UK: Addison-Wesley Publishing Company.
- Dunning, John H. (2001a), 'The eclectic (OLI) paradigm of international production: past, present and future', *International Journal of Economics and Business*, **8**(2), 173–90.
- Dunning, John H. (2001b), 'The key literature on IB activities', in Alan M. Rugman and Thomas L. Brewer (eds), *The Oxford Handbook of International Business*, Oxford: Oxford University Press, pp. 127–49.

- Evenett, S.J. (2003), 'The cross-border mergers and acquisitions wave of the late 1990s', Cambridge, MA: National Bureau of Economic Research Working Paper 9655.
- Feliciano, Z. and Richard E. Lipsey (2002), 'Foreign entry into US manufacturing by takeovers and the creation of new firms', paper presented at Annual Conference of the Western Economic Association, Seattle, June 29–July 2, mimeo.
- Fox, J. (1997), *Applied Regression Analysis, Linear Models and Related Methods*, Newbury Park, CA: Sage.
- Globerman, Steven and Shapiro, Daniel (1999), 'The impact of government policies on foreign direct investment: the Canadian experience', *Journal of International Business Studies*, **30**(3), 513–32.
- Globerman, Steven and Daniel Shapiro (2002), 'Global foreign direct investment flows: the role of governance infrastructure', *World Development*, **30**(11), 1898–919.
- Globerman, Steven and Daniel Shapiro (2003a), 'Governance infrastructure and US foreign direct investment', *Journal of International Business Studies*, **34**, 19–39.
- Globerman, Steven and Daniel Shapiro (2003b), 'Assessing recent patterns of foreign direct investment in Canada and the United States', in Richard Harris (ed.), *North American Linkages: Opportunities and Challenges for Canada*, Calgary: University of Calgary Press, pp. 281–312.
- Greene, W.H. (2003), *Econometric Analysis*, 5th edn, Upper Saddle River, NJ: Prentice-Hall.
- Harris, Richard S. and David Ravenscraft (1991), 'The role of acquisitions in foreign direct investment: evidence from the US stock market', *The Journal of Finance*, **46**(3), 825–44.
- Harzing, Anne-Wil (2002), 'Acquisitions versus greenfield investments: international strategy and management of entry modes', *Strategic Management Journal*, **23**, 211–27.
- Head, C. Keith, John Ries and D.J. Swenson (1995), 'Agglomeration benefits and location choice: evidence from Japanese manufacturing investments in the United States', *Journal of International Economics*, **38**, 223–47.
- Hennart, Jean-François and Sabine Reddy (1997), 'The choice between mergers/acquisitions and joint ventures: the case of Japanese investors in the United States', *Strategic Management Journal*, **18**, 1–12.
- James, L.R. and J.N. Brett (1984), 'Mediators, moderators, and tests for mediation', *Journal of Applied Psychology*, **69**, 307–21.
- Johnson, Simon, Peter Boone, Alasdair Breach and Eric Friedman (2000), 'Corporate governance in the Asian financial crisis', *Journal of Financial Economics*, **58**, 141–86.
- Kang, N.H. and S. Johansson (2000), 'Cross-border mergers and acquisitions: their role in industrial globalization', STI Working Papers 2000/1, Paris: OECD, mimeo.
- Kaufmann, D. (2003), 'Governance redux: the empirical challenge', World Bank Policy Research Department Working Paper, available at: <http://www.worldbank.org/wbi/governance/pubs/govredux.html>
- Kaufmann, Daniel, A. Kraay and P. Zoido-Lobaton (1999a), 'Aggregating governance indicators', World Bank Working Paper 2195, available at: <http://www.worldbank.org/wbi/governance>

- Kaufmann, Daniel, A. Kraay and P. Zoido-Lobaton (1999b), 'Governance matters', World Bank Working Paper 2196, available at: <http://www.worldbank.org/wbi/governance>
- Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi (2003), 'Governance matters III: governance indicators for 1996–2002', World Bank Policy Research Department Working Paper, available at: <http://www.worldbank.org/wbi/governance>
- Lall, S. (2002), 'Implications of cross-border mergers and acquisitions by TNCs in developing countries: a beginner's guide', QEH Working Paper Series, mimeo.
- LaPorta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1997), 'Legal determinants of external finance', *Journal of Finance*, **52**, 1131–50.
- LaPorta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1998), 'Law and finance', *Journal of Political Economy*, **101**, 678–709.
- LaPorta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1999), 'The quality of government', *Journal of Law, Economics and Organization*, **15**, 222–79.
- LaPorta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (2000), 'Investor protection and corporate governance', *Journal of Financial Economics*, **58**, 3–27.
- Letto-Gillies, G., M. Meschi and R. Simonetti (2001), 'Cross-border mergers and acquisitions: patterns in the EU and effects', London: South Bank University, mimeo.
- Mayrhofer, U. (2004), 'The influence of national origin and uncertainty on the choice between cooperation and merger-acquisition: an analysis of French and German firms', *International Business Review*, **13**, 83–99.
- Mody, A. and S. Negishi (2001), 'Cross-border mergers and acquisitions in East Asia: trends and implications', *Finance & Development*, **38**(1), 1–8.
- OECD (2002), 'Recent privatization trends in OECD countries', *Financial Market Trends*, **82**, June.
- Pistor, Katharina, Martin Raiser and Stanislav Gelfer (2000), 'Law and finance in transition economies', EBRD Working Paper 48, February.
- Pugel, T. (1985), 'The United States', in John Dunning (ed.), *Multinational Enterprises, Economic Structure and International Competitiveness*, Chichester: John Wiley & Sons, pp. 57–90.
- Roberto, Basile (2004), 'Acquisition versus greenfield investment: the location of foreign manufacturing in Italy', *Regional Science and Urban Economics*, **34**(1), 3–25.
- Rossi, S. and P. Volpin (2003), 'Cross-country determinants of mergers and acquisitions', London: Centre for Economic Policy Research, Discussion Paper No. 3889.
- Safarian, A.E. (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot, UK: Edward Elgar.
- Safarian, A.E. and Gilles Y. Bertin (1987), *Multinationals, Governments and International Technology Transfer*, Basingstoke: Palgrave Macmillan.
- Shapiro, Daniel, E. Gedajlovic and C. Erdener (2003), 'The Chinese family firm as a multinational enterprise', *International Journal of Organizational Analysis*, **11**(2), 105–22.

6. Foreign ownership and total factor productivity*

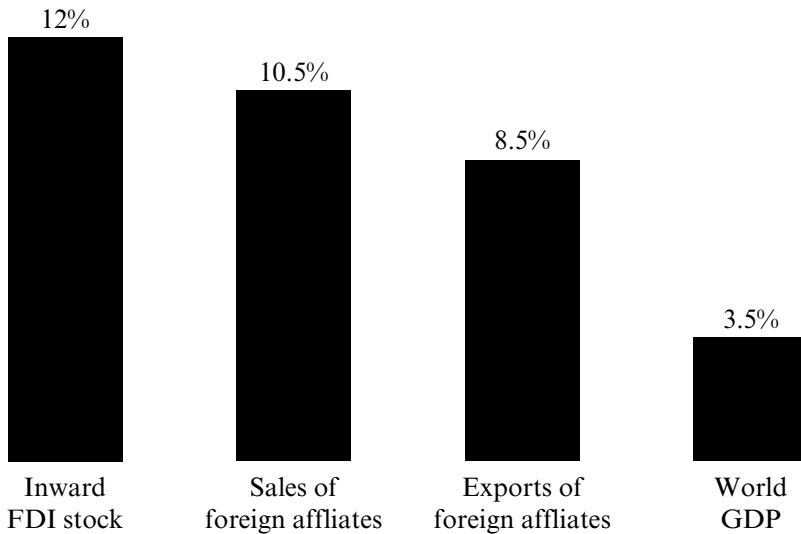
Someshwar Rao and Jianmin Tang

INTRODUCTION

Multinational enterprises (MNEs) are playing an increasingly dominant role in the world economy. Activities of MNEs increased at a considerably faster pace than world GDP in the 1990s (Figure 6.1). Total global inward foreign direct investment (FDI) stock increased from about US\$800 billion in 1982 to over US\$7 trillion in 2002. Sales and exports of foreign affiliates in 2002 were over US\$20 trillion, compared to just over US\$3 trillion in 1982. Currently over 50 000 MNEs, with more than 300 000 foreign affiliates, are operating in every corner of the globe. They employ over 50 million people all over the world. About 90 per cent of MNEs are from developed countries, but the share of emerging economies has been rising steadily. For instance, the share of emerging economies in global outward direct investment stock increased from 4.3 per cent in 1985 to 9.8 per cent in 2000. The activities of MNEs, however, are highly concentrated. For instance, the top 100 global MNEs account for between 10 to 15 per cent of the total sales, assets, exports and employment of all MNEs in host countries.

In both developed and developing countries, the importance of FDI has increased steadily over the last two decades. Exports of foreign affiliates account for close to 35 per cent of world exports of goods and non-factor services. The ratio of inward FDI stock to GDP of developed countries increased from 4.9 per cent in 1980 to 18.7 per cent in 2002 (Figure 6.2). Similarly, during the same period the ratio of outward FDI stock to their GDP increased from 6.2 per cent to 24.4 per cent. FDI is also increasingly important in developing economies. For instance, the ratio of inward FDI stock in their GDP increased from 12.6 per cent in 1980 to 36 per cent in 2002. Developing economies are also becoming major exporters of capital. The ratio of outward FDI stock to GDP in these countries increased from 3.8 per cent in 1980 to 13.5 per cent in 2002.

The dramatic reductions in transportation and communication costs, rapid technological advances in product and process technologies, fierce

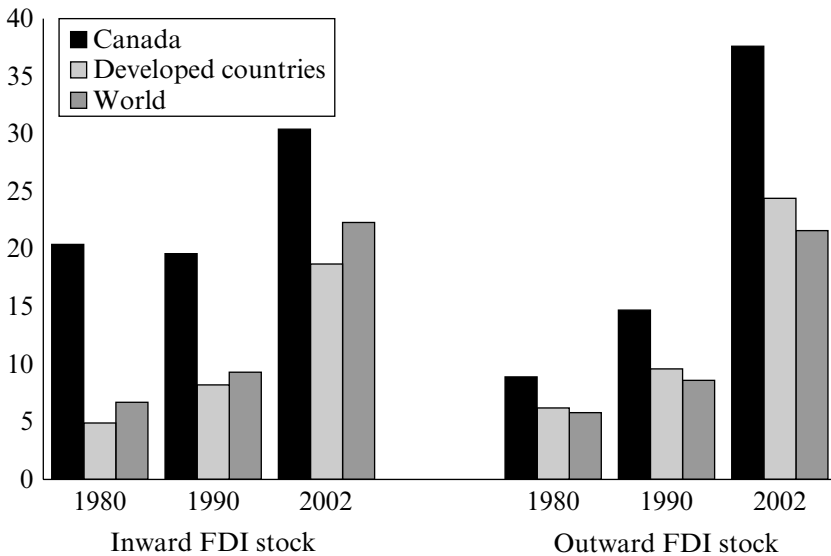


Source: World Investment Report 2003.

Figure 6.1 Average annual growth rates of selected activities of multinational enterprises, 1991–2000

international competition between MNEs for markets and factors of production, the changing comparative advantage position of firms and nations, and increasing liberalization of trade and investment regimes in all countries are putting pressure on as well as facilitating MNEs to improve their performance and minimize their costs, by organizing their activities on a global basis. In short, they are becoming increasingly footloose or stateless (Eden, 1994).

Increasingly countries around the globe are competing fiercely to attract and retain FDI in their jurisdictions with financial incentives. Currently there are over 160 national and more than 400 sub-national investment promotion agencies around the world. There has been a proliferation of bilateral investment and double taxation treaties by countries around the globe for purposes of facilitating the activities of MNEs in their jurisdictions. The rationale for the increased receptivity of governments towards FDI is the expected economic benefits to host countries. However, despite a long history of lively debate, there is still a great deal of skepticism in some circles about the alleged economic benefits of inward FDI and the fear of constraints MNEs impose on the policy autonomy of host countries (for details of the debate on multinational enterprise and public policy, see



Source: World Investment Report 2003.

Figure 6.2 Foreign direct investment as a percentage of GDP

Safarian, 1966 and 1993).¹ In addition, the economic consequences of FDI for home countries are not well researched and well understood. For example, increased outward FDI is often associated with loss of investment, R&D and jobs in home countries.² This paper tries to provide a comprehensive analysis of the impact of the two types of FDI on a country's competitive position, which we think will be very useful for policy development. It studies the general relationship between foreign ownership and productivity, and at the same time updates the path-breaking work of Edward Safarian (1966 and 1993).

In this paper we equate competitiveness with productivity, because productivity growth is the fundamental determinant of improvements in international competitiveness in the long term. Only by improving productivity relative to other countries can a country compete successfully in global markets on a sustained basis with rising real incomes for its citizens. We hope to address the following key policy research questions:

- Are foreign-controlled firms, on average, more productive than other firms in host countries?
- Do they also exert positive productivity spillovers on other firms operating in host countries?

- Are there productivity spillovers to firms operating at home from investments abroad?
- What is the impact of inward and outward Canadian FDI on other drivers of economic growth and improvements in living standards such as capital accumulation, trade expansion and R&D?

Our paper addresses these questions by drawing on a large body of research done for Industry Canada in the last ten years or so, supplemented by our new research. Using Canadian data as a case study, our research findings suggest that foreign-controlled firms, after controlling for the influence of other factors, are, on average, 10 to 20 per cent more productive than domestically controlled firms. They also exert significant positive productivity spillovers on domestic firms. Previous studies done for Industry Canada also suggest that home-based MNEs are, on average, more productive than domestically oriented firms. However, we do not find a significant productivity spillover effect from them to the domestically oriented firms.

In addition to direct productivity benefits, inward FDI also contributes indirectly to improving the living standards in the host countries by stimulating trade, capital formation and R&D. Outward FDI also stimulates trade, but seems to have no positive or negative impact on capital accumulation and R&D. Furthermore, it raises incomes of the host-country citizens by raising foreign investment income.

In the next section, we will analyze the direct impact of the two types of FDI on a country's productivity performance, using Canadian data. In the last section, we will pull together the key findings of our study and explore their policy implications.

FDI AND PRODUCTIVITY PERFORMANCE

MNEs play an important role in the production and dissemination of new productive knowledge that is central if not exclusive (Caves, 1996). In this section, we will examine the contribution of MNEs to a country's international competitive position and living standards.

The term 'competitiveness' is often used very loosely. As a result, its meaning varies across different users. Competitiveness is a micro concept. It is easy to define competitiveness at the firm level. A firm is said to be competitive if it is profitable and maintains or gains market share in a world of fair and freer markets with intense domestic and international competition (McFetridge, 1994a; Rao and Tang, 2003).

This definition, however, cannot be extended easily to an industry or a country. For instance, trade performance, often used as a measure of

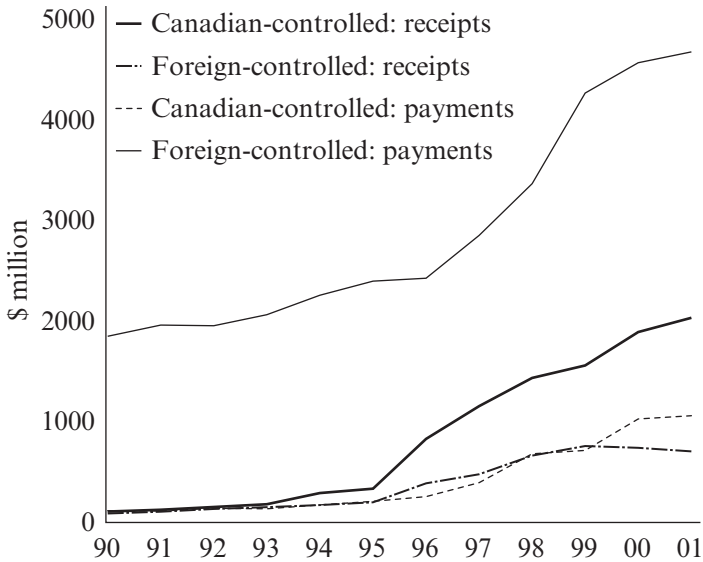
competitiveness, at an industry or a country level can be influenced by a number of trade barriers and distortions at home and abroad, differences in tastes, population growth rates and economic cycles, exchange rate changes, and others. Therefore, a gain (loss) in market share and an improvement (deterioration) in trade balance do not necessarily imply a gain (loss) in competitiveness. As a matter of fact, an improvement (deterioration) in trade balance could come at the expense of lower (higher) real wages and real incomes for its citizens. For example, a real exchange rate depreciation, other things remaining constant, will reduce unit labour costs and improve trade balance by increasing exports and discouraging imports, but could depress real wages and real incomes of population in general because of the rising cost of imports, and vice versa.

To overcome these conceptual difficulties, the President's Commission on Industrial Competitiveness (1985) in the US defined competitiveness of a country as 'the degree to which a country, under free and fair market conditions, can produce goods and services that meet the test of international competition while simultaneously maintaining and expanding the real incomes of its citizens'. This definition is also applicable to an industry.

According to the above definition, competitiveness is a multidimensional concept. It reflects the general health of an economy. Productivity is a good summary indicator of this concept. The efficiency with which an industry or a nation uses all of its productive resources, such as natural resources, physical capital and human resources, in the production of goods and services relative to its trading partners, in other words TFP, determines its longer-term competitiveness. Only by raising TFP relative to its competitors can an industry or a country compete effectively in global markets while raising real rewards to labour and capital. Hence, in this paper we equate improvements in competitiveness with TFP growth.

It is generally argued that foreign-controlled firms in a host country, on average, are expected to be more efficient than domestic firms because of their superior technological and managerial know-how.³ They benefit a great deal from technological breakthroughs, organizational innovations and marketing efforts of their parent companies. These exchanges between foreign subsidiaries and their parents are carried out in the form of intra-company trade. For instance, intra-company trade accounts for over two-thirds of Canada-US trade in the auto sector. Royalties and license payments by firms based in Canada reflect mainly the technology transfer between foreign-controlled firms based in Canada and their parent companies. As seen from Figure 6.3, royalty and license payments by foreign-controlled firms more than doubled since 1990, reaching \$4.5 billion in 2001.

Similar arguments can be made about the productivity performance of home-based multinationals. Like foreign-controlled firms, they operate in



Source: Compilations based on Statistics Canada data.

Figure 6.3 *International transactions of firms based in Canada: royalties and licence fees, 1990–2001*

global markets and face fierce competition at home and abroad. Hence they need to be highly competitive. They too benefit from rapid advances in technological and managerial know-how around the world. In short, both foreign-controlled firms and home-based MNEs, after controlling for the influence of other factors, are expected to be more productive than other firms in a country. Therefore, these firms also raise the average TFP in a country.

In addition to directly raising a country's TFP by being productive, foreign and home-based MNEs could indirectly contribute to the TFP by exerting positive productivity spillovers on other firms operating in the domestic market. Foreign-controlled firms could raise the productive efficiency of other firms in the host country via three key channels.⁴ First, foreign-controlled firms, by raising competition in the domestic market, could force other firms in the host country to be more innovative, increase investments in physical and human capital, introduce organizational innovation, rationalize production, and increase their outward orientation. Second, foreign-controlled firms could demand lower costs and better quality and service from their suppliers in the host country, inducing them to be more innovative and productive. Third, other firms in the host country

copy or learn from the superior technological and managerial know-how of foreign-controlled firms. Intra-industry movement of key personnel between foreign and domestic firms would facilitate the knowledge and technology transfer. We would also expect a similar mechanism of productivity spillovers from home-based MNEs to other firms in the home country.

Empirical Model

We test the above-mentioned propositions with regard to the impact of inward and outward FDI using the production function approach. We assume that each firm's production activity is characterized by the following Cobb–Douglas production function:⁵

$$Y = AK^{\alpha_K} L^{\alpha_L} M^{\alpha_M}, \quad (6.1)$$

where Y is gross output; A is the efficiency coefficient; K , L and M are capital, labour and intermediate inputs, respectively; α_K , α_L and α_M are the elasticities of output with respect to K , L and M , respectively.

We derive from equation (6.1) the gross output labour productivity function of a firm:

$$\begin{aligned} \ln(LP) = & \alpha_0 + \alpha_{OW}D_{OW} + \alpha_K \ln k + \alpha_M \ln m + \alpha_{RS} \ln L \\ & + \alpha_{IF} \ln IF + \alpha_{OF} \ln OF + \alpha_{T^*} \ln IF^* \text{time trend} \\ & + \alpha_{O^*T} \ln OF^* \text{time trend} + \alpha_{MS} S_M \\ & + \alpha_{LS} S_L + \sum_{j=1}^{16} \beta_j I_j + \sum_{k=1}^{13} \gamma_k T_k. \end{aligned} \quad (6.2)$$

The dependent variable LP is gross output labour productivity, defined as real gross output per employee. The definitions and expected signs of all the independent variables are in Table 6.1. A (+) sign indicates that the explanatory variable is expected to have a positive effect on gross output labour productivity, and a (+/–) sign means that the expected effect is ambiguous.

The coefficient on the foreign ownership dummy captures the impact of superior technological and managerial know-how on the productivity of foreign-controlled firms. The ratios of inward and outward FDI stocks to employment (one-year lag) are introduced to capture the productivity 'spillovers' from foreign and Canadian multinationals to domestically oriented firms and others, as discussed above.⁶ The use of one-year lag is an attempt to overcome the endogeneity problem that high-productivity

Table 6.1 Definitions of the explanatory variables and their expected signs

Independent variables		Expected signs
D_{OW}	Ownership dummy, one for foreign-controlled firms and zero for Canadian-controlled firms	+
k	Capital intensity, defined as real net property, plant and equipment per employee	+
m	Intermediate input per employee	+
L	Number of employees, representing returns to scale in the regression	+/-
IF	Industry stock of inward foreign direct investment in constant dollars (one-year lag), scaled down by industry employment	+
OF	Industry stock of Canadian direct investment abroad in constant dollars (one-year lag), scaled down by industry employment	+
S_M and S_L	Size dummy for medium-sized firms (1000–5000 employees) and large firms (5000 employees or more), with the reference being small firms (less than 1000 employees)	+/-
I_j	Industry dummy for industry j	+/-
T_t	Year dummy for year t	+/-

industries attract inward FDI and promote outward FDI. We use inward foreign direct investment stock, scaled down by labour, to measure the foreign presence.⁷ This measure is different from many studies, which use the share of employment accounted for by foreign-controlled firms.⁸ The share of employment by foreign-controlled firms, we believe, is biased against capital-intensive firms because foreign presence takes different forms, such as capital investment as well as employment. Industry and year dummies are introduced to capture productivity differences across industries and time. Similarly, to allow productivity differences among firms of different sizes, after controlling for the influence of scale economies and other variables, we introduce two firm size dummies.⁹ However, it may be very difficult empirically to disentangle the effects of scale economies and the size variables on productivity.

Data

Our firm data are mainly from the Compustat database, as shown in the Appendix. Firms based in Canada that have data on sales, property, plant

and equipment (PPE), number of employees and inventory in any year over the period of 1988–2001 are selected from the source. The firms were then supplemented by ownership data from Statistics Canada's *Inter-Corporate Ownership* (Statistics Canada, 2002).

A firm is labelled as Canadian-controlled if Canadians ultimately control it; otherwise it is labelled as foreign-controlled. Ownership here is measured by a binary variable (dummy variable).

After deleting the outliers, our sample contains 2469 observations over the period of 1988–2001, based on 359 Canadian-controlled firms and 49 foreign-controlled firms. This is an unbalanced sample because of firm turnover and missing information. All firms are publicly traded companies listed on stock exchanges, including the New York Stock Exchange, NASDAQ and the Toronto Stock Exchange. The sample firms, on average, are large and cover a significant portion of the Canadian business sector in terms of gross output, ranging from 29 per cent in 1988 to 65 per cent in 2001. On average, foreign-controlled firms are significantly smaller than Canadian-controlled firms.¹⁰

These sample firms are classified into 17 industries on the basis of the industry code given in the databases for each firm (Standard Industrial Classification). The corresponding 17-industry price deflators are based on Statistics Canada's KLEM dataset. They are used to construct real input and output data by deflating both firm- and industry-level nominal data.¹¹

Since we do not have labour compensation data, which is used to derive intermediate input from cost of goods sold as indicated in the Appendix, for most of the firms in our sample we computed the labour expenditure for the missing firms by multiplying the number of employees of the firm by the average industry labour compensation per employee.¹²

Empirical Results

We estimated equation (6.2) using the unbalanced sample and a small longitudinal sample, extracted from the unbalanced sample.¹³ The regression results from the two samples are displayed in Tables 6.2 and 6.3.¹⁴ They are very encouraging from several perspectives. First, the regressions explain a large degree (between 70 to 90 per cent) of the inter-firm variation in productivity over time. Second, most of the regression coefficients have the expected signs and magnitudes, and are statistically significant. Third, the regression coefficients are fairly robust to the size of the sample as well as to the inclusion or exclusion of variables.

The coefficient on the foreign ownership dummy in the unbalanced sample regressions (columns 2–6 in Table 6.2) is positive and statistically significant. The size of the coefficient implies that, other things being equal,

foreign-controlled firms, on average, are more productive than Canadian-controlled firms by more than 20 per cent.¹⁵ The regression coefficients on capital and intermediate inputs are positive and statistically significant, and the sizes of the estimated productivity elasticities of the two inputs are in line with prior expectations. The coefficient on labour input is positive and statistically significant, implying small increasing returns to scale.

The coefficient on the inward FDI variable is positive and statistically significant with or without the presence of the outward FDI variable (columns 3 and 5 in Table 6.2), suggesting positive productivity spillovers. The coefficient on the outward FDI variable, as expected, is also positive (with or without the presence of the inward FDI variable, as shown in columns 4 and 5 in Table 6.2), but is not statistically significant. The fact that the significance of one FDI variable is only marginally affected by the absence of the other FDI variable suggests that there is no serious multicollinearity problem between the two FDI variables in column 5, Table 6.2.

The coefficient on the interaction variable between inward FDI and time trend is positive and statistically significant, indicating that the productivity spillovers from foreign-controlled firms increased over time. This seems reasonable given that economic interdependence between firms in various countries and global competition have increased over time. The coefficient on the interaction variable with outward FDI and time trend, on the other hand, is negative, although insignificant. The absence of significant productivity spillovers from output FDI is surprising and puzzling given that outward FDI in Canada increased dramatically over the past two decades.

The coefficients on the two size dummies are negative and statistically significant, implying organizational inefficiencies in medium-sized and large firms. These results on the surface seem counterintuitive and inconsistent with the previous research findings. But it is important to remember that in our sample firms are fairly large, compared to other studies. As discussed earlier, firms are grouped into three size groups (from small to large): fewer than 1000 employees; 1000–5000 employees; and more than 5000 employees. In contrast, most of the previous studies used a different classification scheme: fewer than 100 employees; 100–500 employees; and more than 500 employees. In addition, we have controlled for scale economies by introducing the employment variable. Perhaps the coefficients on the size variables are capturing the pure efficiency impacts of size, implying that the activities of smaller firms are easier to organize, coordinate and manage than medium-sized and large firms.

We ran the same regressions as in Table 6.2 using the balanced sample, which allowed us to deal with autocorrelation. The results are reported in Table 6.3. Most of the results are similar to those based on the unbalanced

large range of products behind high tariff barriers and that free trade would lead to increasing specialization in this group. Tariff liberalization, therefore, should lead to longer production runs and more product specialization.

The authors find that there was a general increase in the pace of commodity specialization at the plant level around the time of implementation of the FTA and NAFTA. Plant diversity was higher in larger plants and in industries with assets that are associated with scope economies. Diversity was also higher in industries that had higher rates of tariff protection. Over the 1980s and 1990s, plant diversity decreased with reductions in both US and Canadian tariffs. The decline was greater during the post-NAFTA era than before, thereby suggesting that this treaty had an impact beyond that just engendered by the tariff reductions associated with NAFTA.

The study also found that foreign-controlled plants tended to be larger than domestic-controlled plants. Controlling for size of plant, foreign-controlled plants were more specialized than domestic-controlled plants, most likely because they were better able to optimize production for the whole North American market through their parent–subsidiary networks. With the introduction of the FTA and NAFTA, the decline in product diversification was faster for the foreign-controlled plants, and the tariff effect was stronger. Baldwin, Caves and Gu conclude that foreign-controlled plants adapted better to trade liberalization during the specialization process than domestic-controlled plants.

The theme of the third group of papers is public governance, multinationals and growth. For many years, international business scholars have studied the ways in which host country governments affect the extent and pattern of inbound FDI. While national policies differ, there are many common influences. John Dunning, in ‘FDI and the international policy environment. Back to the future? Not quite!’ identifies and analyzes these common influences, how they have evolved, and how they have affected (and been affected by) FDI and other MNE activities.

Dunning divides his historical analysis into three periods that roughly correspond to host country attitudes towards FDI and MNEs that are liberal (1950s and 1960s), regulatory (late 1960s to late 1970s), and global (early 1980s to the present). His analysis is organized both chronologically and cross-sectionally. In each period, he distinguishes between policies that focus on inward FDI and outward FDI. Within each period, he distinguishes between developed, outward-oriented developing, and other developing countries. He argues that the third period has policies that are similar to, but not the same as, the first period (hence the title, ‘Back to the future? Not quite!’).

In his historical review, Dunning argues that government policies towards FDI *per se* are becoming less important as governments concentrate more

Table 6.2 Productivity regression results based on unbalanced sample (heteroskedasticity-consistent)

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Ownership dummy		0.215* (7.3)	0.216* (7.3)	0.217* (7.3)	0.217* (7.4)	0.218* (7.4)
Capital	0.127* (9.7)	0.129* (9.9)	0.129* (9.9)	0.130* (10.0)	0.129* (9.9)	0.128* (9.9)
Intermediate input	0.501* (33.5)	0.496* (33.1)	0.496* (33.0)	0.496* (33.1)	0.496* (33.0)	0.496* (33.0)
Returns to scale	0.076* (4.5)	0.079* (4.6)	0.079* (4.7)	0.079* (4.6)	0.079* (4.7)	0.080* (4.7)
FDI_lag			0.084** (2.1)		0.077** (1.9)	0.067** (1.7)
CDIA_lag				0.033 (1.4)	0.028 (1.2)	0.057 (1.5)
FDI_lag \times time trend						0.004** (1.8)
CDIA_lag \times time trend						-0.004 (-1.6)
Medium-sized firm dummy	-0.127* (-3.9)	-0.143* (-4.4)	-0.142* (-4.3)	-0.143* (-4.4)	-0.142* (-4.3)	-0.143* (-4.3)
Large firm dummy	-0.310* (-5.1)	-0.328* (-5.4)	-0.327* (-5.4)	-0.327* (-5.4)	-0.327* (-5.4)	-0.329* (-5.4)

Constant	2.422* (24.6)	Yes	2.431* (24.7)	Yes	2.823* (13.2)	Yes	2.610* (17.0)	Yes	2.940* (12.4)	Yes	3.039* (12.1)	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1)	No	No	No	No	No	No	No	No	No	No	No	No
Adjusted R^2	0.71	0.71	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
No. of observations	2469	2469	2469	2469	2469	2469	2469	2469	2469	2469	2469	2469
Period	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001	1988–2001

Notes:

Industry and year dummies are not reported. The t -ratio is in parentheses.
* and ** denote significance at 5% and 10% levels respectively.

Table 6.3 Productivity regression results based on balanced sample (heteroskedasticity-consistent)

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Ownership dummy		0.097* (3.3)	0.098* (3.4)	0.097* (3.3)	0.098* (3.4)	0.104* (3.6)
Capital	0.103* (9.6)	0.099* (9.4)	0.099* (9.4)	0.098* (9.3)	0.098* (9.4)	0.095* (9.2)
Intermediate input	0.497* (45.2)	0.496* (45.6)	0.496* (45.9)	0.497* (45.6)	0.496* (45.8)	0.497* (45.7)
Returns to scale	-0.004 (-0.5)	-0.006 (-0.7)	-0.005 (-0.6)	-0.006 (-0.7)	-0.005 (-0.6)	-0.003 (-0.4)
FDI_lag			0.039** (1.7)		0.041** (1.7)	0.048* (2.0)
CDIA_lag				-0.003 (-0.2)	-0.009 (-0.6)	-0.030 (-1.4)
FDI_lag \times time trend						0.000 (0.3)
CDIA_lag \times time trend						0.002 (1.1)
Medium-sized firm dummy	-0.005 (-0.2)	-0.021 (-0.7)	-0.024 (-0.8)	-0.021 (-0.7)	-0.024 (-0.8)	-0.029 (-1.0)
Large firm dummy	-0.036 (-1.1)	-0.042 (-1.2)	-0.044 (-1.3)	-0.042 (-1.2)	-0.045 (-1.3)	-0.051 (-1.5)

Constant	2.535* (34.4)	Yes	2.560* (35.6)	Yes	2.740* (21.4)	Yes	2.544* (24.4)	Yes	2.700* (18.8)	Yes	2.671* (18.3)	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1)	0.73		0.70		0.69		0.70		0.69		0.69	
Buse (1973) R^2	0.88		0.89		0.90		0.89		0.89		0.90	
No. of observations	816		816		816		816		816		816	
Period	1989–2000		1989–2000		1989–2000		1989–2000		1989–2000		1989–2000	

Note: As for Table 6.2.

sample. The coefficient on the foreign ownership variable in the balanced sample regression is also positive and statistically significant, but the size of the coefficient is about half that in the unbalanced sample regressions. The productivity elasticities of capital and intermediate inputs are positive and statistically significant, and are similar in size to those in the unbalanced sample regressions. The scale coefficient is insignificant, implying constant returns to scale, compared to slight increasing returns to scale previously. The coefficient on the inward FDI variable, as in the unbalanced sample, is positive and statistically significant, implying productivity spillovers. On the other hand, the coefficient on outward FDI implies no positive productivity spillovers from Canadian MNEs. The coefficients on the two FDI interaction variables are statistically insignificant, implying no change in productivity spillovers over time. The coefficients on the two size variables are negative but are not statistically significant.

In short, our empirical results provide robust support for the superior productivity of foreign-controlled firms. The estimated coefficients suggest that foreign-controlled firms, on average, are between 10 to 20 per cent more productive than domestically controlled firms. Our results also provide support for positive productivity spillovers from foreign-controlled firms to domestic firms.¹⁶ These results are consistent with the argument of Safarian (1966) that the performance of FDI is more important than its ownership.

Our empirical findings in this study are consistent with earlier research in this area. For instance, an earlier study by us (Rao and Tang, 2002), using firm-level data over the 1985–95 period, concluded that foreign-controlled firms are more productive than domestically controlled firms, but the productivity gap declined from 25 per cent during 1985–88 to 16 per cent during the period 1989–95. Similarly, other research by Globerman (1979), Globerman et al. (1994), Gera et al. (1999), Baldwin and Dhaliwal (1998), and Li (2003) also documents superior productivity performance of foreign-controlled firms based in Canada.

The positive FDI spillovers are consistent with the findings of Caves (1974) for Australia; Keller and Yeaple (2003) for the US; Haskel et al. (2002) for the UK; Blomström and Persson (1983) for Mexico; Blomström and Sjöholm (1999) for Indonesia; Smarzynska (2002) for Lithuania; and Yudaeva et al. (2003) for Russia.

Note, however, that the spillover effect may be sensitive to local conditions such as the absorptive capacity and the policy environment in the host country. For instance, in a policy environment which restricted FDI and provided weak intellectual property protection, Feinberg and Majumdar (2001) show that the only significant spillovers in the Indian pharmaceuti-

cal sector were between multinational enterprises. Similarly, Haddad and Harrison (1993) find no evidence that foreign presence in Morocco accelerated productivity growth in domestic firms during the second half of the 1980s. In some cases, such as in Venezuela (Aitken and Harrison, 1999), foreign direct investment may even have a negative impact on the productivity of domestically owned plants.

CONCLUSIONS

The objective of this paper has been to analyse the contribution of foreign-controlled firms and home-based MNEs to a country's competitive position. Using the firm-level data over time for Canada, we estimated their direct and indirect contribution to a country's productivity, the fundamental determinant of longer-term competitiveness. The following are the key findings of our study:

- Foreign-controlled firms, after controlling for the influence of other factors are, on average, 10 to 20 per cent more productive than domestically controlled firms, which may be due to their superior technological and managerial know-how.
- In addition, they exert significant positive productivity spillovers on other firms in the host countries.
- We do not, however, find significant productivity spillovers from home-based MNEs to other firms in a country, although some previous studies suggest that they are more productive than domestically oriented firms.

In addition to the productivity benefits, domestic and foreign MNEs raise real incomes of citizens in a country via their positive impact on trade flows, capital accumulation, innovation and net investment income. In this paper, due to space constraints, we did not examine these impacts in detail. However, previous research provides strong empirical support in favour of these benefits.

Increased trade flows raise productivity and economic growth through a number of channels, such as increased competition, international technology and knowledge transfer, increased specialization and rationalization, and economies of scale (Harris, 1999). Research by Rao et al. (1994), Rao et al. (1996), Hejazi and Safarian (1999) shows a strong positive relation between trade flows and inward and outward FDI stocks. These findings are not surprising given that much of the trade of domestic and foreign MNEs is intra-company trade.

Another avenue through which MNEs could impact living standards is capital accumulation, an important driver of economic growth and improvements in labour productivity. Research by Hejazi and Pauly (2002) shows that inward capital stock and capital accumulation are positively correlated. On the other hand, Rao et al. (1994) and Hejazi and Pauly (2002) do not find a consistently positive relationship between outward direct investment and capital accumulation.

What about the impact of inward and outward FDI on innovation? According to Tang and Rao (2003), foreign-controlled firms are major contributors to R&D spending in Canada, a key driver of innovation. In the manufacturing sector, they account for over 40 per cent of total R&D in Canada. Their share in total business sector R&D is over 30 per cent. However, after controlling for other factors, the R&D intensity of foreign firms is somewhat lower than Canadian-controlled firms. But they benefit a great deal from technology and knowledge transfer from their parent companies, as reflected by large net payments of royalties and license fees. Unlike inward FDI, McFetridge (1994b) did not find a significant relationship between Canadian outward direct investment and R&D spending in Canada.

Canadian direct investment outward increases the incomes of Canadians directly by bringing into Canada large amounts of investment income. For instance, during the 1990–2002 period direct investment receipts averaged over \$10 billion per year, compared to \$4 billion per year in the 1980s.

The policy implications of our findings are that a country should improve the investment climate to attract and retain FDI. It should also work towards improving access to its direct investment abroad. For instance, according to OECD (2003), Canada could almost double its foreign direct investment stock by lowering its restrictions on inward FDI to the levels in the UK, the least restrictive regime for FDI among OECD countries, and by lowering many of the product market regulations. In addition, a country needs to strive for a more competitive tax system. MNE activities are increasingly sensitive to differences in personal and corporate income tax rates across various jurisdictions.

In sum, the activities of domestic and foreign MNEs are making a major contribution to a country's competitiveness and are raising the real incomes of citizens in the country. By improving the regulatory and tax frameworks, and enhancing market access to its direct investment abroad, a country could raise considerably its productivity and standard of living.

A natural extension of the current study is to identify the specific sources of the productivity spillovers from foreign-controlled firms to domestic firms. A better understanding of the specific channels through which productivity spillovers takes place could prove fruitful for designing effective

policies for facilitating productivity spillovers. For example, a detailed analysis of the productivity impacts of both inward and outward FDI stocks on SMEs would be extremely useful.

NOTES

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1. For a discussion of the impact of Safarian's study on the development of thinking in the emerging field of international business studies, see Rugman (2004).
 2. For a historical review of the change in international policy regarding FDI, see Dunning (2004).
 3. It is possible that foreign-controlled firms are more productive because they enter into a country to buy up highly productive firms. It is also possible that foreign investments go to industries with high productivity. Nevertheless, the inclusion of industry dummies in the regression equations minimizes the bias on the estimated coefficient on the productivity spillovers variable.
 4. For a detailed explanation of those channels, see Eden et al. (1997).
 5. Because of its simplicity, the Cobb–Douglas production function has been commonly used for productivity analysis in the literature – for instance, by Bernard and Jones (1996a,b), Griliches (1986), Wolff (1991), and Lee and Tang (2001).
 6. The ownership dummy and the FDI stock variable capture the impact of inward foreign direct investment on TFP, because the regression equation controls for the influence of capital and intermediate inputs on labour productivity (gross output per unit of labour).
 7. We select employment over output for the scale factor to avoid endogeneity problems, but the use of output as the scale factor does not change our conclusion in this paper. The results also do not change significantly when the two FDI variables are not scaled.
 8. For example, Keller and Yeaple (2003) use the share of foreign affiliate employment in total employment of the industry to which the firm belongs to measure the importance of FDI.
 9. Size differences can have two opposing effects on productivity: large firms tend to have established supply and distribution systems. They also tend to have access to a larger pool of technology. Those factors may be positive for productivity. On the other hand, large firms tend to be equipped with older capital, which may not be as productive as more recent vintages, and may be less effective in management. The impact of size on productivity, therefore, can only be validated by empirical analysis. To capture the size effect, we divide firms into three size groups, based on number of employees. The reference group consists of small firms, all firms with fewer than or equal to 1000 employees. The next size group of medium-sized firms is denoted by the dummy variable S_M , which takes on a value of 1 for all firms with more than 1000 but fewer than or equal to 5000 employees and 0 otherwise. S_L denotes the size group of large firms, which takes on a value of 1 for all firms with over 5000 employees and 0 otherwise.
 10. For instance, the average number of employees in 1995 was 7675 for Canadian-controlled firms and 4311 for foreign-controlled firms.
 11. If one prefers the real value output concept rather than real output measure, the aggregate GDP deflator, rather than the industry specific deflators, should be used to deflate the nominal values of output and intermediate inputs of all firms. The real value output

concept captures the influence of productivity as well as the relative price. We also ran the regressions using the real value output measure. All the estimated coefficients are similar to those with the real output measure, except that the coefficient on the inward FDI variable becomes statistically insignificant. These results imply that the positive productivity spillovers from the inward FDI stock are offset by its negative impact on the host country's terms of trade. For others who are interested in fully isolating quantity from price, a firm-level deflator should be used for real output and intermediate input because output and factor prices may vary across firms (Abbott, 1992). Unfortunately, firm-specific deflators are not easily available, and thus industry-level deflators are commonly used in the literature (for example, Griliches and Mairesse, 1991; Hall and Mairesse, 1995; Lee and Tang, 2001).

12. Of the observations, 85 per cent are missing data on labour expenditures.
13. The longitudinal sample has 59 Canadian-controlled and nine foreign-controlled firms for the period of 1989–2000. Unlike the unbalanced sample, the longitudinal sample allows us to consider autocorrelation. The results from the two samples are broadly similar, suggesting that autocorrelation in the unbalanced sample may not be a big problem.
14. The estimates are heteroskedasticity-consistent.
15. To see if foreign-controlled firms, on average, are more intensive users of intermediate inputs because of outsourcing, we ran a regression with an additional explanatory variable, an interaction variable between the intermediate input intensity and the ownership dummy. The coefficient on the interaction term is highly statistically insignificant, suggesting that on average the intermediate input intensity of foreign-controlled firms is not different from that of Canadian-controlled firms. In addition, the coefficients of other variables remained unchanged.
16. We could not check for the superior productivity of Canadian MNEs, because we do not have data on foreign assets of firms in our samples. However, previous research (Rao et al., 1994 and Rao and Ahmad, 1996) show that, on average, Canadian MNEs are more productive than other Canadian firms that do not have any direct investment abroad.

REFERENCES

- Abbott, Thomas A. III (1992), *Price Dispersion in US Manufacturing: Implications for the Aggregation of Products and Firms*, Discussion Papers CES 92-3, US Bureau of the Census.
- Aitken, Brian J. and Ann E. Harrison (1999), 'Do domestic firms benefit from direct foreign investment? Evidence from Venezuela', *American Economic Review*, **89** (3), 605–18.
- Baldwin, John and Naginder Dhaliwal (1998), *Labour Productivity Differences Between Domestic and Foreign-controlled Firms in the Canadian Manufacturing Sector*, manuscripts, Statistics Canada, and Agriculture and Agri-Food Canada.
- Bernard, Andrew B. and Charles I. Jones (1996a), 'Comparing apples to oranges: productivity convergence and measurement across industries and countries', *American Economic Review*, **86** (5), 1216–38.
- Bernard, Andrew B. and Charles I. Jones (1996b), 'Productivity across industries and countries: time series theory and evidence', *Review of Economics and Statistics*, **78** (1), 135–46.
- Blomström, Magnus and Hakan Persson (1983), 'Foreign investment and spillover efficiency in an underdeveloped economy: evidence from the Mexican manufacturing industry', *World Development*, **11** (6), 493–501.
- Blomström, Magnus and Fredrik Sjöholm (1999), 'Technology transfer and spillovers: does local participation with multinationals matter?', *European Economic Review*, **43** (4–6), 915–23.

- Buse, Adolf (1973), 'Goodness of fit in generalized least squares estimation', *American Statistician*, **27** (3), 106–8.
- Caves, Richard E. (1974), 'Multinational firms, competition and productivity in host-country markets', *Economica*, **41** (162), 176–93.
- Caves, Richard E. (1996), *Multinational Enterprise and Economic Analysis* (Chapter 7), 2nd edn, Cambridge, MA: Cambridge University Press.
- Dunning, John H. (2004), 'FDI and the international policy environment. Back to the future? Not quite!', Chapter 11 in this volume.
- Eden, Lorraine (1994), *Multinationals in North America*, Calgary, Canada: University of Calgary Press.
- Eden, Lorraine, Edward Levitas and Richard J. Martinez (1997), 'The production, transfer and spillover of technology: comparing large and small multinationals as technology producers', *Small Business Economics*, **9** (1), 53–66.
- Feinberg, Susan E. and Sumit K. Majumdar (2001), 'Technology spillovers from foreign direct investment in the Indian pharmaceutical industry', *Journal of International Business Studies*, **32** (3), 421–37.
- Gera, Surendra, Wulong Gu and Frank C. Lee (1999), *Foreign Direct Investment and Productivity Growth: the Canadian Host-country Experience*, Industry Canada Working Paper, No. 30.
- Globerman, Steven (1979), 'Foreign direct investment and "spillover" efficiency benefits in Canadian manufacturing industries', *Canadian Journal of Economics*, **12** (1), 42–56.
- Globerman, Steven, John C. Ries and Ilan Vertinsky (1994), 'The economic performance of foreign affiliates in Canada', *Canadian Journal of Economics*, **27** (1), 143–56.
- Griliches, Zvi (1986), 'Productivity, R&D, and basic research at the firm level in the 1970s', *American Economic Review*, **76** (1), 141–54.
- Griliches, Zvi and Jacques Mairesse (1991), 'Comparing productivity growth: an exploration of French and U.S. industrial and firm data', in Georges Menil and Robert J. Gordon (eds), *International Volatility and Economic Growth: The First Ten Years of the International Seminar on Macroeconomics*, Amsterdam: North-Holland, pp. 45–75.
- Haddad, Mona and Ann Harrison (1993), 'Are there positive spillovers from direct foreign investment? Evidence from panel data for Morocco', *Journal of Development Economics*, **42** (1), 51–74.
- Hall, Bronwyn H. and Jacques Mairesse (1995), 'Exploring the relationship between R&D and productivity in French manufacturing', *Journal of Econometrics*, **65** (1), 263–93.
- Harris, Richard (1999), *Determinants of Canadian Productivity Growth: Issues and Prospects*, Industry Canada Discussion Paper Series, No. 8.
- Haskel, Jonathan E., Sonia C. Pereira and Matthew J. Slaughter (2002), *Does Inward Foreign Direct Investment Boost the Productivity of Domestic Firms?* NBER Working Paper 8724.
- Hejazi, Walid and Peter Pauly (2002), *Foreign Direct Investment and Domestic Capital Formation*, Industry Canada Working Paper Series, No. 36.
- Hejazi, Walid and A. Edward Safarian (1999), 'Modeling links between Canadian trade and foreign direct investment', Industry Canada Working Paper Series entitled *Perspectives on North American Free Trade*, April.
- Keller, Wolfgang and Stephen R. Yeaple (2003), *Multinational Enterprises, International Trade, and Productivity Growth: Firm-level Evidence From the United States*, IMF Working Paper, WP/03/248.

on upgrading and restructuring in order to cope with the pressures of globalization. Governments are more concerned about the consequences of FDI for national competitiveness and economic and social development. As a result, FDI-specific policy is moving from the national to the regional and supranational levels, such as NAFTA, the European Union and the WTO (Dunning calls these top-down policies). Moreover, special interest groups such as NGOs are becoming more important actors influencing MNE activities and policies (bottom-up initiatives).

Looking ahead, Dunning believes MNE-state relations are becoming 'more challenging and problematic', along the lines foreseen in Vernon (1998). Moreover, international terrorism and other security concerns are raising further complications for MNEs. A major challenge will be how to reconcile different views about regulating FDI without 'killing the goose that laid the golden egg'.

Edward Graham's paper on 'Economic issues raised by NAFTA Chapter 11 investor-to-state dispute settlement cases having environmental implications' links multinationals, trade policy and the environment. The motivation behind this paper is the NAFTA, which in Chapter 11 introduced an investor-state dispute settlement mechanism. Multinationals that believe they have been damaged by national environmental regulations can sue the relevant government for compensation for these damages. Environmental NGOs therefore see Chapter 11 as diluting national environmental laws.

Graham attempts to determine whether public compensation of private investors is a socially optimal policy from a societal cost-benefit analysis. Looking at these cases as negative externalities, he asks whether Coase's theorem – that national welfare effects are identical regardless of whether the externality is eliminated through a 'polluter pays' or the 'public pays' approach – holds here. His conclusion, however, is that the two are different, and that the 'polluter pays' is preferable for several reasons, including government fiscal illusion and moral hazard arguments.

'Location incentives and inter-state competition for FDI: bidding wars in the automotive industry', by Maureen Appel Molot is the subject of Chapter 13. Competition among jurisdictions in the United States, and by extension to Canada, for new automotive assembly investment, which has long existed, has reached new heights. The large auto MNEs and state governments have become quite sophisticated at playing the location incentives game. However described – as a location incentives game or a locational tournament – the point is the same: the inter-jurisdictional competition or bidding to attract FDI. States, anxious to attract jobs (direct and indirect), actively compete with each other by offering a range of subsidies to European and Japanese assemblers to locate in their jurisdictions. One set of locational tournaments unfolded in the US in the 1980s; a second began

- Lee, C. Frank and Jianmin Tang (2001), 'Multifactor productivity disparity between Canadian and U.S. manufacturing firms', *Journal of Productivity Analysis*, **15** (2), 115–28.
- Li, Malcolm (2003), *Do Domestic Firms Benefit from FDI? Evidence from Canada*, manuscripts, Industry Canada.
- McFetridge, Donald G. (1994a), *Competitiveness: Concepts and Measures*, Industry Canada Occasional Paper Series, No. 4.
- McFetridge, Donald G. (1994b), 'Canadian foreign direct investment, R&D and technology transfer', in Steven Globerman (ed.), *Canadian Based Multinational*, Calgary, Canada: University of Calgary, pp. 151–78.
- OECD (2003), *OECD Economic Studies 2003*, Paris: OECD.
- President's Commission on Industrial Competitiveness (1985), *Global Competition: the New Reality*, Vols I–II, Washington, DC.
- Rao, Someshwar and Ashfaq Ahmad (1996), 'Canadian small and medium-sized enterprises: opportunities and challenges in the Asia Pacific region', in Richard G. Harris (ed.), *The Asia Pacific Region in the Global Economy: A Canadian Perspective*, Calgary, Canada: University of Calgary, pp. 395–456.
- Rao, Someshwar and Jianmin Tang (2002), 'Are Canadian-controlled manufacturing firms less productive than their foreign-controlled counterparts?', in Someshwar Rao and Andrew Sharpe (eds), *Productivity Issues in Canada*, Calgary, Canada: University of Calgary Press, pp. 571–94.
- Rao, Someshwar and Jianmin Tang (2003), *Competitiveness Challenges Facing Canadian Industries*, paper presented at the Canadian Economic Association Conferences, Ottawa.
- Rao, Someshwar, Ashfaq Ahmad and Colleen Barnes (1996), *Foreign Direct Investment and APEC Economic Integration*, Industry Canada Working Paper Series, No. 8.
- Rao, Someshwar, Marc Legault and Ashfaq Ahmad (1994), 'Canadian-based multinationals: an analysis of activities and performance', in Steven Globerman (ed.), *Canadian Based Multinational*, Calgary, Canada: University of Calgary, pp. 63–126.
- Rugman, Alan M. (2004), 'Continental integration and foreign ownership of Canadian industry: a retrospective analysis', Chapter 3 in this volume.
- Safarian, Edward A. (1966), *Foreign Ownership of Canadian Industry*, Toronto, Canada: University of Toronto Press.
- Safarian, Edward A. (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot, UK: Edward Elgar.
- Smarzynska, Beata K. (2002), *Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages*, World Bank Policy Research Working Paper 2923.
- Statistics Canada (2002), *Inter-Corporate Ownership*, Statistics Canada.
- Tang, Jianmin and Someshwar Rao (2003), 'Are foreign-controlled manufacturing firms less R&D-intensive than Canadian-controlled firms?', *Canadian Public Policy*, **29** (1), 111–17.
- Wolff, Edward N. (1991), 'Capital formation and productivity convergence over the long term', *American Economic Review*, **81** (3), 565–79.
- Yudaeva, Ksenia, et al. (2003), 'Does foreign ownership matter?', *Economics of Transition*, **11** (3), 383–409.

APPENDIX

Table 6A.1 List of variables and data sources

Variable	Description	Sources
<i>Y</i>	Gross output (current \$) = sales (current \$) minus inventory change from previous year (current \$)	Compustat
<i>K</i>	Net PPE (property, plant and equipment, current \$)	Compustat
<i>L</i>	Total number of employees	Compustat/Compact Disclosure
<i>LC</i>	Labour expenditures (current \$)	Compustat Industry data (from Statistics Canada) used for missing firm data
<i>CG</i>	Cost of goods sold (current \$)	Compustat/Compact Disclosure
<i>M</i>	Intermediate input, equal to cost of good sold minus labour expenditures (current \$)	= $CG - LC$
<i>FDI</i>	Inward FDI stock (current \$)	Statistics Canada: Table 376-0038
<i>CDIA</i>	Outward FDI stock (current \$)	Statistics Canada: Table 376-0038
<i>PY, PK, PM</i>	Gross output, capital and intermediate input deflators	Statistics Canada's KLEMS database

PART III

Free Trade, Multinationals and Growth

7. Factor price differences and multinational activity

Ignatius J. Horstmann and Daniel R. Vincent

INTRODUCTION

In recent years there has been a growing trend among North American manufacturers toward outsourcing various parts of the production process either to independent domestic producers or foreign producers and subsidiaries. The presumption is that such outsourcing reflects the manufacturer's taking advantage of lower cost production alternatives, often resulting from lower labor costs. Industries such as footwear, textiles, automobiles, electronics and computer software are often-cited examples of cases in which lower cost labor in developing countries is substituted for more expensive developed country labor. This somewhat casual empiricism is supported by Brainard (1997), who reports that the cross-country pattern of sales by foreign multinational affiliates back to the parent country is consistent with an explanation based on cross-country differences in relative factor endowments/factor prices.

Brainard also points out, however, that in 1989 affiliate sales back to the parent country accounted for only 13 per cent of foreign affiliate production in the United States and between 2 per cent and 8 per cent of US affiliate production in other countries. For the remainder of multinational activity in Brainard's study, a factor endowment/factor price differences explanation receives little support. There are two reasons. First, models of multinational activity based on factor differences (models of vertical multinationals, as Helpman, 1984, 1985) predict that multinational activity occurs between countries with large differences in relative factor endowments. The data reveal that a significant portion of multinational activity is between countries with very similar factor endowments. Second, these models also predict that, within a given industry, multinational activity will occur in only one direction: either Country 1 firms will have affiliate operations in Country 2 or Country 2 firms will have affiliate operations in Country 1. For country pairs, the data reveal a high incidence of multinational activity in both directions. For these reasons Brainard argues that, for the majority of multinational

activity, the pattern of behavior is better explained by scale economy/transport cost differences (so-called models of horizontal multinationals, as Horstmann and Markusen, 1987, 1992) rather than factor price differences.¹ Subsequent studies of direct investment by Markusen and Maskus (2001 and 2002) support Brainard's conclusion.

The conclusion that factor price differences explain only a small fraction of multinational activity is due to what we would argue is a rather narrow interpretation of the factor price hypothesis: multinational activity takes place within a developing country and is largely for re-export to the developed country. A broader interpretation of this hypothesis is that multinational activity arises because the firm is able to undertake different activities in different locations so as to exploit factor price differences and thereby produce the end product more cheaply than if it undertakes all activities in one location. Under this broader interpretation, the clean line between the factor price explanation for multinational activity (the vertical multinational model) and the scale economy/transport cost explanation (the horizontal multinational model) can become blurred: tariffs or transport costs may influence the multinational firm's decision to locate final good production or assembly close to foreign markets; however, the firm may only be competitive in these markets because it can locate different activities related to production in different countries to exploit factor price differences and so produce cheaply. Under this interpretation, it can be that a firm is neither a pure vertical multinational nor a pure horizontal multinational but that it is both.²

The evidence on multinational activity between Canada and the United States shows the relevance of this broader interpretation. Ed Safarian, for instance, documents in his book *Foreign Ownership of Canadian Industry* (1966, pp. 148–9), a pattern of behavior by Canadian subsidiaries of US companies that is very much in line with the above discussion. He writes:

There are, then, many compelling reasons for expecting a substantial import from the parent and its sources . . . There are equally convincing reasons for believing that there will be substantial domestic content to the output of the subsidiary as well as striking differences among the firms in this regard. . . . it is important to emphasize that the extent to which the subsidiary firms rely on imports from the parent or its sources will vary considerably, in view of the differing extent to which the Canadian economy can supply various products competitively at a given time and over time, in view of the different stages of production . . . and in view of the different stages of development of the subsidiary. It was a common experience of many of the firms in this study to import a component or commodity until the increase in the size of the Canadian market for it, the acquisition of the necessary skills of production, the development of domestic sources of supply, or a favourable change in some cost component . . . permitted its

economical purchase in Canada. Clearly there are pressures working the other way as well, such as relative cost changes for given products that favour production elsewhere.

More recent data on foreign direct investment from the US into Canada also are consistent with this broader interpretation. In contrast to what would be predicted by a scale economy/transport cost model (and what was predicted by opponents of free trade), net capital flows for direct investment from the US into Canada were significantly higher in the five years after the Canada–US Trade Agreement than in the five years before.³ This growth in FDI occurred in spite of poor economic performance in Canada in the early 1990s. One explanation for these observations is that the Free Trade Agreement facilitated the types of activities described by Safarian, thereby making it easier for firms to exploit factor price differences between the two countries and so enhancing multinational activity.

Our goal in this paper is to develop a model of multinational activity/international sourcing that begins to capture this broader interpretation of the factor endowments hypothesis and that will allow us to re-examine this hypothesis as an explanation for multinational activity. Because a more fully articulated model of vertical multinational activity is the key component in our investigation – a horizontal component is easily added – we focus our analysis on a pure vertical multinational. The model we develop is a generalization of the Helpman model where, instead of assuming that the firm engages in just two activities – in Helpman (1984) production involves a headquarters activity and a manufacturing activity – we assume, in keeping with the evidence in Safarian, that the firm undertakes many activities. Specifically, we assume that production of any good involves the completion of a continuum of tasks. We assume that each economy is endowed with a continuum of immobile factors, with each factor specific to a particular task. As long as there is a finite number of final goods (we assume two goods) in this setting, free trade in goods alone will not result in factor price equalization. This is so even if the endowments of different economies are very similar and there is full diversification. As in the Helpman model, this failure of factor price equalization generates incentives for multinational activity, where such activity involves the firm undertaking (at least some part of) different production tasks in different countries. In contrast to Helpman's analysis, these activities can take place between two very similar countries, such as Canada and the US.

While the assumption of more factors than goods is non-standard – traditional trade theory focuses on the models with at least as many goods as factors – the consistent failure of factor price equalization to hold suggests that more attention should be paid to this case. At the very least, we

need to have models with both conditions. While we can conceive of a wide spectrum of differentiated goods, we can equally well conceive of a wide spectrum of differentiated labor, land, capital and so on. Applying any theory will force us to aggregate factors and goods in some manner and, as an empirical question, the relevant issue is whether goods or factors aggregate to a smaller dimension. With no reason to know *a priori* which will occur, it is important to have models that allow for either scenario. Aggregation issues also motivate the decision to model factor types as a continuum. Again, in applying the theory, a decision will need to be made as to whether (for example) all economists in the labor pool should be counted with lawyers or with engineers. Modeling the distribution of labor skills as a continuum provides a flexibility that provides insights into the costs of different forms of aggregation.

Our analysis of this model produces a number of interesting results. In particular, as long as there are positive costs of coordinating tasks across countries, neither free trade alone nor free trade with international sourcing will produce full factor price equalization. This outcome accords well with a wealth of data suggesting that, with or without multinationals, factor prices are not equalized. Further, as mentioned above, multinational activity will occur even between countries with very similar factor endowments. While the extent of multinational activity as measured by the 'number' of tasks done in the foreign country will be smaller the smaller the factor differences, the model does not preclude large volumes of multinational activity as measured by sales. This latter observation is important in that it implies that measures of multinational activity in a country, such as those used in Brainard, Markusen and Maskus or Rugman (2004), based on sales of subsidiaries in that country can produce a quite misleading picture of the extent of actual multinational activity. Our results reveal that the appropriate measure of multinational activity in a country should be total factor payments or value added. The model also permits of two-way multinational activity within an industry. Specifically, the model predicts that, while within a given set of tasks the activity will be one-way, multinational activity can occur in different directions across different sets of tasks in the same industry. Again, this result suggests that factor employment activity provides the appropriate test and not output measures.

Finally, while other models having more factors than goods may well generate similar results, our model with a continuum of factors has the added advantage that the pattern of multinational activity changes in a continuous and determinable way as the economic environment changes. This feature makes the model analytically more tractable than many other models that endogenize the multinational decision. (See for instance, Horstmann and Markusen, 1992; Markusen and Venables, 1999; Markusen, 2002 and

Motta, 1992.) These latter models, being highly discontinuous, often require simulation methods to obtain results on multinational activity. In this aspect, our model is similar to that of Feenstra and Hanson (1997). It differs from Feenstra and Hanson by having a continuum of factors (rather than intermediate goods) and by allowing for the possibility that firms in all countries might become multinationals. This structure allows for richer patterns of multinational activity and a richer set of predictions on how trade costs affect multinational behavior and income distributions. It also makes transparent how various aggregation methods employed in any empirical implementation might affect measurements of multinational activity.

In the next section, the details of the model are provided and a characterization of the properties of the free trade equilibrium with no multinational activity is given. The third section provides the analysis of the model when such activity is possible, followed by a section that provides discussion and some concluding remarks. Proofs for all results are given in the Appendix.

TRADE WITH A CONTINUUM OF FACTORS

To establish a point of reference, we assume initially that multinational activity is infeasible and that the world is characterized by trade only. Subsequently, we relax this restriction and consider both the incentives for and the pattern of multinational activity.

A Pure Trade Model

We consider a situation in which there are two countries, labelled F and H , and two goods, X and Y . The two countries are small relative to the rest of the world and so act as price takers in the markets for X and Y . Good Y is the numeraire and the world price of Good X is p . All markets in the two countries are perfectly competitive.

Rather than the two-factor production technology typical of standard trade models, production of each good here involves a continuum of activities. Each country is endowed with a continuum of non-tradable factors, $\omega \in [0,1]$, and each factor ω is specific to a specific activity, also labelled ω . The production technologies for X and Y are represented respectively by the Cobb–Douglas production functions

$$X_i = \exp \left\{ \int_0^1 \alpha(\omega) \ln(x_i(\omega)) d\omega \right\} \quad (7.1)$$

$$Y_i = \exp \left\{ \int_0^1 \beta(\omega) \ln(y_i(\omega)) d\omega \right\}, \quad (7.2)$$

where $x_i(\omega)(y_i(\omega))$ denotes the amount of factor ω that is used by industry $X(Y)$ in activity ω in Country i .⁴ The functions $\alpha(\cdot)$ and $\beta(\cdot)$ are both strictly positive for all ω , implying that all factor types are productive in each industry. The two functions differ on some set of factors having positive measure and are piecewise continuous. Production also exhibits constant returns to scale, implying that $\int_0^1 \alpha(\omega) d\omega = \int_0^1 \beta(\omega) d\omega = 1$. The endowment of factor ω in Country i is given by a measurable function $z_i: [0,1] \rightarrow \mathcal{R}$ with the property that $z_i(\omega) > 0$ for all ω and $\int_0^1 z_i(\omega) d\omega = 1$. This latter restriction is an assumption that the two countries are of equal sizes. The functions $z_i(\cdot)$ are also piecewise continuous.

As is perhaps already apparent, this model is the standard two-good Heckscher–Ohlin model but with a continuum of factors. The two-by-two model is a special case which is obtained if one lets the functions $z(\cdot)$, $\alpha(\cdot)$ and $\beta(\cdot)$ be step functions which can only change once, at for instance $\omega = 1/2$. In this case, one might label the ‘factor’ $\omega \in [0, 1/2]$ skilled labor and the ‘factor’ $\omega \in [1/2, 1]$ unskilled labor. If the value of the function $z_F(\omega)$ is assumed larger than the value of the function $z_H(\omega)$ for $\omega \in [0, 1/2]$, then Country H is skilled labor abundant relevant to Country F . Similarly, if $\alpha(\omega) > \beta(\omega)$ for $\omega \in [0, 1/2]$, then good X is skilled labor intensive relative to good Y .

The Free Trade Equilibrium

With no multinational activity possible, the model is a standard trade model with more factors than goods. As is well known (see for example, Dixit and Norman, 1980), the behavior of the supply side of each country’s economy under free trade can be represented as the solution to the following constrained revenue maximization problem:⁵

$$\begin{aligned} \max_{x(\omega), y(\omega), X, Y} \quad & pX + Y \\ \text{s.t.} \quad & x(\omega) + y(\omega) \leq z(\omega) \\ & x(\omega) \geq 0, \\ & y(\omega) \geq 0, \end{aligned} \quad (7.3)$$

where X and Y are given in (7.1) and (7.2) and $x(\cdot)$ and $y(\cdot)$ are piecewise continuous functions. As long as $\alpha(\omega) \neq \beta(\omega)$ almost everywhere, the above problem has a unique solution.⁶ In this solution, the Lagrange multiplier

on the resource constraint, $\lambda(\omega)$, is the shadow price of the constraint and so gives the equilibrium price of factor ω .

We can solve for the free trade production levels and factor prices by differentiating (7.3) with respect to the choice variables point by point in ω . Doing so yields the conditions

$$\frac{\alpha(\omega)pX}{x(\omega)} \leq \lambda(\omega) \quad \forall \omega, \quad (7.4)$$

$$\frac{\beta(\omega)Y}{y(\omega)} \leq \lambda(\omega) \quad \forall \omega, \quad (7.5)$$

(with complementary slackness) and $x(\omega) + y(\omega) \leq z(\omega)$ (the resource constraint) with $\lambda(\omega) = 0$ if the inequality is strict. Note that the resource constraint must bind for any set $\tilde{\omega}$ having positive measure; if it did not, then revenues could be increased by employing the unused factors. For simplicity, we assume it binds for all ω . Similarly, if $X(Y)$ is strictly positive, there can be no set having positive measure such that $x(\omega)$ (respectively, $y(\omega)$) is zero on that set. If there were, then the marginal product of these factors is infinite and total revenues again can be raised by shifting some of that factor from the other industry into the one that is not using it. Therefore we assume that (7.4) and (7.5) hold with equality everywhere as well.

The first-order conditions for (7.3) yield a set of five equations which define the equilibrium of the supply side of this economy for given world price, p . Factor demands $x^*(\omega)$, $y^*(\omega)$ and factor price $\lambda^*(\omega)$ are given as

$$x^*(\omega) = \frac{pX^*(p)\alpha(\omega)}{pX^*(p)\alpha(\omega) + Y^*(p)\beta(\omega)} z(\omega), \quad (7.6)$$

$$y^*(\omega) = \frac{Y^*(p)\beta(\omega)}{pX^*(p)\alpha(\omega) + Y^*(p)\beta(\omega)} z(\omega), \quad (7.7)$$

$$\lambda^*(\omega) = \frac{pX^*(p)\alpha(\omega) + Y^*(p)\beta(\omega)}{z(\omega)}, \quad (7.8)$$

respectively, while total outputs $X^*(p)$, $Y^*(p)$ are given by

$$\int_0^1 \alpha(\omega) \ln(pX^*(p)\alpha(\omega) + Y^*(p)\beta(\omega)) d\omega = \ln p + \int_0^1 \alpha(\omega) \ln(\alpha(\omega)z(\omega)) d\omega. \quad (7.9)$$

$$\int_0^1 \beta(\omega) \ln(pX^*(p)\alpha(\omega) + Y^*(p)\beta(\omega)) d\omega = \int_0^1 \beta(\omega) \ln(\beta(\omega)z(\omega)) d\omega. \quad (7.10)$$

These latter two equations are obtained by substituting (7.6) and (7.7) into (7.1) and (7.2) respectively. This system can be solved recursively for the equilibrium output supplies and factor demands. In particular, equations (7.9) and (7.10) simultaneously yield total output, $X^*(p)$, $Y^*(p)$. These output values can be used in (7.6), (7.7) and (7.8) to give factor demands and equilibrium factor prices.⁷

For a given value of p , the solution for $X^*(p)$, $Y^*(p)$ is illustrated in Figure 7.1. The loci $f(X, Y)$ and $g(X, Y)$ give the (X, Y) pairs that satisfy (7.9) and (7.10) respectively for given p , $z(\omega)$. The equilibrium is defined by the intersection of the two loci. It is easily checked that both loci are downward sloping; in the Appendix, it is shown that, whenever the two loci intersect, the locus $f(\cdot, \cdot)$ is steeper than the locus $g(\cdot, \cdot)$. This latter fact confirms the uniqueness of the solution to the optimization problem in (X, Y) .

Figure 7.1 can also be used to determine those situations in which a country produces both goods. Define \hat{X} as the value of X that solves (7.9) when $Y=0$ and \hat{Y} as the value of Y that solves (7.9) when $X=0$. Define \tilde{X} and \tilde{Y} similarly for equation (7.10). These values are the X and Y intercepts respectively of f and g . If $\hat{Y} > \tilde{Y}$ and $\tilde{X} > \hat{X}$, then the intersection of the two loci will be in the interior of the positive orthant. Manipulation

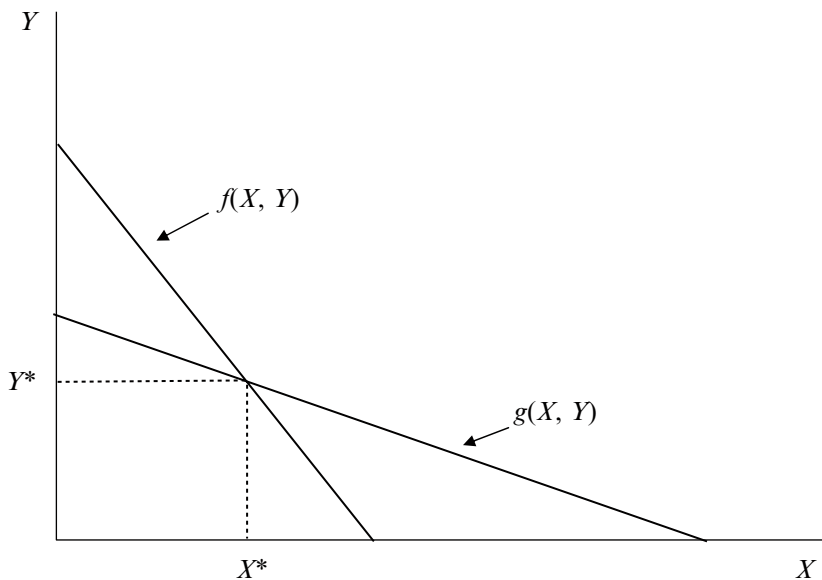


Figure 7.1 Free trade equilibrium

of (7.9) and (7.10) yields a sufficient condition for full diversification to hold:

$$\int_0^1 \beta(\omega) \ln \frac{\beta(\omega)}{\alpha(\omega)} d\omega > \ln p + \int_0^1 [\alpha(\omega) - \beta(\omega)] \ln z(\omega) d\omega > \int_0^1 \alpha(\omega) \ln \frac{\beta(\omega)}{\alpha(\omega)} d\omega. \quad (\text{FD})$$

As long as the factor endowments, $z(\omega)$ and the price, p , satisfy (FD), then the general equilibrium will involve full diversification.

Finally, revealed preference arguments can be used to illustrate the standard result that, as p rises, the output of X rises and the output of Y falls (supply curves are upward sloping). This result is stated in the following lemma.

Lemma 1 *Let $X(p^1)$, $Y(p^1)$ be outputs of X and Y for price p^1 and $X(p^2)$, $Y(p^2)$ be outputs for $p^2 > p^1$. Then $X(p^2) > X(p^1)$ and $Y(p^1) > Y(p^2)$.*

Properties of the Pure Trade Equilibrium

Since the supply side of this model is a generalization of the Hecksher–Ohlin model, it is natural to examine the relationship between factor endowments and both trade patterns and factor prices. To do so, it is necessary to define the notions of factor intensities and factor abundance for this model. With the Cobb–Douglas production specification, factor intensity relationships can be expressed via the functions $\alpha(\cdot)$ and $\beta(\cdot)$. In particular, if the following condition holds, then industry X makes universally more intensive use of low ω 's relative to industry Y :

A. $\alpha(\omega)/\beta(\omega)$ is decreasing for all ω .

As there is no natural order to tasks, effectively this condition is an assumption about the ordering of factors over the unit interval.

A similar condition can be defined for factor endowments; specifically, Country H will be defined to be universally more abundant in low ω 's relative to Country F if condition **B** holds:

B. $z_H(\omega)/z_F(\omega)$ is decreasing for all ω .

In the two-factor case, **B** corresponds to the usual definition of factor abundance in a Hecksher–Ohlin model. Also, note that one of conditions **A** and **B** holds without loss of generality since the ordering of the ω s is arbitrary.

However, once an ordering is established, say via **A**, then the determination of relative abundance via **B** relies on that ordering. Observe that with more than two factors, condition **B** yields only a partial order. Some countries cannot be ordered in terms of their relative factor endowments.

With these definitions in place, it is possible to determine the relative supplies of X and Y by the two countries at world prices and, from these, the pattern of trade. As to the former, if z_F and z_H are such that

$$\int_0^1 \alpha(\omega) \ln \frac{z_H(\omega)}{z_F(\omega)} d\omega > 0 > \int_0^1 \beta(\omega) \ln \frac{z_H(\omega)}{z_F(\omega)} d\omega, \quad (7.11)$$

then $X_H > X_F$ and $Y_H < Y_F$. The reason can be seen from Figure 7.2.

If (7.11) holds, then, from (7.9), $f(X_H, Y_H)$ lies above $f(X_F, Y_F)$ while, from (7.10), $g(X_H, Y_H)$ lies below $g(X_F, Y_F)$. The above inequality is not a necessary implication of conditions **A** and **B**; indeed, it is possible that $\alpha(\omega)$ is sufficiently small at low ω that (7.11) is violated, even under conditions **A** and **B**, and that $X_H < X_F$.⁸ Conditions **A** and **B** do imply, however, that Country 2 produces relatively more of X than Country 1 under free trade. In particular, we have

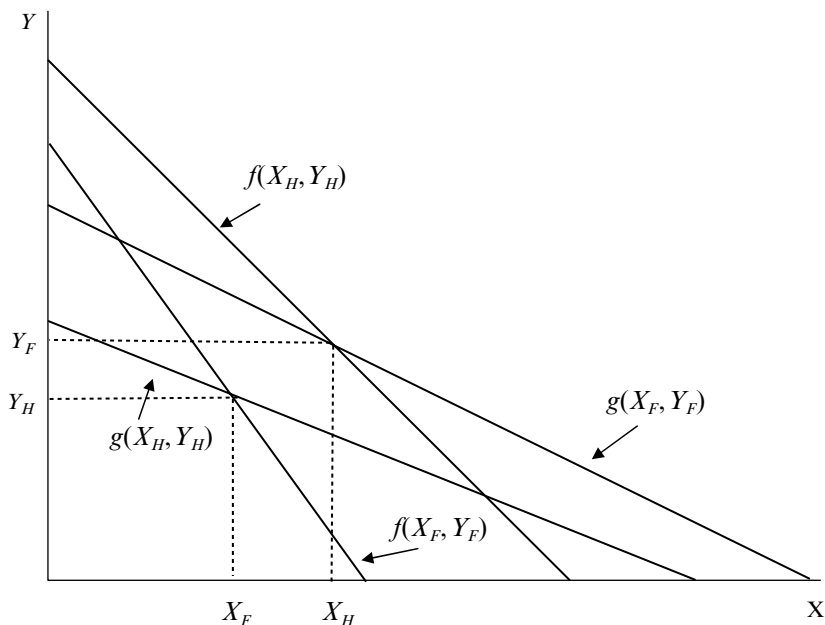


Figure 7.2 Rybczynski effect

Theorem 1 (*Rybczynski*): Assume conditions **A** and **B** are satisfied. Then, in a free trade equilibrium, $X_H/Y_H > X_F/Y_F$.

This Rybczynski style result leads directly to a Heckscher–Ohlin type theorem.

Theorem 2 (*Heckscher–Ohlin*): Assume that conditions **A** and **B** hold. If the two countries have identical and homothetic preferences, then in a free trade equilibrium, Country 1 imports good X and exports good Y .

As for the impact of free trade on factor prices, factor price equalization must almost surely fail. This result has long been noted in the finite dimensional case with more factors than goods (for references, see Ethier, 1984). As is shown in the next section, this failure of factor price equalization, even when endowments are quite similar across countries, is what gives rise to multinational activity.

While factor prices, in general, are not equalized, there are some properties of relative factor prices that can be identified. In particular, from (7.8), the ratio of the prices of any two factors is

$$\Lambda(\omega) \equiv \frac{\lambda_H(\omega)}{\lambda_F(\omega)} = \frac{pX_H\alpha(\omega) + Y_H\beta(\omega)}{pX_F\alpha(\omega) + Y_F\beta(\omega)} \times \frac{z_F(\omega)}{z_H(\omega)}. \quad (7.12)$$

By condition **B**, Country F is relatively scarce in low ω factors while Country H is relatively scarce in high ω factors. This relative scarcity works toward making $\Lambda(\omega)$ small for small values of ω and large for large values of ω . However, this is only part of the picture. In addition to relative scarcity of factors across countries, scarcity of a factor relative to its productivity is also important in determining the value of $\Lambda(\omega)$. That is, to determine the pattern of factor prices, information is needed on both $z_H(\omega)/z_F(\omega)$ and $\alpha(\omega)/\beta(\omega)$. The following condition guarantees that $\Lambda(\omega)$ is monotone increasing:

$$\mathbf{C.} \quad \frac{z_H(\omega)}{z_F(\omega)} \times \left(\frac{\beta(\omega)}{\alpha(\omega)} \right) \text{ is non-increasing for all } \omega.$$

In essence, **C** guarantees that, not only is Country F abundant in high ω factors relative to Country H , but that it is abundant in these factors relative to their productivities.

If Condition **C** is satisfied, so that $\Lambda(\omega)$ is monotonic, then the trade equilibrium cannot have both countries fully diversified. This result is given in the following lemma.

Lemma 2 $\lambda_H(\omega)/\lambda_F(\omega)$ strictly increasing implies at least one of X_F , Y_F , X_H , Y_H is zero.

The intuition for this result is that, with Country F abundant in high ω factors both relative to Country H and relative to their productivities, prices for these factors in Country F will be low both relatively and absolutely. Because good Y uses high ω factors intensively, efficient exploitation of the low prices for these factors involves large Y production. Production of good X is incompatible with this plan as it absorbs the scarce low ω factors necessary for Y production. As a result, the tendency is for Country F to specialize in Y production.

A weaker condition can be derived that permits of full diversification in both countries and yet still produces a well-defined pattern of factor prices. If we define $z(\omega)$ as $z_F(\omega)/z_H(\omega)$ and $\rho(\omega)$ as $\beta(\omega)/\alpha(\omega)$ then this condition is:

$$C'. \quad z'/z \times 1/\rho' \text{ is increasing in } \omega.$$

Under condition C' , $\Lambda(\omega)$ is a quasi-convex function and therefore equal to 1 for at most two values of ω . This result is given below.

Proposition 1 *Assume A, B and C'. Then $\Lambda(\omega)$ is a quasi-convex function. There are at most two ω s where $\Lambda(\omega) = 1$.*

TRADE WITH MULTINATIONALS

The failure of factor price equalization, even in situations in which countries have very similar endowments, means that there are general incentives for foreign sourcing of production. If firms could coordinate domestic and foreign production costlessly and costlessly shift partially completed products back and forth from country to country, then the equilibrium would correspond to one in which factors were fully mobile. In this case, multinational activity would lead to full factor price equalization. This outcome, although efficient, seems both extreme and implausible; moreover, full factor price equalization is rejected by the data.

More plausible (and consistent with the data) is the assumption that firms engaged in foreign sourcing face cost disadvantages in exploiting foreign factors. These costs may represent costs of coordinating/managing tasks across countries or of shipping and assembling partially completed outputs. We model these costs here as a proportionate reduction in the service flow provided by a unit of the foreign factor relative to a unit of the domestic factor. That is, while any firm can use either a domestic or a foreign factor, ω , in activity ω , a unit of a foreign factor is equivalent

to only a fraction of the same unit of a domestic factor. The size of the cost can vary across countries and across industries. In this case, the cost variables for each country and each industry are simply given by the four-tuple $(\Delta_F^X, \Delta_F^Y, \Delta_H^X, \Delta_H^Y)$. The interpretation is that a Country F firm producing good X and sourcing (some of) task ω in Country H , for instance, must employ $(1 + \Delta_F^X)x_F^H(\omega)$ units of factor ω in order to receive a production service flow of $x_F^H(\omega)$ units. Similar interpretations hold for the other Δ_i^j .

Under this cost structure, the production side of a free trade equilibrium with foreign outsourcing is characterized as the solution to the following joint revenue maximization problem.

$$\begin{aligned}
 & F(p, z) = \max p(X_F + X_H) + (Y_F + Y_H) \\
 \text{s.t. } & x_F(\omega) + y_F(\omega) + x_H^F(1 + \Delta_F^X) + y_H^F(1 + \Delta_F^Y) \leq z_F(\omega) \\
 & x_H(\omega) + y_H(\omega) + x_F^H(1 + \Delta_H^X) + y_F^H(1 + \Delta_H^Y) \leq z_H(\omega) \\
 & X_F = \exp \left\{ \int_0^1 \alpha(\omega) \log(x_F(\omega) + x_F^H(\omega)) d\omega \right\} \\
 & Y_F = \exp \left\{ \int_0^1 \beta(\omega) \log(y_F(\omega) + y_F^H(\omega)) d\omega \right\} \\
 & X_H = \exp \left\{ \int_0^1 \alpha(\omega) \log(x_H(\omega) + x_H^F(\omega)) d\omega \right\} \\
 & Y_H = \exp \left\{ \int_0^1 \beta(\omega) \log(y_H(\omega) + y_H^F(\omega)) d\omega \right\},
 \end{aligned}$$

where the choice variables are the non-negative piecewise continuous functions, $x_F(\omega)$, $y_F(\omega)$, $x_H^F(\omega)$, $y_H^F(\omega)$, $x_H(\omega)$, $y_H(\omega)$, $x_F^H(\omega)$, $y_F^H(\omega)$ and X_F , X_H , Y_F , and Y_H . The two resource constraints embody the assumption that foreign operations are possible but come at an incremental cost. Notice, also, that if an optimal solution involves x_i^j or y_i^j strictly positive, then the formulation implies that (discounted) foreign and domestic factors are perfectly substitutable.

The first-order conditions defining a solution to the above program yield the equilibrium conditions given below:

$$\frac{\alpha(\omega)pX_i}{x_i(\omega) + x_i^j(\omega)} \leq \lambda_j(\omega), \quad i \neq j, \quad (7.13)$$

for $i = F, H$ and $x_i^j(\omega) = 0$ if the inequality is strict;

$$\frac{\alpha(\omega)pX_i}{x_i(\omega) + x_i^j(\omega)} \leq \lambda_j(\omega)(1 + \Delta_j^X), \quad i \neq j, \quad (7.14)$$

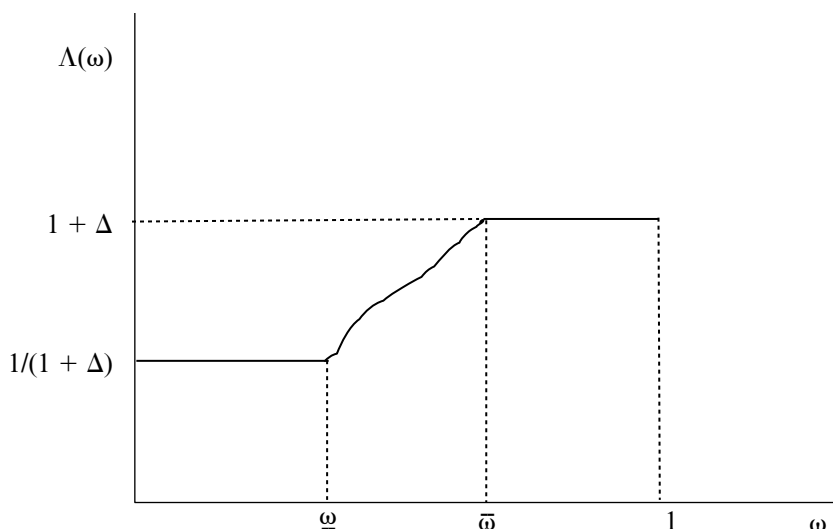
for $j = F, H$ and $x_j^i(\omega) = 0$ if the inequality is strict. Analogous equations hold for the four $y(\cdot)$ factor choices. In addition, there are the two resource constraints. As may be expected, the productivity of factors along with the assumption of full diversification will render complementary slackness on those conditions irrelevant.

Conditions (7.13) and (7.14) have some immediate implications for the pattern of multinational activity in equilibrium. In particular, for a given factor, ω , multinational activity can only occur in one direction. That is, when there is no foreign sourcing, either $\lambda_F(\omega) < \lambda_H(\omega)$ and so the incentive is for firms in Country H to source this task to Country F or $\lambda_F(\omega) > \lambda_H(\omega)$ and the incentive is to source in Country H . Similarly, in industry $Y(X)$, multinational activity will occur in both countries (but for different tasks) only if $\Delta_i^Y < \Delta_i^X$ ($\Delta_i^X < \Delta_i^Y$) $i = F, H$. Essentially, the industry with the lower cost of foreign sourcing will compete factors away from the other industry. These results are given formally below.

Lemma 3 *Suppose that $\Delta_i^j > 0$ for $i = F, H$ and $j = X, Y$. If a factor, ω' , in Country F is employed by a firm in Country H , then the same factor, ω' , in Country H cannot be employed by a firm in Country F . In addition, if $\Delta_F^Y < \Delta_F^X$, only industry Y from Country H has multinational operations. And if $\Delta_H^Y > \Delta_H^X$, only industry X has multinational operations from Country F .*

The function $\Lambda(\omega)$ (defined in (7.12)) plays an important role in determining the pattern of tasks in which foreign sourcing occurs. To see how, define $\Delta_F = \min[\Delta_F^X, \Delta_F^Y]$ and $\Delta_H = \min[\Delta_H^X, \Delta_H^Y]$ and suppose, for simplicity, that $\Delta_F = \Delta_H = \Delta$. Then, from (7.13) and (7.14), no foreign sourcing occurs in equilibrium for any task for which $1/(1 + \Delta) < \Lambda(\omega) < 1 + \Delta$. For all other tasks, either $\Lambda(\omega) = 1 + \Delta$ and Country H firms source this task from Country F or $\Lambda(\omega) = 1/(1 + \Delta)$ and sourcing is from Country F firms to Country H . So, for instance, if Condition **C** holds, we know from before that the function $\Lambda(\omega)$ is monotone increasing. Then, low ω tasks will be the ones for which $1/(1 + \Delta) = \Lambda(\omega)$ (low ω tasks are relatively cheap in Country H) and Country F firms will source these tasks from Country H . High ω tasks will be ones for which $\Lambda(\omega) = 1 + \Delta$ (high ω tasks are relatively cheap in Country F) and Country H firms will source these tasks from Country F . No multinational activity will be observed in either direction for intermediate level ω tasks. This pattern of multinational activity is depicted in Figure 7.3. If Condition **C'** is satisfied instead, then the pattern of multinational activity is as in Figure 7.4.

One might have expected that, should foreign sourcing be possible, a Heckscher–Ohlin type analogue for foreign sourcing should arise. That is, countries that are universally relatively abundant in low ω s should tend to



Notes:

0 to $\underline{\omega}$: F firms source from H .

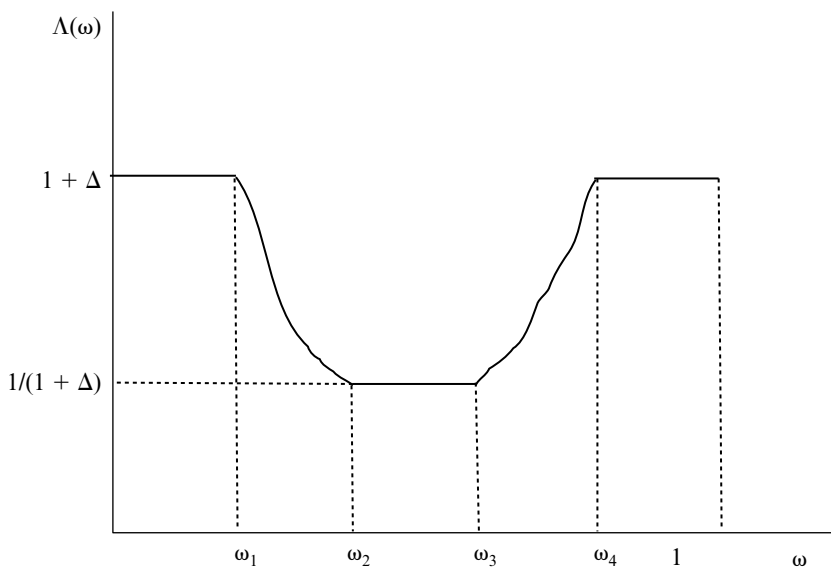
$\underline{\omega}$ to $\bar{\omega}$: No foreign sourcing.

$\bar{\omega}$ to 1: H firms source from F .

Figure 7.3 Multinational activity: Condition C

employ high foreign ω s through multinational firm activity while sourcing their own low ω s to multinational firms from the rest of the world. The above reveals that this outcome indeed occurs when the relative factor price schedule is monotonic. We also know from Lemma 3, however, that this case is inconsistent with full diversification. This fact means that, in a world with more factors than traded goods and countries that are fully diversified, the pattern of multinationalization must be complex – there is no Heckscher–Ohlin analogue for foreign sourcing. The very clean division found in Mathewson and Quirin (1979) and Feenstra and Hanson (1997), for instance, will in general fail to emerge. Instead, foreign sourcing, when it results, will take the form of partitioning the spectrum of factor types/tasks into many different connected intervals.

The above analysis also reveals that even countries with similar factor endowments will have an incentive to engage in multinational activities. Two-way activity is also feasible so that an X producer ‘based’ in Country H might employ factors in Country F and, at the same time, an X firm in Country F employ different factors in Country H . Furthermore, unless factors are carefully and finely enough disaggregated, it may even appear



Notes:

0 to ω_1 : Country H firms source from F .

ω_1 to ω_2 and ω_3 to ω_4 : No foreign sourcing.

ω_2 to ω_3 : Country F firms source from H .

ω_4 to 1: Country H firms source from F .

Figure 7.4 Multinational activity: Condition C'

that multinationalization occurs in the same factor group. Depending on the behavior of $\Lambda(\omega)$, one could see, for instance, factors in Country H in the interval $[7/8, 1]$ employed by Country F firms, factors in $[3/4, 7/8]$ in Country F employed by Country H firms but, if the data simply aggregates all factors in $[3/4, 1]$ as, say, skilled labor, it would appear as though similar factors were being employed multinationally by both countries. Finally, while foreign sourcing leads to more similar factor prices, it does not generate full factor price equalization unless $\Delta = 0$.

We can also explore in this framework how the pattern of multinational activity is affected by various changes in the trading environment. Unlike the models of Horstmann and Markusen (1992), Markusen and Venables (1999) and Motta (1992), multinational activity responds in a continuous and well-defined way as costs of foreign sourcing and the relative valuation of final goods, p , change. To illustrate the point, we consider a situation in which $\Delta_H^X = \Delta_H^Y = \Delta_F^Y = \infty$ while $\Delta_F^X = \Delta$. This situation is one in which the only possible foreign sourcing occurs by Country H producers of X in Country F . We also assume that Δ is such that, for some set of ω s having

positive measure, multinational activity actually occurs (i.e. $x_H^F(\omega) > 0$ for a positive measure of ω s). We can then show

Result 1 *Assume that $\Delta_H^X = \Delta_H^Y = \Delta_F^Y = \infty$, $\Delta_F^X = \Delta < \infty$ and that Condition C holds. If Country H is specialized in X and Country F is specialized in either X or Y, then a reduction in Δ weakly increases the set of ω 's for which foreign sourcing occurs.*

In addition to showing that the set of factors in which foreign sourcing occurs enlarges as sourcing costs decrease, we can also show that the amount of foreign sourcing in any given factor increases as sourcing costs decrease. Also, the total amount of X production increases. This is the next result.

Result 2 *Assume that $\Delta_H^X = \Delta_H^Y = \Delta_F^Y = \infty$, $\Delta_F^X = \Delta < \infty$ and that Condition C holds. If Country H is specialized in X and Country F is specialized in Y, then a reduction in Δ increases X and reduces Y. In addition, it weakly increases the value of $x_H^F(\omega)$ for all ω .*

These results suggest that, if technologies for coordinating foreign activities improve, say, or barriers to engaging in foreign activities are lowered (either regulatory or tariff), both the number of activities in which foreign sourcing occurs and the levels of foreign sourcing increase. In this sense, the foreign activity moves in a continuous fashion in response to changes in the environment that facilitate multinational activity. Note also that, while total production of X increases, nothing is predicted about the trade flows in X or Y. How these vary will depend on the nature of the activities being sourced. Factor employment, however, definitely increases.

Not surprisingly, foreign sourcing of factor ω in Country F reduces the factor price for ω in Country H. Its impact on the prices of other factors is less clear. It can be shown in this current case, however, that foreign sourcing increases (at least weakly) aggregate factor income in Country H. More precisely, as Country H moves from a situation of no foreign sourcing ($\Delta = \infty$) to positive foreign sourcing (Δ small), aggregate factor income increases weakly. In essence, by employing factors in Country F, producers of X in Country H both increase the productivity of the non-sourced factors in X and free up other factors that increase the productivity of some existing factors in Y. The net effect is an aggregate increase in factor income. This result is given formally below.

Proposition 2 *Assume $\Delta_F^X = \Delta_H^Y = \Delta_F^Y = \infty$. A move from $\Delta_H^X = \infty$ to $\Delta_H^X = \Delta < \infty$ weakly increases aggregate factor income in Country H.*

DISCUSSION AND CONCLUDING REMARKS

There are several insights regarding multinational activity that arise from this analysis. First, vertical multinational activity can occur even between countries with very similar factor endowments. This activity also can occur in both directions (i.e. from Country F into Country H and vice versa) but must necessarily be for different factors. In these ways, the model suggests that we may have to re-examine the factor endowment hypothesis for multinational activity. The model further suggests that the appropriate measure of multinational activity is employment and not sales. This distinction is a key one. While the model makes fairly specific predictions about factor utilization, without additional detail regarding sets of tasks, it is difficult to make any predictions about patterns of output and output flows. For instance, while producers of X in Country H may engage in large volumes of foreign sourcing as measured by factor payments to Country F , the tasks in which foreign sourcing occur may all be service tasks that simply make feasible greater volumes of domestic output of X in Country H . Alternatively, factor payments to Country F may be small, but the tasks in which foreign sourcing occur are assembly or sales tasks that make possible large volumes of foreign sales by Country H producers in Country F . Without specifying tasks more carefully, one can say little about multinational activity as measured by foreign sales of output.

While not addressed in this paper, this model can also be used to analyze trade policy questions. In addition to the usual issues of tariffs and restrictions on foreign investment, the model can be used to address the issue of local content restrictions. Obviously, if any local content allows a foreign firm to avoid protective tariffs, then the tariffs lose their bite. The question of domestic content restrictions, thus, arises naturally in this setting as part of a protective tariff regime.

Finally, it is also possible within the model to address the question of income distributions and the impact of both trade and foreign sourcing on income inequality. The functions $\lambda_i(\omega)$ provide equilibrium factor prices while the product $\lambda_i(\omega)z_i(\omega)$ provides the income distribution for Country i . It is possible, therefore, to consider how foreign sourcing affects income distributions and whether or not it can lead to greater income inequality in both countries. This issue and the issues regarding trade policy in this model are subjects of future research.

NOTES

1. For a detailed discussion of the notions of horizontal and vertical multinationals, see Caves (1996).
2. Markusen and Venables (2003) also note this blurring of lines between vertical and horizontal multinationals when final good production involves component assembly and components can be sourced from different locations.
3. Over the period 1985–89, net capital flows were typically negative (capital outflow). In the subsequent five years (i.e. post Canada–US Free Trade), net capital flows averaged about \$3 billion. Hejazi and Pauly (2004) show that Canada's share of FDI from the US has fallen since NAFTA; however, the levels of FDI from the US have continued to rise. For an earlier study of the effect of tariffs on Canada/US FDI and employment, see Feinberg et al. (1998).
4. The Cobb–Douglas assumption for both industries implies both an assumption that the elasticity of substitution is constant in the two industries and that it is the same (one). It is the latter implication that limits somewhat the generality of this model. However, it is known that when industries have different elasticities of substitution, even in the two-good, two-factor model, factor intensity reversals can occur. In the technology examined here, such reversals are impossible.
5. To simplify the notation the subscript i is omitted in this section.
6. This is because the objective function is a strictly concave function and the boundary of the constraint set is linear. Strictly speaking, the solution is unique almost everywhere in $x(\omega)$, $y(\omega)$. In what follows, we ignore the possibility that there is a class of solutions that differ only on a set of Lebesgue measure zero and assume that the first-order conditions defining $x(\omega)$, $y(\omega)$ hold for all ω .
7. The interested reader can check that this system is linearly homogeneous in the sense that if $(X, Y, x(\omega), y(\omega), \lambda(\omega))$ solve the system for $z(\omega)$, then $(kX, kY, kx(\omega), ky(\omega), \lambda(\omega))$ solve the system for $kz(\omega)$.
8. The reason that the standard Rybczynski result fails to hold here is that we assume that the aggregate supply of factors is fixed across countries. The Rybczynski result is usually implied by an increase in one factor holding the supply of all other factors fixed. The need to fully employ this factor in conjunction with other factors by drawing the other factors out of production in some sector is what is responsible for the absolute decline in output that is part of the proof of the traditional Rybczynski result. This absolute decline will not necessarily occur here.

REFERENCES

- Brainard, S. Lael (1997), 'An empirical assessment of the proximity–concentration tradeoff between multinational sales and trade', *American Economic Review*, **87** (4), 520–44.
- Caves, Richard E. (1996), *Multinational Enterprise and Economic Analysis*, 2nd edn, Cambridge: Cambridge University Press.
- Dixit, Avinash and Victor Norman (1980), *Theory of International Trade*, Cambridge: Cambridge University Press.
- Ethier, Wilfrid (1984), 'Higher dimensional issues in trade theory', in Ronald Jones and Peter Kennen (eds), *Handbook of International Economics*, vol. I, Amsterdam: Elsevier Science Publishers, pp. 131–84.
- Feenstra, Robert C. and Gordon H. Hanson (1997), 'Foreign direct investment and relative wages: evidence from Mexico's maquiladoras', *Journal of International Economics*, **42** (3–4), 371–93.

- Feinberg, Susan, Michael Keane and Mario Bognanno (1998), 'Trade liberalization and delocalization: new evidence from firm-level panel data', *Canadian Journal of Economics*, **31** (4), 749–77.
- Hejazi, Walid and Peter Pauly (2004), 'Canada and Mexico's changing FDI positions: what role has the NAFTA played?', mimeo.
- Helpman, Elhanan (1984), 'A simple theory of international trade with multinational corporations', *Journal of Political Economy*, **92** (3), 451–71.
- Helpman, Elhanan (1985), 'Multinational corporations and trade structure', *Review of Economic Studies*, **52** (3), 443–58.
- Horstmann, Ignatius J. and James R. Markusen (1987), 'Strategic investments and the development of multinationals', *International Economic Review*, **28** (1), 109–21.
- Horstmann, Ignatius J. and James R. Markusen (1992), 'Endogenous market structures in international trade', *Journal of International Economics*, **32** (1–2), 109–29.
- Markusen, James R. (2002), *Multinational Firms and the Theory of International Trade*, Cambridge, MA and London: MIT Press.
- Markusen, James R. and Keith E. Maskus (2001), 'Multinational firms: reconciling theory and evidence', in Magnus Blomström and Linda Goldberg (eds), *Topics in Empirical International Economics: A Festschrift in Honor of Richard E. Lipsey*, Chicago: University of Chicago Press, pp. 71–95.
- Markusen, James R. and Keith E. Maskus (2002), 'Discriminating among alternative theories of the multinational enterprise', *Review of International Economics*, **10** (4), 694–707.
- Markusen, James R. and Anthony J. Venables (1999), 'Multinational production, skilled labor and real wages', in R. Baldwin and J. Francois (eds), *Dynamic Issues in Applied Commercial Analysis*, Cambridge: CEPR.
- Markusen, James R. and Anthony J. Venables (2003), 'The international organization of multi-stage production', mimeo.
- Mathewson, G.F. and G.D. Quirin (1979), *Fiscal Transfer Pricing in Multinational Corporations*, Ontario Economic Council Research Studies, 16, Toronto: University of Toronto Press.
- Motta, Massimo (1992), 'Multinational firms and the tariff jumping argument: a game theoretic analysis with some unconventional conclusions', *European Economic Review*, **36** (8), 1557–71.
- Rugman, Alan M. (2004), 'Continental integration and foreign ownership of Canadian industry: a retrospective analysis', mimeo.
- Safarian, A. Edward (1966), *Foreign Ownership of Canadian Industry*, Toronto and London: McGraw-Hill.

APPENDIX

Properties of the Loci $f(X, Y)$ and $g(X, Y)$

Observe that

$$f_1(X, Y) - g_1(X, Y) = p \int_0^1 (\alpha(\omega) - \beta(\omega)) \frac{\alpha(\omega)}{pX\alpha(\omega) + Y\beta(\omega)} d\omega,$$

while

$$f_2(X, Y) - g_2(X, Y) = \int_0^1 (\alpha(\omega) - \beta(\omega)) \frac{\beta(\omega)}{pX\alpha(\omega) + Y\beta(\omega)} d\omega,$$

where the subscript i denotes a partial with respect to the i th argument. Since $\int_0^1 (1 - \beta(\omega)/\alpha(\omega))\alpha(\omega) d\omega = 0$, the expression $f_1(X, Y) - g_1(X, Y)$ gives the covariance between $1 - \beta(\omega)/\alpha(\omega)$ and $1/(pX + Y\beta(\omega)/\alpha(\omega))$. This covariance is positive and so $f_1(X, Y) - g_1(X, Y) > 0$. Similarly, $f_2(X, Y) - g_2(X, Y)$ gives the covariance between $\alpha(\omega)/\beta(\omega) - 1$ and $1/(Y + pX\alpha(\omega)/\beta(\omega))$, which is negative. Therefore, the loci of points satisfying (7.9) and (7.10) are downward sloping and such that

$$-\left(\frac{f_1(X, Y)}{f_2(X, Y)} - \frac{g_1(X, Y)}{g_2(X, Y)} \right) = \frac{g_1(X, Y)}{f_2(X, Y)} \left[\frac{f_2(X, Y)}{g_2(X, Y)} - \frac{f_1(X, Y)}{g_1(X, Y)} \right] < 0.$$

Thus, wherever the two loci intersect, $f(X, Y)$ is steeper than $g(X, Y)$.

Proof of Lemma 1

Observe that $X(p^1)$, $Y(p^1)$ and $X(p^2)$, $Y(p^2)$ are both feasible outputs. By definition, $p^2X(p^2) + Y(p^2) \geq p^2X(p^1) + Y(p^1)$ and $p^1X(p^2) + Y(p^2) \leq p^1X(p^1) + Y(p^1)$. Subtraction yields $(p^2 - p^1)(X(p^2) - X(p^1)) \geq 0$. \square

Proof of Theorem 1

First, observe that

$$\int_0^1 (\alpha(\omega) - \beta(\omega)) \ln \frac{z_H(\omega)}{z_F(\omega)} d\omega = \int_0^1 \left(\frac{\alpha(\omega)}{\beta(\omega)} - 1 \right) \left(\ln \frac{z_H(\omega)}{z_F(\omega)} \right) \beta(\omega) d\omega \geq 0.$$

The inequality follows because β can be thought of as a probability density function. As a result, the above expression is the expected value of the product of two non-increasing functions, the first of which has mean zero (by **A** and **B**). This latter fact means that the expected value is just the covariance of two non-increasing functions, a non-negative number.

Next, let $X_H = \mu X_F$ and define $Y_H = \kappa \mu Y_F$. Then, (7.9) and (7.10) imply that

$$\begin{aligned} & \int_0^1 (\alpha(\omega) - \beta(\omega)) \ln \frac{pX_F\alpha(\omega) + \kappa Y_F\beta(\omega)}{pX_F\alpha(\omega) + Y_F\beta(\omega)} d\omega \\ &= \int_0^1 (\alpha(\omega) - \beta(\omega)) \ln \frac{z_H(\omega)}{z_F(\omega)} d\omega > 0 \end{aligned}$$

from the above. Suppose that $\kappa > 1$. This implies that

$$\ln \frac{pX_F + \kappa Y_F \frac{\beta(\omega)}{\alpha(\omega)}}{pX_F + Y_F \frac{\beta(\omega)}{\alpha(\omega)}}$$

is increasing in β/α , which, in conjunction with **A**, implies that

$$\begin{aligned} & \int_0^1 \left(\frac{\alpha(\omega)}{\beta(\omega)} - 1 \right) \ln \frac{pX_F\alpha(\omega) + \kappa Y_F\beta(\omega)}{pX_F\alpha(\omega) + Y_F\beta(\omega)} \beta(\omega) d\omega \\ &= \text{cov}_\beta \left(\frac{\alpha(\omega)}{\beta(\omega)} - 1, \ln \left[\frac{pX_F + \kappa Y_F \frac{\beta(\omega)}{\alpha(\omega)}}{pX_F + Y_F \frac{\beta(\omega)}{\alpha(\omega)}} \right] \right) < 0, \end{aligned}$$

where the covariance is taken with respect to the density function, β . This violates (7.9) and (7.10), implying $\kappa < 1$. \square

Proof of Theorem 2

By Theorem 1, $X_H/Y_H \leq X_F/Y_F$. Under free trade, both countries face the same relative prices and under the assumption of identical, homothetic preferences, consumers in each country consume the same proportions of the two goods,

$$\frac{C_H^X}{C_H^Y} = \frac{C_F^X}{C_F^Y}.$$

Suppose $C_H^X - X_H > 0$ (so $C_F^X - X_F < 0$). Then,

$$1 < \frac{C_H^X}{X_H} \times \frac{Y_H}{C_H^Y} = \frac{C_F^X}{X_H} \times \frac{Y_H}{C_F^Y} \leq \frac{C_F^X}{X_F} \times \frac{Y_F}{C_F^Y} < 1$$

a contradiction. \square

Proof of Lemma 2

Suppose X_F, Y_F, X_H, Y_H are all strictly positive. Then equations (7.9) and (7.10) hold for both Countries F and H . Use (7.8) to rewrite these equations as

$$\int_0^1 \alpha(\omega) \log(\lambda_i(\omega)) d\omega = \log p + \int_0^1 \alpha(\omega) \log(\alpha(\omega)) d\omega.$$

$$\int_0^1 \beta(\omega) \log(\lambda_i(\omega)) d\omega = \int_0^1 \beta(\omega) \log(\beta(\omega)) d\omega$$

for $i = F, H$. Subtracting the first equation for Country F from that for Country H , doing the same for the second equation and taking differences again yields

$$\int_0^1 \left(\frac{\alpha(\omega)}{\beta(\omega)} - 1 \right) \log \frac{\lambda_H(\omega)}{\lambda_F(\omega)} \beta(\omega) d\omega = 0.$$

By **A**, the first term in the product is a decreasing function with zero mean. Therefore, if $\lambda_H(\omega)/\lambda_F(\omega)$ is monotonic, the equality cannot hold. \square

Proof of Proposition 1

By definition,

$$\Lambda(\omega) = \frac{pX_H\alpha(\omega) + Y_H\beta(\omega)}{pX_F\alpha(\omega) + Y_F\beta(\omega)} \times z(\omega).$$

Differentiating yields

$$\frac{d\Lambda(\omega)}{d\omega} = \frac{pX_H\alpha(\omega) + Y_H\beta(\omega)}{pX_F\alpha(\omega) + Y_F\beta(\omega)} \times z(\omega)\rho'(\omega)$$

$$\times \left\{ \frac{p(X_F Y_H - X_H Y_F)}{(pX_H + \rho(\omega)Y_H)(pX_F + \rho(\omega)Y_F)} + \frac{z'(\omega)}{z(\omega)\rho'(\omega)} \right\}.$$

The first term in the brackets is negative (by Theorem 1) but increasing. The second term is increasing under the hypothesis of the theorem. All other terms are strictly positive. Therefore, the derivative of λ can have at most one zero. Since the term in parentheses is increasing, $\Lambda(\omega)$ must be quasi-convex. \square

Proof of Lemma 3

We show the result for the case of Country F and Industry X . The proof is the same for the other cases. Suppose that there is an ω such that $x_F(\omega) > 0$, $x_H^F(\omega) > 0$ and $x_H^X(\omega) > 0$. Then, from (7.13) and (7.14), $\lambda_F(\omega) = \lambda_H(\omega)(1 + \Delta_H^X)$ and $\lambda_H(\omega) \geq \lambda_F(\omega)(1 + \Delta_F^X)$, a contradiction for $\Delta > 0$.

To show the second part of Lemma 3, suppose that $y_H^F(\omega) > 0$ and $x_H^F(\omega) > 0$. By the first argument, at least one of $x_H(\omega)$ or $y_H(\omega)$ is strictly positive. Suppose it is $y_H(\omega)$. From the analogue to (7.13) for y and $i = H$,

$$\frac{\beta(\omega)Y_H}{y_H(\omega) + y_H^F(\omega)} = \lambda_H(\omega). \quad (7.15)$$

From (7.13) and (7.14) for $i = H$,

$$\frac{\alpha(\omega)pX_H}{x_H(\omega) + x_H^F(\omega)} = \lambda_F(\omega)(1 + \Delta_F^X),$$

and

$$\frac{\beta(\omega)Y_H}{y_H(\omega) + y_H^F(\omega)} = \lambda_F(\omega)(1 + \Delta_F^Y).$$

Combined with (7.15), this implies

$$\lambda_F(\omega)(1 + \Delta_H^X) \leq \lambda_H(\omega) = \lambda_F(\omega)(1 + \Delta_H^Y),$$

a contradiction. □

Proof of Result 1

Given Condition C, the relative factor price function $\Lambda(\omega)$ must be increasing in ω . As a result, if sourcing occurs in Country F , it will occur for all ω sufficiently large. Let ω^1 be defined such that $x_H^F(\omega) > 0$, $\forall \omega > \omega^1$. Suppose, first, that Country F is specialized in Y . Then, it must be that, at ω^1

$$\frac{p\alpha(\omega^1)X}{z_H(\omega^1)} = (1 + \Delta) \frac{\beta(\omega^1)Y}{z_F(\omega^1)}$$

or

$$\frac{pX}{Y} = (1 + \Delta) \frac{\rho(\omega^1)}{z(\omega^1)}.$$

Equating marginal products for $\omega \geq \omega^1$, we get

$$z_H(\omega) + x_H^F(\omega) = \frac{(1 + \Delta)z_H(\omega) + z_F(\omega)}{\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)}$$

and

$$z_F(\omega) - (1 + \Delta)x_H^F(\omega) = \frac{\rho(\omega)z(\omega^1)[(1 + \Delta)z_H(\omega) + z_F(\omega)]}{\rho(\omega^1) [\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)]}.$$

As a result, the production equations are

$$\begin{aligned} \ln Y = & \int_0^{\omega^1} \beta(\omega) \ln z_F(\omega) d\omega \\ & + \int_{\omega^1}^1 \beta(\omega) \ln \frac{\rho(\omega)z(\omega^1)[(1 + \Delta)z_H(\omega) + z_F(\omega)]}{\rho(\omega^1) [\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)]} d\omega \end{aligned} \quad (7.16)$$

and

$$\ln X = \int_0^{\omega^1} \alpha(\omega) \ln z_H(\omega) d\omega + \int_{\omega^1}^1 \alpha(\omega) \ln \frac{(1 + \Delta)z_H(\omega) + z_F(\omega)}{\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)} d\omega. \quad (7.17)$$

These two production equations plus the condition

$$\ln X - \ln Y = \ln(1 + \Delta) + \ln \frac{\rho(\omega^1)}{z(\omega^1)} - \ln p$$

jointly determine ω^1 .

If ω^1 does not vary monotonically with Δ , then there must exist a Δ such that $\partial\omega^1/\partial\Delta = 0$. At this Δ , then both

$$d\ln X - d\ln Y = 1/(1 + \Delta)$$

and

$$\begin{aligned} d\ln X - d\ln Y = & \int_{\omega^1}^1 (\alpha(\omega) - \beta(\omega)) \\ & \times \left(\frac{z_H(\omega)}{(1 + \Delta)z_H(\omega) + z_F(\omega)} - \frac{1}{\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)} \right) d\omega \end{aligned}$$

must hold jointly. The last equation is

$$d\ln X - d\ln Y = \int_{\omega^1}^1 (\alpha(\omega) - \beta(\omega)) \times \left(\frac{\rho(\omega)z(\omega^1)/\rho(\omega^1)z_H(\omega) - z_F(\omega)}{((1 + \Delta)z_H(\omega) + z_F(\omega))(\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta))} \right) d\omega$$

or

$$d\ln X - d\ln Y = \int_{\omega^1}^1 (\rho(\omega) - 1) \times \left(\frac{z(\omega) - \rho(\omega)z(\omega^1)/\rho(\omega^1)}{((1 + \Delta) + z(\omega))(\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta))} \right) \alpha(\omega) d\omega.$$

We now show that this last expression is less than $1/(1 + \Delta)$, implying that ω^1 must vary monotonically with Δ . To see this fact, note that the final term in the integrand above is positive by Condition C. Viewed as a function of $z(\omega^1)/\rho(\omega^1)$, this term is also monotonic, decreasing and ranges from 0 to $z(\omega)/((1 + \Delta)(1 + \Delta) + z(\omega))$. Let ω^* be such that $\rho(\omega^*) = 1$. If $\omega^* > \omega^1$, then

$$d\ln X - d\ln Y \leq \int_{\omega^*}^1 (\rho(\omega) - 1) \times \left(\frac{z(\omega) - \rho(\omega)z(\omega^1)/\rho(\omega^1)}{((1 + \Delta) + z(\omega))(\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta))} \right) \alpha(\omega) d\omega.$$

Since $(\rho(\omega) - 1) > 0$, for $\omega > \omega^*$, then substituting in the maximum that the second term achieves in $z(\omega^1)/\rho(\omega^1)$ (i.e. $z(\omega^1)/\rho(\omega^1) = 0$), we have that

$$d\ln X - d\ln Y \leq \frac{1}{(1 + \Delta)} \int_{\omega^*}^1 (\rho(\omega) - 1) \left(\frac{z(\omega)}{((1 + \Delta) + z(\omega))} \right) \alpha(\omega) d\omega.$$

Since

$$\left(\frac{z(\omega)}{((1 + \Delta) + z(\omega))} \right) < 1$$

and

$$\int_{\omega^*}^1 (\rho(\omega) - 1) \alpha(\omega) d\omega < 1,$$

we have that

$$d\ln X - d\ln Y < \frac{1}{(1 + \Delta)},$$

the desired result. If, instead, $\omega^* \leq \omega^1$, then $(\rho(\omega) - 1) > 0$, for $\omega > \omega^1$ and the same argument applies. Thus, if Country F specializes in Y , it must be that ω^1 decreases with Δ .

Suppose next that Country F specializes in X . Then, analogous to the above, we have that, at ω^1

$$\frac{\alpha(\omega^1)X_H}{z_H(\omega^1)} = (1 + \Delta) \frac{\alpha(\omega^1)X_F}{z_F(\omega^1)}$$

or

$$\frac{X_H}{X_F} = \frac{(1 + \Delta)}{z(\omega^1)}.$$

Equating marginal products for $\omega \geq \omega^1$, we get

$$z_H(\omega) + x_H^F(\omega) = \frac{(1 + \Delta)z_H(\omega) + z_F(\omega)}{z(\omega^1) + (1 + \Delta)}$$

and

$$z_F(\omega) - (1 + \Delta)x_H^F(\omega) = z(\omega^1) \frac{(1 + \Delta)z_H(\omega) + z_F(\omega)}{z(\omega^1) + (1 + \Delta)}$$

The production equations are

$$\begin{aligned} \ln X_F &= \int_0^1 \alpha(\omega) \ln z_H(\omega) d\omega + \int_0^{\omega^1} \alpha(\omega) \ln z(\omega) d\omega \\ &\quad + \int_{\omega^1}^1 \alpha(\omega) \ln z(\omega^1) \frac{z(\omega) + (1 + \Delta)}{z(\omega^1) + (1 + \Delta)} d\omega \end{aligned}$$

and

$$\ln X_H = \int_0^1 \alpha(\omega) \ln z_H(\omega) d\omega + \int_{\omega^1}^1 \alpha(\omega) \ln z(\omega^1) \frac{z(\omega) + (1 + \Delta)}{z(\omega^1) + (1 + \Delta)} d\omega.$$

These two equations imply

$$\ln X_H - \ln X_F = \int_0^{\omega^1} \alpha(\omega) \ln z(\omega) d\omega$$

This latter condition plus the condition that

$$\ln X_H - \ln X_F = \ln(1 + \Delta) - \ln z(\omega^1)$$

jointly determine ω^1 .

If ω^1 does not vary monotonically with Δ , then there must exist a Δ such that $\partial\omega^1/\partial\Delta = 0$. At this Δ , both

$$d\ln X_H - d\ln X_F = 1/(1 + \Delta)$$

and

$$d\ln X_H - d\ln X_F = 0$$

must hold jointly. Obviously, this is not possible so again it must be that ω^1 is decreasing in Δ . \square

Proof of Result 2

Given that Country H specializes in X and Country F in Y and given monotonicity of $\Lambda(\omega)$ (Condition C), the supply conditions are as before and are defined by (7.17) and (7.16) above; namely,

$$\begin{aligned} \ln X &= \int_0^{\omega^1} \alpha(\omega) \ln z_H(\omega) d\omega + \int_{\omega^1}^1 \alpha(\omega) \ln \frac{(1 + \Delta)z_H(\omega) + z_F(\omega)}{\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)} d\omega \\ \ln Y &= \int_0^{\omega^1} \beta(\omega) \ln z_F(\omega) d\omega \\ &\quad + \int_{\omega^1}^1 \beta(\omega) \ln \frac{\rho(\omega)z(\omega^1)[(1 + \Delta)z_H(\omega) + z_F(\omega)]}{\rho(\omega^1) [\rho(\omega)z(\omega^1)/\rho(\omega^1) + (1 + \Delta)]} d\omega. \end{aligned}$$

Since $x_H^F(\omega^1) = 0$, the impact of ω^1 on the above expressions is purely through its impact on the term $z(\omega^1)/\rho(\omega^1)$. We know from Condition C that $z(\omega^1)/\rho(\omega^1)$ is increasing in ω^1 . As a result, as ω^1 increases, X decreases and Y increases.

We also know from Result 1 that ω^1 is decreasing in Δ and that

$$x_H^F(\omega) = \frac{z_F(\omega) - z_H(\omega)\rho(\omega)^{\frac{z(\omega^1)}{\rho(\omega)}}}{[\rho(\omega)^{\frac{z(\omega^1)}{\rho(\omega)}} + 1 + \Delta]}.$$

Thus we also have that $x_H^F(\omega)$ is decreasing in Δ . □

Proof of Proposition 2

Define the fixed point problem φ_H : Fixing $\lambda_F(\omega)$, solve

$$\begin{aligned} & \max[pX_H + Y_H - \int (1 + \Delta)\lambda_F(\omega)x_H^F(\omega)d\omega] \\ & \text{s.t. } x_H(\omega) + y_H(\omega) \leq z_H(\omega) \end{aligned}$$

for the functions $\lambda_H(\lambda_F(\cdot))(\omega)$, $x_H(\lambda_F(\cdot))(\omega)$, $x_H^F(\lambda_F(\cdot))(\omega)$, and $y_H(\lambda_F(\cdot))(\omega)$. Fixing $x_H^F(\omega)$ and $\lambda_H(\omega)$, solve

$$\begin{aligned} & \max[pX_F + Y_F + \int \lambda_H(\omega)/(1 + \Delta)*x_H^F(\omega)d\omega] \\ & \text{s.t. } x_F(\omega) + y_F(\omega) + x_H^F(\omega)(1 + \Delta) \leq z_F(\omega) \end{aligned}$$

for the functions $\lambda_F(\lambda_H(\cdot))$, $x_H^F(\lambda_H(\cdot))(\omega)$, $x_F(\lambda_H(\cdot))$, $x_H^F(\lambda_H(\cdot))(\omega)$, and $y_F(\lambda_H(\cdot))$, $x_H^F(\lambda_H(\cdot))(\omega)$. Find $\lambda_F(\cdot)$ such that $\lambda_F(\omega) = \lambda_F(\lambda_H(\lambda_F(\cdot))(\cdot))$, $x_H^F(\lambda_F(\cdot))(\omega)$.

Define the problem φ as: solve

$$\begin{aligned} & \max p(X_F + X_H) + (Y_F + Y_H) \\ & \text{s.t. } x_F(\omega) + y_F(\omega) + x_H^F(1 + \Delta) \leq z_F(\omega) \\ & \quad x_H(\omega) + y_H(\omega) \leq z_H(\omega) \end{aligned}$$

for the functions $x_H(\omega)$, $y_H(\omega)$, $x_H^F(\omega)$, $x_F(\omega)$, $y_F(\omega)$, $\lambda_F(\omega)$, $\lambda_H(\omega)$. This problem is the allocation with foreign sourcing.

Claim: A solution to φ is also a solution to φ_H

Proof: We do this for the case that X_F , X_H , Y_F , Y_H are all strictly positive. The first-order conditions to φ are:

$$\begin{aligned} x_H(\omega) + x_H^F(\omega) &= p\alpha(\omega)X_H/\lambda_H(\omega) \\ x_H(\omega) + x_H^F(\omega) &\geq p\alpha(\omega)X_H/((1 + \Delta)\lambda_F(\omega)) \end{aligned}$$

$$\begin{aligned}
y_H(\omega) &= \beta(\omega) Y_H / \lambda_H(\omega) \\
x_F(\omega) &= p\alpha(\omega) X_F / \lambda_F(\omega) \\
y_F(\omega) &= \beta(\omega) Y_F / \lambda_F(\omega) \\
z_H(\omega) &= x_H(\omega) + y_H(\omega) \\
z_F(\omega) &= x_F(\omega) + y_F(\omega) + x_H^F(\omega)(1 + \Delta)
\end{aligned}$$

plus the production function conditions. These are the same first-order conditions for the two suboptimization problems in φ_H (since the last part of Country F 's objective function is independent of Country F 's choice variables). Since the first-order conditions for the two suboptimization problems in φ_H hold jointly, these conditions automatically solve the fixed point problem of φ_H .

We can use this result to show that the welfare of country H has to rise (weakly) when going from no foreign sourcing to positive sourcing. In particular, let $\varphi(\Delta)$ denote the problem φ above when the sourcing cost is Δ . Let the solution vector be $(x_H(\omega), y_H(\omega), x_H^F(\omega), x_F(\omega), y_F(\omega), \lambda_F(\omega), \lambda_H(\omega))$. Suppose that Δ is such that $x_H^F(\omega) \equiv 0$. By the above argument, this vector is also a solution to φ_H . But for any other Δ' and any other function, $\lambda_F(\omega)$, the same subvector, $(x_H(\omega), y_H(\omega), x_H^F(\omega))$, is feasible for the suboptimization problem for country H in φ_H . Thus Country H can never do worse than selecting $x_H^F(\omega) \equiv 0$. \square

8. FDI in an FTA with uncertain market access*

Richard Harris

INTRODUCTION

Ed Safarian was a prolific contributor to the international and Canadian literature on direct investment and its relationship to policy, growth and trade. I personally encountered his work as an undergraduate at Queen's University in the 1960s and over the years came to appreciate his keen sense of getting to the facts. I also remember Ed as one who emphasized the importance of the investment provisions of the Canada–US FTA. In this paper I want to draw out some of the relationships between trade and FDI within a free trade area, but in the case in which market access is less than perfectly secure. This is a paper which follows a long tradition of work by Ed (see Safarian, 1969, 1993, for example), Gestrin and Rugman (1994), and others on the relationship between FTAs and FDI. The Canadian experience post 1988 has suggested that perfectly secure access to the US market was not achieved. This appears also to be the case in a number of the FTAs which have emerged over the last several years. The origins of the Canada–US FTA led to substantial empirical and theoretical speculation as to the impact of less than completely secure access on the part of Canadian located producers to the US market. This paper explores the implications of incomplete or non-secure access on the pattern of inward FDI to a regional FTA in the presence of country size asymmetries.¹

One of the principal policy worries in Canada post FTA has been Canada's declining share of NAFTA-destined inward FDI. Between 1990 and 2002 Canada's share of inward NAFTA destined FDI shrank – from 21 per cent to 13 per cent. At the same time the US share has steadily increased – from 74 per cent to 78 per cent. One of the purposes of the FTA was to secure market access for Canadian producers to the US market. The subsequent bilateral trade disputes and the repeated threat of US trade actions against Canadian producers has given credence to the hypothesis that NAFTA led to increased market access, but it did not create a situation of perfect market access symmetry between US and Canadian locations.

The existence of a NAFTA trade dispute settlement mechanism does not guarantee that when political economy pressures arise in the US, Canadian exporters are guaranteed access to the US market. The declining Canadian share of inward FDI to NAFTA has raised a number of concerns about the degree to which FDI patterns are being impacted by a range of factors including the lack of secure access. A number of the papers on Canadian FDI patterns have looked at reasons why this might be the case, including Hejazi and Safarian (1999) and Globerman and Shapiro (1999).

The case of a small open economy located within a free trade area with a large partner country is fairly common. In the presence of large country contingent protection mechanisms, uncertain market access on the part of the smaller country's producers will tend to be the norm. Inward foreign direct investment patterns to the free trade area will be impacted by this large versus small country asymmetry. Foreign firms wishing to serve the entire free trade area market will face less market access risk overall by choosing to locate within the larger country. This poses a substantial policy problem for the smaller country seeking to attract or retain foreign direct investment.

There has been relatively little theoretical work on this issue despite a fairly well-developed economics literature on the economic theory of FDI. In this paper I will lay out a simple model of two-country trade within an FTA between two countries of asymmetric size. Sunk investments are required *ex ante* before the resolution of uncertainty pertaining to the degree of market access enjoyed by the smaller country. With sunk costs, even if all producers are risk neutral this possibility has an effect on investment patterns and the relative attractiveness of the small country location for FDI. The purpose of the model is to illustrate just how sensitive those decisions might be to the uncertainty regarding market access. In the presence of this uncertainty and sunk costs in the installation of capacity *ex post* there will inevitably be situations in which excess capacity is prevalent. Industries with large sunk costs, such as steel or automobiles, typically come to mind in the discussion of excess capacity problems. We often think of the use of defensive contingent protection as a trade policy device to shift the burden of excess capacity to trading partners. At the same time the existence of political mechanisms for potential contingent protection of the large country market will affect the level and location of investment by both import-competing firms and MNEs through the existence of an implied 'threat' in the application of the contingent protection.² The use of anti-dumping is commonly associated with distress in the domestic industry. For this reason it is natural to motivate the application of temporary domestic trade protection as triggered by low levels of demand which were not perfectly anticipated. As the model makes clear,

even if the probabilities of these events are relatively low they can have powerful consequences on the attractiveness of small country locations for FTA production.

The paper proceeds as follows. First a basic two-country imperfect competition model of trade and investment in capacity under uncertainty regarding the level of demand and the degree or cost of market access is laid out under monopoly and duopoly. Then the model is extended to consider an inward FDI decision by a producer choosing to locate to serve the entire market facing active competition with a domestic US oligopolist. In this case there is both demand and market access uncertainty. A characterization of the small country *ex ante* FDI disadvantage is quantified in terms of a ‘cost disadvantage ratio’. The sensitivity of this parameter to changes in the degree of sunk costs and the probability of market disruption are examined. A further section deals with second-best policy responses on the part of the small country to the existence of incomplete market access. The last section concludes.

INVESTMENT IN CAPACITY UNDER UNCERTAINTY

It is convenient first to consider a monopoly model of investment in capacity under uncertainty as to the level of demand. Consider a monopolist facing an inverse demand curve $D^s(Q)$, where $s = 1, 2$ denotes two alternative states of ‘nature’. State 1 will denote the high demand states. Capacity measured in units of output is denoted by k , and output in each state by q^s . Variable costs per unit of output are c , and cost per unit of capacity is r . The monopolist maximizing expected profits chooses k, q^1, q^2 to maximize

$$(1 - \pi)[D^1(q^1) - c]q^1 + \pi[D^2(q^2) - c]q^2 - rk \quad (8.1)$$

$$\text{subject to } q^s \leq k, s = 1, 2.$$

where $1 - \pi$ is the probability of the high demand state. The solution to this problem is given by setting marginal revenue in the high demand state, $MR^1(k)$, evaluated at capacity output, equal to

$$MR^1(q^1) = c + \frac{r}{1 - \pi} \quad (8.2)$$

and in the low demand state output is determined by

$$MR^2(q^2) = c, \quad (8.3)$$

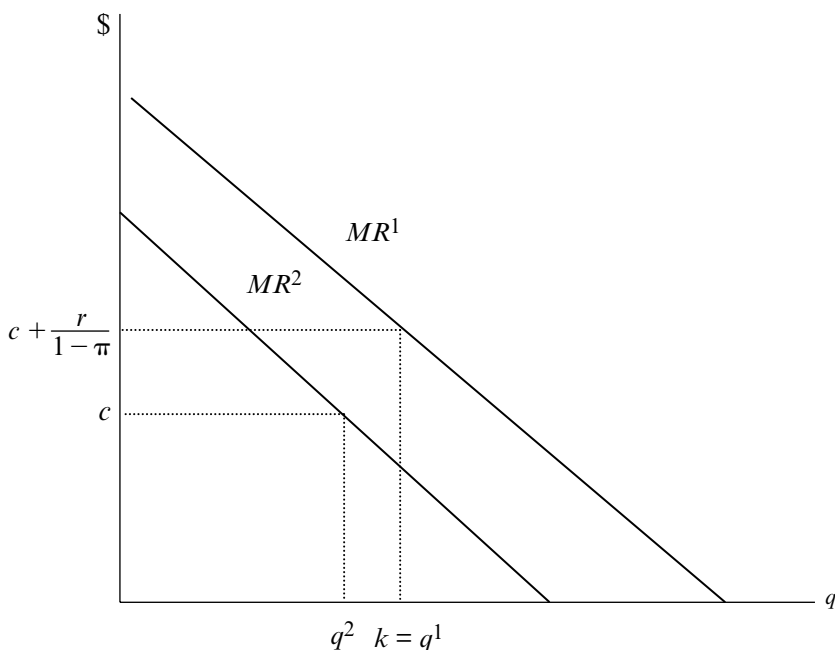


Figure 8.1 Determining capacity and output with random demand

with $q^1 = k$. Thus capacity is fully utilized in the high demand state, and in the low demand state output is determined by short-run marginal cost. The solution is presumed to be configured as in Figure 8.1, with excess capacity in state 2. The excess capacity solution requires that the solution to (8.3) be less than $k = q^1$, the solution to (8.2). The economics of this solution can be described by the use of the concept of the 'full marginal cost', defined as $c + r/(1 - \pi)$, which is variable unit cost plus a unit cost of capacity deflated by the probability of the high demand state. Capacity is set by reference to 'full marginal cost'. Note that output in the capacity-constrained state is less than if capacity had to be sunk but there was no demand uncertainty. Likewise output is greater than it would be in the low demand state were capacity not sunk. The effect of having capacity sunk is that price variability is higher than it would be were capacity fully adjustable *ex post*.

Variable Cost Uncertainty

Consider now the case where only variable costs are uncertain and the level of demand is constant. Let states 1 and 2 have different marginal costs, with state 2 being the low-cost state occurring with probability π . Sunk costs r

are *ex ante* and *ex post* the same. In this case the firm wants to produce more in the low-cost state 2 than in the high-cost state. The first-order condition for capacity is given by

$$\begin{aligned} MR(k) &= c_2 + \frac{r}{\pi} \\ MR(q_1) &= c_1 \end{aligned} \tag{8.4}$$

provided $c_1 > c_2 + (r/\pi)$. If this inequality does not hold, then $q_1 = k$.

Application: Protection Contingent on Market Demand

A common application of administrative or contingent trade protection is in those circumstances in which, due to cyclical or structural reasons, the demand for the good in the home market shrinks, causing economic distress in the form of lost jobs or profits to home firms in that industry.³ In these cases administrative trade protection in the form of countervailing and anti-dumping duties can be brought to bear against importing firms, including those from member countries of the FTA. In some cases protection is triggered not by the level of demand in the market but by shifts in the relative production costs, for example due to shifts in exchange rates or other macro factors. Protection such as this, dependent upon the uncertain level of demand and costs, is also referred to as contingent protection. This paper will focus on the case in which contingent protection is driven by adverse demand conditions in the large country market.

In terms of the model laid out, it is assumed that the form of contingent protection amounts to application of a per unit tariff of t on the foreign firm in the event that the demand level is low, that is in state $s = 2$, and otherwise no protection in the large country market is given; i.e. free trade prevails in the high demand state. The uncertainty facing producers therefore pertains to a joint event – the level of demand and the level of protection levied in the large country market. The demand curve is now to be interpreted as the demand curve facing a firm importing to the large country market. For the moment the actions of the large country domestic competing firms are ignored and their actions are implicitly assumed to be taken as given.

In the low demand protection ridden state the first-order condition changes to

$$MR^2(q^2) = c + t; \tag{8.5}$$

otherwise the condition-determining capacity, (8.2), remains unchanged. Hence in this model, given that protection reduces demand to the importing

firm only in the low demand state, even if probabilistically, the level of protection is fully anticipated.

Result 1 The level of capacity invested in exporting to the home country by the foreign exporter is unaffected by the level of protection given in the low demand state.

This result is somewhat surprising and clearly hinges on the risk neutrality assumption. It requires, however, a boundary condition that output in state 2 is less than capacity. In this case the *ex post* price is sensitive to the level of the tariff but capacity is not. This is the case which will be focused on in the paper. It is possible, however, that the low demand protection state could be characterized by no excess capacity. The results are different in that case in that the tariff, although applied to the exporting firm, has no effect on the equilibrium price.

Result 2 In the event that the capacity constraint binds in state 2, output equals capacity and the level of the tariff has no effect on either the output level or the market-clearing price.

However, the likelihood that state 2 is an excess capacity state increases as the tariff rate increases. For exactly the same reasons as discussed in the case of cost uncertainty, excess capacity *ex post* can result in the state of reduced market access for a sufficiently large level of contingent protection. These results are obviously incomplete without explicitly treating the import-competing firms, but they provide a useful benchmark of the first-order effects this type of protection has on the foreign exporter facing uncertain market access.

To summarize, the main impact of contingent protection on the exporting firm is a reduction of output in low demand states, and an increase in excess capacity. Total sunk costs denoted by $S = rk$ are unaffected by the level of the tariff. A standard trade policy problem is how one should construct a permanent tariff equivalent estimate of this type of protection. One approach would be to estimate the increase in expected average costs of the exporter due to the imposition of the contingent protection scheme. Let q_t^1 be the output in the event of contingent tariff t in the low demand state, and in the same state but with $t=0$ denote output by q^2 . Define expected average cost under the two regimes as

$$AC = (1 - \pi) \left(c + S/q^1 \right) + \pi \left(c + S/q^2 \right) \quad (8.6)$$

$$AC_t = (1 - \pi) \left(c + S/q^1 \right) + \pi \left(c + S/q_t^2 \right) \quad (8.7)$$

A simple measure of the *ex ante* cost disadvantage imposed on the foreign firm subject to the protection is given by the ratio of AC_t/AC . The larger sunk costs, the more distinct this disadvantage will be. For example, with an isoelastic firm-level demand curve, with elasticity = -1, a 50 per cent reduction in output in the low demand state due to protection could be achieved by a contingent tariff equal to approximately 33 per cent on an *ad valorem* basis imposed in the low demand state. Taking parameter values of $S = 2000$, $\pi = 2/3$, $c = 1.00$, $q^1 = 1000$, $q^2 = 600$, and $q_t^2 = 300$ gives a cost ratio of $AC_t/AC = 1.326$. This means that the foreign exporter's expected costs are 32.6 per cent higher than a domestic-based firm with the same factor prices would have. This figure, therefore, measures the extent to which the home costs could rise relative to foreign, but with home remaining the least-cost supplier to the home market. Note the *expected tariff*, t^* , which is a measure proposed in some studies, is given by

$$t^* = (1 - \pi)0.33 = 0.11. \quad (8.8)$$

This is substantially less than the measure of cost increase used above. Weighting the tariffs by output in the two states is of little help. The problem is that with short-run decreasing costs, as a consequence of the fixed and sunk factors, the contingent tariffs substantially raise the *ex ante* average costs of the importing firm. This cost-increasing effect is quite different than in the usual competitive model where we associate reductions in output with a decrease in costs. This example illustrates that the quantitative impact of adjusting tariff equivalent measures of contingent protection schemes in the presence of significant sunk costs is not a simple matter.

Competition in the Large Country Market

We now introduce the more realistic assumption of competition between a home firm, designated with the subscript H , and a foreign firm F , both competing in the home market. Firms choose capacity and state dependent outputs in a sequential Nash equilibrium. Hence both firms choose (k_h, k_f) prior to opening the market and then, depending upon the state realized, choose (q_H^s, q_F^s) , $s = 1, 2$ in a Cournot quantity competition.⁴ The details of calculating this type of equilibrium are routine. Solving by backward induction we end up with the following conditions determining capacities,

realizing that the capacity constraints for both firms bind only in state $s = 1$, and hence $q_n^1 = k_n^1$, $n = H, F$, so

$$MR_H^1(k_H, k_F) = c + \frac{r}{1 - \pi} \quad (8.9)$$

with a similar condition for foreign. The marginal revenue functions are defined relative to the assumption of Cournot–Nash quantity competition and are given by the usual form: $MR_H(q_H, q_F) = D'(q_F + q_H)q_H + D(q_H + q_F)$.

What is the impact of demand-dependent protection afforded the home firm? By levying a per unit tariff on t on the foreign firm in low demand states the *ex post* state 2 Cournot–Nash equilibrium shifts in the usual way, with the increase in short-run marginal costs of F to $c + t$, while H 's costs remain at c . For given capacities this causes a reduction in F 's output and hence an increase in excess capacity, and likewise an increase in the output of H 's output, and decrease in excess capacity. Hence:

The capacity decisions of both firms are unaffected by the level of protection given in the low demand states, but in low demand states the degree of excess capacity of the home firm is reduced, and the degree of excess capacity in the foreign firm is increased.

Note that under demand uncertainty excess capacity is the unavoidable economic cost of providing supply in the market from either domestic or foreign sources. Exporters who have less than secure market access have higher economic costs than do domestic firms because of the requirement that they carry a higher level of excess capacity than the equivalent domestic firms. This *ex ante* cost of exporting in a general equilibrium model would have further consequences for location of production and the level of equilibrium factor prices. This completes the description of the basic economics of a partial equilibrium model of exporting under the presumption that within the FTA protection is less fully secure and perfectly correlated with an exogenous demand shock event in the foreign market. We turn now to the question of the location of inward FDI within the FTA area.

INWARD FDI LOCATION

We now have a framework in which to analyze the inward FDI location decision of a foreign firm seeking to serve an FTA market consisting of two countries, a large and a small country. To keep matters simple let us think of the demand curve in each market as the residual demand curve for the

MNE output. To the extent there is competition in the market we simply treat this as given – i.e. the demand curve in the large country market is specific to the MNE and conditional upon the price or output of the other firms servicing the market. The large country will be denoted as U and the small country market as C . The model will be calibrated to the case in which the market in U is ten times larger than that of C in the sense that at the same price the U market sales are exactly ten times those in the C market.⁵ There is uncertainty about both the level of demand and the degree of market access in the event that a low demand state occurs. Let state 2 be the low demand state and let t be the tariff levied in the U market contingent upon that state of demand. The correlation of demand shocks across the market is assumed to be perfect. Thus when demand is low in U it is also low in C . There are, however, possible comparative advantage effects in the model – variable marginal costs of production to the MNE differ across U and C , as do costs of sunk capacity. Thus c and r are indexed with c and u subscripts. Profits are calculated assuming either a c or u location for production and realization of state 1 or 2. In the case of MNE location in U marginal costs *ex post* are given by c_u ; in the case in which location is in C production costs hinge on which market is being served – the C or U market. Sales in the U market have marginal costs given by $c_c + t$ and in the case of the C market have costs given by c_c . The sunk cost ratio, referred to as *sunk*, is defined as r/c .

The model is solved in the same way as in the previous section by backward induction. Consider first the C location for inward FDI. Capacity k_C and outputs in the high demand state (8.1) are determined by the following set of equations:

$$\begin{aligned} MR_1^c(q_1^c) &= c_c + r_c/(1 - \pi) \\ MR_1^u(q_1^u) &= c_c + r_c/(1 - \pi) \\ k_c &= q_1^c + q_1^u \end{aligned} \quad (8.10)$$

In the low demand state the outputs are determined by

$$\begin{aligned} MR_2^c(q_2^c) &= c_c \\ MR_2^u(q_2^u) &= c_c + t \end{aligned} \quad (8.11)$$

In Table 8.1 the impact of the level of contingent protection on the degree of excess capacity is reported for the two FDI locations. Given the assumptions on demand, either location generates a 25 per cent level of excess capacity in the bad state with no contingent tariffs. However, the level of excess capacity increases rapidly as the level of protection rises. At an *ad valorem* rate of protection of 50 per cent the level of excess carried on C -bound FDI is more than 55 per cent in states in which market access

Table 8.1 Comparative excess capacity rates, C vs U inward bound FDI

Per unit	Tariff rates		Excess capacity rate	
		<i>Ad valorem</i>	<i>U loc</i>	<i>C loc</i>
0.0		0.0	0.25	0.25
0.1		0.16	0.25	0.34
0.15		0.24	0.25	0.38
0.20		0.32	0.25	0.43
0.25		0.40	0.25	0.48
0.33		0.53	0.25	0.58

Notes: Parameter values $PI = 0.20$; $sunk = 0.8$.

is restricted. The costs of sunk capacity when fully anticipated are obviously a strong incentive to shift FDI from a *C* to *U* location. In order to prevent this from happening, the *C* location must offer other competitive advantages. The one that will be quantified are variable costs in the *C* market.

The overall level of expected return from a *C* location is given by the reduced form ROR (rate of return) function

$$V^C(c_c, r_c, t, \pi). \quad (8.12)$$

This is calculated as expected economic profit divided by total sunk costs, rk . With risk neutral investors, it is assumed value-maximizing MNEs will choose locations such as to achieve the maximum ROR on investment. In this model all investment is sunk.

The nature of this equilibrium is that there is excess capacity in the low demand state and this is exacerbated by the imposition of a contingent tariff in the *U* market of an amount t . Equilibrium in the case of the MNE choosing a *U* location is different in that costs are different, and in the event of low demand, given that production occurs inside the *U* market, there is no imposition of a tariff on sales within that market. The *C* market is assumed to stay open and protection free in both states. The condition-determining capacity is similar to that of (8.11) except costs are given by *U* costs and the conditions determining output in the *U* market do not have a tariff term present. *Ex post* marginal revenue and marginal cost are the same in both markets. The expected ROR function given location within the *U* market is given by

$$V^U(c_u, r_u, \pi) \quad (8.13)$$

This is calculated by taking expected net profits divided by total capacity cost, rk . Under risk neutrality a firm would locate in the market with the highest expected ROR. We define the *cost disadvantage ratio* to the C location as the marginal cost level expressed as a fraction of U marginal cost such that expected profits are the same in both locations. That is the cost disadvantage ratio (CDR) is a number λ which satisfies the equality

$$V^C(\lambda c_u, r_c, t, \pi) = V^U(c_u, r_u, \pi). \quad (8.14)$$

We think of the CDR as being a better measure of the extent to which incomplete market access must be compensated for by a variable cost advantage in the C market. Two parameters are of particular interest in this model. First the probability of incomplete market access. Obviously this parameter in a two-period intertemporal model is a summary of both the likelihood of a bad demand state and the imposition of countervailing or anti-dumping duties in the U market on C producers. There is of course a literature and some evidence that threats of protectionism are undertaken in order to increase the magnitude of the π parameter in the minds of producers. In some models this can have an anti-competitive effect by deterring export entry – in this case it will have an effect on inward FDI decisions. The other parameter is the ratio of sunk to variable costs. As sunk costs become more important the lack of market access in poor states is likely to have a larger effect.

As a benchmark it is important to remember that in the case of secure market access or non-contingent free trade so that $t=0$ in low demand states, location will be based solely on cost considerations. In general the market which has lower costs will attract investment. In the event that rates of return are the same in both locations under complete free trade, costs will be the same. Analytically this is equivalent to the statement that

$$V^C(c, r, 0, \pi) = V^U(c_u, r, \pi) \quad (8.15)$$

for all (c, r, π) .

The model was simulated using a linear demand equation with the U market exactly ten times the size of the C market. Other parameter values are chosen to represent what might be regarded as typical. The level of the contingent tariff in the U market was taken as equal to approximately one-third of the U price. The cost of capacity was taken as the same in both U and C markets; for capital intensive exporting industries this would be a reasonable assumption in the Canada–US case as much of the investment required in the case of a Canadian location for FDI is imported. The results are given in Table 8.2.

Table 8.2 Parameter sensitivity: sunk costs and market access: breakeven CDR for C-based FDI

Sunk cost ratio	Probability of restricted market access					
	0.05	0.1	0.15	0.2	0.25	0.333
1.6	*	*	0.72	0.61	*	*
1.0	0.927	*	0.778	0.68	0.599	0.42
0.8	0.931	0.86	0.78	0.70	0.61	0.469
0.6	0.934	0.864	0.79	0.726	0.64	0.49
0.4	0.937	0.871	0.80	0.73	0.66	0.52
0.2	0.94	0.876	0.81	0.74	0.67	0.556

Note: Blanks indicate the model would not solve with excess capacity equilibrium. The true solution would imply CDRs greater than those directly below the cell marked *.

The most compelling picture emerging from this table is the value of market access to the smaller country. For example, taking a sunk cost ratio of 0.8, an increase in the security of market access from 0.2 to 0.1 increases the level of C-based costs at which FDI in C is competitive from 70 per cent of U costs to 86 per cent of U costs. Another way of thinking about this is that if all costs were labour costs, an increase in market access security by ten percentage points would support wages in such an industry that were 23 per cent higher. On the other hand, while increases in sunk cost also reduce the level of costs at which FDI bound for the C market is competitive, changes in this parameter do not have as strong an effect.

Thus far it has been assumed FDI is motivated by risk neutral FDI; firms simply calculate expected values of profits versus losses in high versus low demand states. Risk aversion would however change the calculus and in particular the CDR at which the small country market could attract inward FDI. An extreme case would be severe loss aversion on the part of MNEs. Suppose for example that losses in bad states were unacceptable. Any MNE that anticipated negative net profits in low access states would simply choose to invest in the larger market. An alternative CDR is calculated as one that (a) kept profits in low access states equal to zero and (b) had a C-based ROR in excess of U-based ROR. As it turns out in the case of this type of loss aversion, the CDR numbers are very sensitive to the levels of contingent protection – the actual probability of reduced access has a much less important role to play. As shown in Table 8.3, the small country competitive cost level falls very strongly as the level of the contingent tariff rises.

Table 8.3 CDR with extreme loss aversion

Per unit tariff	<i>Ad valorem</i> tariff	CDR
$T=0.50$	0.08	0.96
$T=0.10$	0.16	0.92
$T=0.15$	0.24	0.87
$T=0.20$	0.35	0.62
$T=0.22$	0.39	0.52

Policy Responses

In this section some second-best policy responses to this situation are explored from the perspective of the smaller country within the FTA.⁶ Two constraints on policy are taken as given. First, both the probability of market access and the *ex post* level of protection offered in the U market are assumed to be independent of actions taken in the small country. This may seem to be unrealistic in that obviously the trade policy goals of C should be to reduce both the probability π and the level of contingent protection t . However, if one assumes that political economy considerations dominate the determination of both these variables, it may be legitimate to assume these are exogenous to most policy actions by C (with one exception discussed below). This assumption is quite different than that assumed in much of the strategic trade policy literature in which governments game against each other in an attempt to maximize national welfare.⁷ In this case the policy regime in the large country U is simple taken as given, including its administrative trade rules. At the same time policy actions by the small country C cannot be seen to overtly contravene the general principles under which the FTA operates – i.e. national treatment and constraints on explicit export subsidization. The other second-best constraint is that the small country takes as given the need to have a cost and policy structure which is capable of sustaining inward FDI. This could be rationalized on a number of grounds including the external benefits that often are presumed to come from inward FDI in terms of knowledge spillovers and employment. Clearly in a wider welfare analysis of FDI one might conclude the cost of retaining inward-bound FDI was simply not worth it. But for the moment we take as given the second-best constraint that V^C must be no less than V^U .

The model is amended from that in the last section to explicitly consider competition from domestic firms for the MNE. The duopoly model used is one of *ex post* Bertrand price competition with each firm setting prices given those of the other firm after the state of demand is realized and policy

decisions are taken. Each firm faces a demand function in which goods of the two firms are imperfect substitutes. Thus for example the domestic U firm has a demand function for sales in the U market in the high demand state given by

$$Q_u = A_{high} - \text{Beta}P_u + \text{Gamma}P_F, \quad (8.16)$$

where P_F is the price of the MNE good. The demand function for the foreign MNE is symmetric. Both Beta and Gamma are positive. The market structure is assumed to be a Bertrand duopoly independent of which market the MNE chooses to locate. Moreover, both the U domestic firm and the MNE take government policies in both countries as exogenous. The initial calibration assumes both firms have a 50 per cent share of the U market given that the FDI inbound locates in U . For the sake of simplification, the small country consumer market is ignored as a determinant of the MNE's location decision. In the case of the Canadian market this is not too unrealistic in that most location decisions will hinge on profitability based on locational costs and US sales. To understand the scaling used, parameter values are such that when both prices are set equal to unity market demand for both firms equals 100 units in high demand states and 30 in low demand states (at the same price of unity). The contingent tariff applied is equal to 0.3 or 40 per cent of full marginal cost in the U market. Given a probability of 1/4 that market access is restricted and demand is low, it will be useful to quantify the Canadian location-based CDR to the MNE in the absence of any policy interventions by the C government. In this case the CDR is equal to 0.82. That is, the return on sunk costs to an MNE is equalized across the C and U locations if the C location has variable costs which are 82 per cent of the level of those in U . Supposing, however, that costs are the same in both C and U markets, the MNE would choose to locate in U . The problem is: what policy interventions might, under these assumptions, equalize the ROR across locations to potential inward FDI?

There are a number of policies the small country C government might use to counter temporary protection in the large country market. Let me focus on two.

1. A permanent subsidy to output applied to variable costs.
2. A tax on all sales (both in C and U markets) with revenues collected rebated to the firm through a reduction in taxes on sunk costs (capacity).

Each of these has the potential to raise the profits to an inward FDI location in the C market relative to the U market. All are potentially distortionary, of course, so these are clearly second-best in nature. One policy not

considered is a temporary subsidy on output in the state of reduced market access. This is inconsistent with the rules that usually govern free trade areas and NAFTA in particular. Option 1 implies a need to raise revenue to cover the cost of subsidy; the subsidy must not be trade distorting and therefore must cover both domestic and export sales. As in the case of any strategic trade policy it could be implemented by a discriminatory reduction in other taxes which affect marginal cost – for example payroll or variable input taxes. Option 2 gives rise to an increase in prices in both markets and thus a loss in consumer surplus in the domestic market. Option 2 might be thought of as a type of market insurance. Firms pay an insurance premium based on the level of output which is collected in all states. However, in bad states there is a payout such that the actuarial value of the whole scheme is break even. Practically it could be delivered through a discriminatory output tax combined with a lower rate of profits taxation. The particular version of the policy we shall focus on is one that keeps total unit cost of production constant – that is, a tax on variable costs matched by a subsidy on capacity.

Theoretically there is no way to establish the superiority of (1) versus (2). However, the quantitative effects of these two schemes are quite different. To illustrate we use the model of the last section amended to include the instruments discussed. The fiscal instruments are set such as to make the FDI decision indifferent between the two locations. Various properties of the two policies are then examined.

The resulting benchmark equilibrium variables in the case of the two locations decisions are given in Table 8.4. The initial model parameters are as follows: $\pi = 0.25$, $t = 0.30$, $c_u = c_c = 0.50$, $r = 0.25$, $A_{low} = 140$, $A_{high} = 200$, $Beta = 150$, $Gamma = 50$.

Note the significantly lower rate of excess capacity in the case of a *C* FDI location and a bad state relative to a *U* location and bad state – 42 per cent versus 69 per cent. This in turn leads to much lower *ex post* profits and hence expected profits to the *C* location. In this case given the much lower ROR in *C*, the MNE would locate in *U*. Two sets of policies are examined which set the expected ROR across the two locations equal, and then evaluated conditional upon assuming the FDI location takes place within the *C* market in the face of equivalent ROR.

Variable Cost Subsidy to *C* Location Production

The first policy is a permanent subsidy on variable costs in the small country location applied subject to the constraint that the rate of return on FDI investment in the *C* market be equal to that in the *U* market despite the uncertain level of market access and protection applied to exports to *U* from *C*. As

Table 8.4 Benchmark FDI location alternatives: no C policy interventions

	U Location	C location
High demand		
Full marginal cost	0.75	0.75
Price <i>U</i>	1.3	1.3
Price <i>C</i>	1.3	1.3
Quantity <i>U</i>	70	70
Quantity <i>C</i>	70	70
Var. prof. <i>U</i>	56	56
Var. prof. <i>C</i>	56	56
Net prof. <i>C</i>	38.5	38.5
<i>C</i> market share	0.5	0.5
Low demand		
Variable marg. cost*	0.5	0.8
Price <i>U</i>	0.82	0.845714
Price <i>C</i>	0.82	0.974286
Quantity <i>U</i>	48	51.85714
Quantity <i>C</i>	48	26.14286
Var. prof. <i>U</i>	15.36	17.92776
Var. prof. MNE	15.36	4.556327
Net prof. <i>U</i>	-2.14	0.427755
Net prof. MNE	-2.14	-12.9437
<i>C</i> market share	0.5	0.367398
Cap util MNE	0.685714	0.421628
Cap util <i>U</i>	0.685714	0.736951
Expect. prof. <i>U</i>	28.34	28.98194
Expect. prof. MNE	28.34	25.63908
ROR-MNE	1.619429	1.46509

Note: * MC in Cdn location inclusive of *U* tariff.

Table 8.5 shows, the resulting rate of subsidy expressed as a percentage of variable average and marginal costs is 8.7 per cent. That is, in order for a *C* location to be competitive with a *U* location under the assumed trade regime *C* variable costs must be subsidized at an *ad valorem* rate of 8.7 per cent.

Implicit Market Access Insurance via Taxation and Sunk Cost Subsidy

In this case a tax is placed on variable costs which is matched by an equal subsidy on capacity. This policy has the net effect of leaving *ex post* unit

Table 8.5 Alternative policy interventions to attract inward FDI

	Variable cost subsidy	Var. cost tax/ sunk cost subsidy
Tax rate on output (<i>ad val.</i>)*	0.0	0.096
Tax subsidy on capacity**		0.043
Subsidy rate on var. cost (1)	0.087	
Exp. fiscal cost of policy	5.7	-0.27
MNE price high	1.255	1.296
MNE price low	0.929	0.986
MNE capacity	76.35	70.57
<i>U</i> capacity	68.88	69.90
MNE capacity utilization in low	0.43	0.35
MNE market share in high	0.52	0.50
MNE market share in low	0.42	0.35
Domestic US price high	1.290	1.299
Domestic US price low	0.838	0.847
<i>U</i> output low	50.73	52.16

Notes:

* as percentage of variable cost.

** as percentage of unit capacity cost.

costs of production in $C(c+r)$ unchanged. One can think of such a policy as FTA consistent in that there is no net subsidy offered by this policy on C -based costs. The policy does distort input decisions, however, in that variable costs are raised in all states and sunk costs are lowered. The overall level of the tax and subsidy is set such as to equalize rates of return to the MNE locations decision in expected value terms. Net fiscal requirements of the policy are random in that tax revenues depend on which state occurs. There is a non-random subsidy to sunk capacity.

The second policy is a type of market access insurance scheme in which a tax on sales in both markets is rebated as a reduction in capital cost but in lump sum fashion (i.e. must be infra-marginal). The tax rate on variable costs which makes the C location yield an equivalent ROR to the U location is 0.096 or just less than 10 per cent. This tax on variable costs is matched by a subsidy on sunk capacity costs equal to 4.3 per cent of unit capacity costs. Equivalently this tax-subsidy scheme can be thought of as changes in the tax treatment of variable and sunk costs relative to the initial situation. This fiscal scheme, in addition to equalizing the ROR on FDI across the large and small country, also has the effect of giving rise to a small net fiscal surplus (less than 0.5 per cent of expected sales revenue to

the *C*-based firm). Given that the subsidy policy requires a much larger fiscal transfer on welfare grounds Option 2 clearly dominates the policy of subsidizing (or giving preferential tax treatment) to *C*-based variable costs.

What is perhaps equally interesting are the impacts of the policies on the *U* market. In low demand states prices in the *U* market for domestic producers are higher with Option 2 than with the subsidy policy. The market share of the *C*-based firms is also lower with the tax scheme than with outright subsidy. In the low demand state the market share of *C*-based firms falls from 50 per cent in the case of subsidy to 35 per cent in the case of Option 2. Clearly from the point of view of attracting as little visible attention in the *U* market as possible, one could view the *U* market disruption effect of this policy as lower than the use of subsidy and therefore potentially more stable from a political economy perspective.

Why does Option 2 policy work? There are a couple of factors at play here. First, given the existence of imperfect competition in the product market in the large country, there is a potential for policy to give rise to profit shifting. Taking *U* policy as exogenous, this can be accomplished by raising the costs of *C*-based production being exported to the *U* market – i.e. taxation. The use of taxes on marginal cost tends to raise *C* prices and also competing *U* prices given the assumption that firms compete *ex post* on price and goods are substitutes. This in turn raises the profits of both producers – i.e. produces a more collusive outcome in the product market and shifts *U* consumer surplus towards *C* taxpayers. At the same time, however, capacity costs of the *C*-based production are subsidized. This has the opposite effect on output in good states increasing the MNE's *C*-based market share relative to *U* producers. In the good states the net effect is to lower 'full marginal cost' and thus reduce prices in both markets and increase *C* output. In bad states it tends to reduce excess capacity.

The alternative way to explain why the policy works is in market access insurance terms. With complete market access (good states) the distortionary tax scheme tends to raise revenue and prices to *C*-based production. This is offset in the good and bad states by effectively subsidizing the non-recoverable sunk capacity costs. Of considerable importance here is the assumption that firms look at locations in terms of rates of return on sunk investments. The sunk cost subsidy policy has the strategic advantage that firms choosing to spend investment dollars in the *C* market are assured they actually have to spend less than would be the case in the *U* market. The small country overcomes some of the disadvantage of uncertain access to the large country market by subsidizing the sunk costs while taxing the variable (*ex post*) costs in states of reduced market access. While overall the policy is neutral with respect to full costs, it is not neutral in terms of its impact on expected rates of return.

This policy has some elements of strategic trade policy in that one can view it as a mix of export taxes and export subsidies. The trick is that these two at least in accounting terms offset each other perfectly. In terms of economic impact, however, they do not. The variable cost tax part raises prices in bad states – this contributes to increased profits of U producers and tax revenues collected by the small country government on sales in both good and bad states. The export subsidy on sunk costs leads to fiscal costs in good and bad states. To make such a policy consistent with rules prohibiting trade subsidies, the same taxes and subsidies would have to be applied to plants irrespective of whether they served the C or U markets. Given the small size of the C market, however, the losses in C consumer surplus from such policies are small compared to the presumed benefits of attracting FDI.

As a final comment, it is interesting to think about this policy in terms of the discussion of capital taxation in small open economies. In the case examined here the optimal policy for the small open economy which is an FTA participant is actually to tax discriminate in favor of sunk cost and tax discriminate against variable costs. One can think of sales, payroll and value added tax systems as at least in part being variable cost taxes. Corporate income, capital and property taxes can be thought of as taxes on sunk costs from the perspective of inbound FDI. The optimal policy in this case is not tax neutrality but one which increases the relative price of variable inputs relative to sunk inputs. Lastly, strategic trade policy interventions have generally been viewed as having relatively small effects.⁸ In this instance, however, a relatively modest policy change could effectively neutralize the small country disadvantage in attracting inward FDI. If the costs of not being competitive for FDI are large – as reflected in either lower real factor prices in the small country or a loss of FDI market share – then the potential effects of these policy interventions may be larger than conventional wisdom would suggest.

CONCLUSION

Small countries within regional FTAs with uncertain or imperfect market access are at a clear disadvantage in attracting inward FDI, whose purpose is to serve the regional market. In the presence of sunk costs and uncertain access, inward FDI will tend to locate in the larger market to avoid carrying the excess capacity and high costs when access is limited by the imposition of protection by the large country. In this paper a model of the process of FDI allocation has been developed when sunk costs and imperfect competition are an important part of overall market structure. There are two major results.

Using a basic model of investment under uncertainty it was possible to quantify the extent to which the smaller country must offset its market access disadvantage by a lower variable cost but still attract inward FDI. This cost disadvantage ratio was shown to be quite sensitive to the probability of reduced market access, the level of contingent protection, and the fraction of total costs which are sunk. While this cost disadvantage or competitiveness constraint comes out of a partial equilibrium framework, it has a straightforward interpretation in terms of other equilibrium adjustments. The required reduction in small country relative to large country costs is an extreme outcome – in this case all adjustment occurs in factor prices and none in the quantity of FDI. Clearly adjustment in both factor prices (costs) and the quantity of FDI is possible.

The second part of the paper deals with possible small country policy responses to this situation. What type of trade policy or fiscal interventions might offset the small country market access disadvantage in attracting inward FDI? While production subsidies can potentially achieve rates of return sufficient to attract inward FDI, there are a number of problems – including large fiscal costs and a side effect of capturing a large share of the *U* market during slumps. From a political economy perspective this type of policy seems infeasible. An alternative policy which involves raising taxes on variable costs and subsidizing sunk costs, such as to leave total unit costs unchanged, was shown to be an alternative that also raises profitability of small country bound FDI to levels competitive with those of large country locations. This policy has the additional properties that (a) it requires no net fiscal resources and (b) leads to a decrease in *C*-based producers' large country market share during slumps. These are both desirable properties of any policy which is likely to be sustainable under FTA rules and the political economy of temporary protectionism within a large country that is an FTA partner.

NOTES

* I am grateful for comments by conference participants and Lorraine Eden on an earlier draft.

1. The policy literature is quite large. Some theoretical work on market access is contained in Harris (1991a) and Harris (1989).
2. There is some literature on the use of countervailing and anti-dumping as a 'threat' mechanism. See Prusa (1992, 1997).
3. It is assumed throughout this paper that protection is correlated with 'distress' on the part of the home firm.
4. The results in this case are similar whether firms compete on price (Bertrand) or quantity *ex post*. In the policy section, however, the focus will be on *ex post* price competition.
5. Obviously the ten to one ratio is arbitrary although it does reflect the orders of magnitude in the case of the United States relative to Canada. However, the qualitative results are quite general and will hold for any case in which the market size asymmetry is significant.

6. The more general question of strategic policy responses by small country governments when FDI is concentrated in markets subject to imperfect competition is the subject of an earlier paper (Harris, 1991b). Much of that paper is concerned with the issue of technological spillovers from FDI. In this paper, while spillovers are not explicitly treated, they are one important motivation for ensuring that the small country partner within an FTA can attract inward FDI.
7. See Harris (1989) for a discussion of this assumption in the case of national firms competing in each other's markets.
8. See Brander (1997).

REFERENCES

- Brander, J. (1997), 'Strategic trade policy', chapter 27 in G. Grossman and K. Rogoff (eds), *Handbook of International Economics*, Volume 3, Amsterdam: North Holland/Elsevier.
- Gestrin, Michael and Alan Rugman (1994), 'The North American Free Trade Agreement and foreign direct investment', *Transnational Corporations*, 3 (1): 77–95.
- Globerman, Steven and Daniel M. Shapiro (1999), 'The impact of government policies on foreign direct investment: The Canadian Experience', *Journal of International Business Studies*, 30 (3): 513–32.
- Harris, R.G. (1989), 'The new protectionism revisited', *Canadian Journal of Economics*, 22 (4): 751–78.
- Harris, R.G. (1991a), 'Market access in international trade: a theoretical appraisal', in R. Stern (ed.), *U.S. Canadian Trade and Investment Relations with Japan*, Chicago: University of Chicago Press.
- Harris, R.G. (1991b), 'Strategic trade policy, technology spillovers, and foreign investment', in D. McFetridge (ed.), *Strategic Investment, Technology and Economic Growth*, Calgary: University of Calgary Press.
- Hejazi, Walid and A. Edward Safarian (1999), 'Modeling links between Canadian trade and foreign direct investment industry economic analysis and statistics', Perspectives on North American Free Trade Series.
- Prusa, T.J. (1992), 'Why are so many antidumping petitions withdrawn?', *Journal of International Economics*, 33: 1–20.
- Prusa, Thomas J. (1997), 'The trade effects of U.S. antidumping actions', in Robert C. Feenstra (ed.), *Effects of U.S. Trade Protection and Promotion Policies*, Chicago: University of Chicago Press, pp. 191–213.
- Safarian, A.E. (1969), *The Performance of Foreign-owned Firms in Canada*, Canadian-American Committee, Washington, DC.
- Safarian, A.E. (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot, UK and Brookfield, USA: Edward Elgar.

9. How do regional trade agreements affect intra-regional and inter-regional FDI?

Walid Hejazi and Peter H. Pauly

INTRODUCTION

Regional trade agreements (RTAs) in general and free trade agreements (FTAs) in particular reduce to varying degrees restrictions on trade in goods, services and the movements of capital, labour and other factors among member countries. In the context of trade, the impacts of such agreements are classified into trade creation and trade diversion. That is, as a result of an FTA, there is predicted to be an increase in bilateral trade flows among members. There is also expected to be trade diversion away from lower cost imports from outsiders to higher cost inside providers who are able to compete against outsiders only because of the preferential access they have to the free trade area. Of course, these effects are offset in a dynamic framework: as growth rates inside the free trade area increase, there is increased demand for imports from all trading partners.

Although the predicted impacts on trade of an FTA are relatively well understood, this is not the case for foreign direct investment (FDI). This has to do with the complexity involved in the strategies implemented by multinational enterprises (MNE) as well as the dependence of these strategies on the nature of the economies and industries involved. The immediate impact of an FTA is to reduce the cost of undertaking trade among members. As a result, MNEs operating inside the area may adjust the way in which they service each member market. To the extent economies of scale are important, there may be a consolidation of production into fewer locations, with the output then being used to supply the entire free trade area. However, where inside that free trade area the increased production takes place is not clear *ex ante*. Furthermore, to the extent production can be decomposed vertically, then an FTA may increase intra-regional FDI within the free trade area as MNEs move to exploit locational advantages of member countries. In reality, it is likely that there are elements of both

of the above occurring – increased concentration of some elements of the production process as well as a vertical disintegration of that process across member countries. It can be said, therefore, that an FTA has uncertain *ex ante* predictions for the impact on FDI among member countries.

An FTA will also impact FDI coming into the area from abroad (that is, from outside the free trade area). Here too the predictions are unclear *ex ante*. It may be the case that MNEs from countries outside the free trade area did not locate in any one member country because each market is too small to justify the fixed costs associated with setting up a production facility, or it may be the case that outside MNEs have set up facilities in each country to gain access to the respective market. As a result of an FTA, the impact will depend on which of these previous scenarios is most relevant. If it is the former, that is, the non-FTA members did not have production facilities inside the area, then as a result of the FTA, they may now find it feasible to locate production facilities inside the free trade area. On the other hand, to the extent there is replication within the free trade area because the MNE had to place facilities in each member country, the FTA may result in that MNE rationalizing production in such a way as to reduce their total investment inside the free trade area. Where within the free trade area they locate of course depends on the locational advantages of each member country. As in the case of the intra-regional distribution of FDI discussed above, to the extent there is a vertical disintegration of production, then FDI may be split among members depending on the characteristics of each stage in the production process and the locational advantages of members.

The above discussion indicates that FDI may locate in a country for very different reasons – simply to gain market access (so called tariff-induced FDI), or take advantage of locational advantages such as superior productivity performance or access to local resources. As a result of an FTA, there will be movements in FDI, both among members as well as between members and non-members. It should be pointed out that if FDI moves out of a particular country, the reasons as to why this occurs is vital in understanding the extent to which this is negative for the host economy. If a production facility locates inside a country only to gain market access, then the introduction of an FTA will result in this tariff jumping FDI simply to move to the location inside the FTA that is most efficient. Clearly, such movements are beneficial to the entire free trade area, and may be beneficial to the host country over the long run as more efficient production replaces that which leaves. Also, the more liberalized was trade inside an area prior to the FTA, then the extent of tariff jumping FDI would be reduced, thus reducing reallocations for this reason.

Many of the predictions discussed above also relate to the level of development of member countries as well as trading partners outside the region. For example, the impact on non-member developing countries may be linked directly to whether there is a developing country participating in the FTA. Similarly, if the FTA involves only developed countries, then non-member developed countries may be more highly impacted than are non-member developing countries. In other words, the predicted impact of any FTA on members and non-members will very much depend on the nature of the FTA as well as the characteristics of member countries.

Perhaps something should be said about why we care about the distribution of FDI. Much is said elsewhere in this volume about the benefits that flow from FDI, and this theme has certainly been central to the research of A.E. Safarian. As is clearly laid out in his 1993 book on public policy, governments have sought to implement policies to attract FDI because of the perceived benefits that accompany such investments (Safarian, 1993). There have been many studies that have in fact confirmed these benefits, including the following. First, inward FDI is an important source of R&D diffusion (Hejazi and Safarian, 1999a; van Pottelsberghe and Lichtenberg, 2001); second, foreign firms have both higher levels of productivity and trade propensities than do Canadian firms (Baldwin and Sabourin, 2001; Treffer, 1999; Tang and Rao, 2001); third, inward FDI contributes to domestic capital formation (Hejazi and Pauly, 2002, 2003); and finally, many studies have found a complementarity between international trade and FDI (Brainard, 1997; Graham, 1993; Hejazi and Safarian, 1999b, 2001, 2004a, b; Lipsey and Weiss, 1981, 1984; Rao et al., 1996; Safarian and Hejazi, 2001). In short, FDI has been shown to be important in many dimensions for both home and host economies.

Although the benefits that accompany inward FDI are now well documented, there is less of a consensus regarding the impact of outward FDI on the domestic economy. Some view the movement of production facilities abroad to be a negative outcome for the local economy – it is viewed as tantamount to the export of domestic jobs and investment. In fact, the correct context within which to view this issue has to do with the underlying motivation for undertaking the FDI. To the extent any movement of production abroad is driven by a poor domestic competitive environment, perhaps due to high taxes, a lack of skilled labour or low R&D intensity, then the effects on the local economy are likely negative. On the other hand, to the extent the movement of production abroad is driven by the competitiveness of domestic firms which have moved abroad to exploit their firm specific advantages, then the impact of these investments on the home country may be positive over the longer term.¹ As a result, careful consideration must be given to the underlying factors that give rise to the

movement of production facilities. Any policy directed to outward FDI should not be directed at the FDI itself, but rather at the underlying causal factors. To the extent FDI is viewed as positive for any home or host economy, then such FDI should be encouraged. On the other hand, to the extent any FDI is negative, then the factors that give rise to such FDI should be addressed.

Governments have sought trade liberalization policies in general because of the gains that accompany increased trade (see Coe and Helpman, 1995; Dobson, 2002; Trefler, 2004). Such developments on the trade side, however, have significant impacts on FDI. This of course should not be a surprise given that a vast majority of the world's trade occurs inside the MNE – Rugman (2000) estimates that the top 500 MNEs account for over one half of the world's trade. As such, as the costs associated with trade fall, there is more trade. At the same time, as restrictions on MNE activity fall along with an increased vertical disintegration in the production process, there are significant changes that spill over from trade agreements to the patterns of FDI.

This paper reviews the theoretical predictions on FDI of regional trade agreements. This involves reviewing several theories used to explain the presence and location of FDI. The discussion of those theories is extended to the introduction of an FTA. These theories include internalization theory (Rugman, 1980, 1981), OLI theory (Dunning, 1988, 1993, proximity concentration hypothesis (Krugman, 1983; Horstmann and Markusen, 1992; Brainard, 1997), other modes such as licensing (Horstmann and Markusen, 1987a, b, 1996), and the dartboard model of FDI distribution (Head and Ries, 2002, 2004). Each of these theories makes predictions on FDI, but not necessarily on its location nor on the predicted impact that an FTA can have on the distribution of FDI. This paper extends the discussion of these theories to the introduction of an FTA.

Second, this paper uses the NAFTA as a case study to test the impact that FTAs can have on the distribution of FDI within the region as well as between the region, its members, and the rest of the world. More specifically, we test the impact that the Canada–US FTA and the NAFTA have had on the distribution of FDI, both within North America as well as between North America and the rest of the world. There are obvious similarities but also significant differences between the NAFTA and other FTAs, such as the European Union or MERCOSUR.

The analysis proceeds using two data sets, each of which addresses the question of the impact of FTAs on patterns of FDI, but from different perspectives. Together, these two analyses provide good insights into the predicted impact that the CUSFTA and the NAFTA have had on

North America's FDI experience. The first uses the United States as the hub of the analysis, and considers its trade and FDI relations with each of 52 countries over the period 1970 to 2000. This analysis is done both at the aggregate level as well as for each of natural resources, manufacturing and services. The second uses, for the first time, a bilateral FDI database among 28 OECD countries over the period 1980 to 2000. This second analysis takes place at the aggregate level only.

Using a gravity model framework, FDI patterns are related to the factors that have been shown elsewhere to influence bilateral FDI. These gravity models are supplemented with variables to capture the implementation of both the CUSFTA and the NAFTA. The first empirical analysis allows us to consider the impact of the FTAs on the distribution of US FDI, both to insiders (Canada and Mexico) as well as with outsiders, at both the aggregate and industry levels. The second analysis allows us to assess the extent to which the CUSFTA and the NAFTA influenced members of the OECD to locate in North America in general and more specifically which country therein benefited most as a result of free trade.

The results show clearly that Mexico and the United States were net beneficiaries of the NAFTA *vis-à-vis* their ability to attract FDI. In contrast, Canada became less attractive for US (insider) FDI but more attractive to OECD (outsider) FDI. Although several interpretations are certainly consistent with the results presented, the results can be explained by the theories discussed.

The contribution of this paper is therefore twofold. First, it reviews the theory relating to the discussion of the impact of FTAs on FDI in the context of the literature that explains the existence and location of FDI. It is shown that the predicted impacts of trade agreements in general on the distribution of FDI is uncertain *ex ante*. Furthermore, this uncertainty applies to both intra-regional as well the distribution between the free trade area itself and the rest of the world. Finally, tests of these hypotheses are provided within a North American context. The results clearly demonstrate that the CUSFTA and the NAFTA impacted member countries very differently.

The format of this paper is as follows. The next section discusses the theoretical literature on models that explain the existence and location of MNEs, as well as extending discussion of these theories to the introduction of FTAs. The third section discusses the North American FDI experience. Then we use a gravity model framework to measure the impact the free trade agreements have had on the distribution of North American FDI. The final section provides conclusions, policy implications, and suggestions for future research.

THEORETICAL LINKS BETWEEN REGIONAL TRADE AGREEMENTS AND FDI

Although there are several theories that help explain both the existence and location of MNEs (Rugman, 1980, 1981; Dunning, 1988, 1993; Horstmann and Markusen, 1987a, b, 1992, 1996; Brainard, 1997; Head and Ries, 2002, 2004), there is relatively little in the theory that helps explain the relationship between FDI and regional trade agreements. A thorough discussion of the issues related to the predicted impact of RTAs on FDI is contained in Blomström and Kokko (1997). This section will review many of these issues in detail and also speculate on how an extension of these theories to the introduction of an FTA may impact FDI.

Internalization

Internalization is one of the most prominent theories that help explain why MNEs exist. This theory explains why firms decide to service foreign markets through the MNE as opposed to an arm's-length arrangement such as trade or various cooperative forms such as licensing. To quote Rugman (1980), 'Internalization serves to determine the reasons for the foreign production and sales of the MNE, namely that these activities take place in response to imperfections in the goods and factor markets.' This theory is traced back to Coase (1937), and appears in Buckley and Casson (1976) and Dunning (1977). The basic idea is that firms react to market imperfections or externalities by deciding to undertake activities within the firm as opposed to engaging in arm's-length contracts with entities outside the firm. As a result, the firm is able to overcome a market imperfection by internalizing the externality.

The development of an FTA may affect the decision on internalization. To the extent an FTA reduces market imperfections, perhaps by its impact on institutions and protection for intellectual property, then MNEs may rely less on their internal networks and more heavily on contracts with members of the free trade area. This would be especially acute when developing countries are included in an FTA with developed countries. Protections such as national treatment, however, work in the opposite direction, encouraging MNEs to conduct activities inside the firm. Also, to the extent it is difficult to transfer technology except by the movement of people, any increase in mobility of technical personnel by an FTA will tend to increase FDI and cooperative forms. On the other hand, if as a result of an FTA the absorptive capacity of any member increases, it may become easier for MNEs to transfer or exploit their technology in that country. Of course, the higher absorptive

capacity may encourage the MNE to internalize their activities to extract as many rents as possible. Internalization theory therefore does not make an unambiguous prediction of the impact an FTA will have on FDI patterns.

Ownership, Location and Internalization

A unifying theory on FDI has been advanced by Dunning (1988, 1993). He summarizes the different motives for FDI in a single cohesive theory known as the OLI framework for FDI: ownership, location and internalization advantages. According to Dunning's model, for a firm to enter a foreign market via FDI rather than other potential options (such as exporting or licensing), the firm must have three unique advantages: (1) an ownership advantage, (2) an internalization advantage, and (3) a location advantage. The ownership advantage is identified as a firm's unique asset which confers on it some market power. The internalization advantage refers to the firm's inability to realize the full value of its ownership advantage through market transactions (as discussed in the previous sub-section). Finally, the location advantage may refer to either the firm locating a production process in a foreign country in order to take advantage of that country's comparative advantage in the production process (e.g. locate labour intensive production in a low wage country), or to the firm choosing to locate close to the consumer in order to realize the value of its ownership advantage.

The reallocations of FDI in light of an FTA would certainly reflect the OLI framework. If the firm does have an ownership advantage such as a firm specific technology that it wishes to exploit, it can do this inside the MNE (internalization), or it can contract with outside parties (see the discussion above on internalization). To the extent the MNE wishes to pursue a strategy which involves activities inside the firm, an FTA may impact the decision on where to locate those activities. Since an FTA increases the size of the market which is accessible to any production facility locating inside the free trade area, it is likely that the location part of OLI will increase FDI locating inside the free trade area after an FTA. Where inside that free trade area the MNE activity would take place is similar to the question faced by MNEs already operating inside the free trade area – they will respond to the FTA by moving production (either horizontally or vertically) to the location most suitable for the production and ultimate target market in question. In short, therefore, the location part of OLI would likely increase FDI into the free trade area after the FTA, and this FDI would move to the most suitable location inside the free trade area. The FDI already located inside would also move to

the most efficient location inside the FTA given the reduction in trade costs that come with the FTA.

Proximity Concentration Hypothesis

According to the proximity concentration hypothesis, MNE decisions on how to service foreign markets represent a trade-off between the concentration of production and proximity to markets. Here, firms are more likely therefore to expand production across borders when transport costs and trade barriers are high and when economies of scale are low. In this situation, decentralizing production gives the firms large benefits by overcoming the transport and tariff costs, and the costs are relatively low as economies of scale are relatively unimportant. This theory is developed formally in Krugman (1983), Horstmann and Markusen (1992), and tested rigorously on US data in Brainard (1997).

Brainard (1997) concentrates on the extent to which the production location decisions by MNEs involve a trade-off between the advantages of being close to customers (foreign production) and the advantages of concentrating production so as to achieve scale economies (exports). In maximizing profits, MNEs decide on exports and foreign production simultaneously. Using data for the United States for 1989, she finds that overseas production relative to exports increases with trade barriers, transport costs, corporate-level scale economies, language similarity, political risk and adjacency to the home country. The share of overseas production falls with higher barriers to investment in the host country and higher plant-level scale economies in the home country. She also finds a complementary relationship between US MNE sales abroad and exports to that same location, as well as between foreign affiliate sales in the United States and the foreign parents' exports to the United States.

The introduction of an FTA reduces the costs of undertaking trade within the free trade area. As a result, the proximity concentration hypothesis predicts that firms will increase the concentration of their production in fewer locations. At the same time, those production facilities will be located as near as possible to the markets sought. In other words, as a result of an FTA, the MNE would reduce the extent of decentralization used in supplying the FTA, and hence the amount of FDI within the FTA should fall. On the other hand, non-free trade area MNEs are not affected *vis-à-vis* transport costs because tariffs to non-members are likely not affected by the FTA, but because there is now a larger market accessible from any single production facility inside the free trade area, there will be more FDI entering the area from abroad. That is, MNEs that supplied the area through trade prior to the FTA may now decide to locate production facilities

inside the area. This would move production closer to markets, thus reducing transportation costs, and by locating inside the free trade area, avoid tariffs. The reason this may not have been optimal prior to the FTA was the tariff costs associated with moving goods inside the free trade area. In short, therefore, the proximity concentration hypothesis predicts that FDI among members will likely fall, whereas there will be more FDI entering the free trade area from abroad. The net impact on total FDI in the area is uncertain *ex ante*.

Dartboard Model

Head and Ries (2002, 2004) develop a benchmark to assess the FDI experience of countries. Their model generates predictions of a country's share of world FDI based on that country's capital stock, human capital and size-weighted proximity to other potential source or host economies. They use a dartboard analogy to benchmark each country's performance relative to the amount they would receive had their area been represented on a dartboard. They have shown that many countries have in fact moved toward that benchmark.

This model would be relevant here because, in response to an FTA, member countries can now be viewed as one market for MNEs (FDI) locating inside the free trade area. Since the Head and Ries benchmark for the free trade area is not simply the sum of the benchmarks of the individual countries that make up the free trade area, their model predicts that both inward and outward FDI will change as a result of the FTA. Of course, we would need to calculate the new benchmark to make predictions on the impact the FTA will have on FDI. This would likely depend on the characteristics of the FTA itself as well as the characteristics of the individual economies.

Does the Relative Size of Members Matter?

An important issue that arises in the context of FTAs is whether the presence of one large country and several smaller countries will matter to the magnitude and distribution of FDI. Such an issue would be especially relevant to the North American experience, where the United States is more than ten times the size of the Canadian economy and even larger than that for Mexico. This is important for several reasons. It is not clear *ex ante* that the larger member country will necessarily have a locational advantage *vis-à-vis* production efficiency. However, to the extent that access to the larger market is less than perfect, and especially if it is changeable in unpredictable ways, then firms may decide to sacrifice to some extent

locating at the most efficient location inside the free trade area in exchange for guaranteed access to the largest market – that is, MNEs may simply locate inside the largest markets. These arguments are developed very nicely in Harris (Chapter 8, this volume). Such concerns on imperfect market access into the United States especially have taken on added importance in the post 9/11 period.

Blomström and Kokko Framework

Blomström and Kokko (1997) summarize many of the theoretical arguments that enter into the likely impact FTAs may have on the distribution of FDI, both within regions as well as between that region and the rest of the world. They provide an intuitive two-dimensional framework to think about these effects, which is reproduced in Table 9.1. Their discussion makes it very clear that the response to an integration agreement will, in each case, depend on the environmental change brought about by the regional integration agreement, the locational advantage of the country or region, the competitiveness of local firms in the integrating region, as well as the motives for FDI in and by the country or region in question. In the absence of an FTA, firms will make decisions in the context of local host markets – the tariff-jumping motivation for locating in a particular country often overwhelms the productivity benefits of locating in a country that has strong locational advantages. Once an FTA is introduced, there will be a reallocation of firms from locations that have weak advantages to those that have strong advantages.

As the authors indicate, the most pronounced positive impacts on FDI would occur in quadrant (1) of Table 9.1 – that is, when a sector experiences a great deal of liberalization and at the same time there are strong locational advantages. In that case, there should be a surge of FDI into that location. If the location has a strong locational advantage and there was a significant amount of liberalization well in advance of the FTA, then FDI would have already moved to the best location.

Table 9.1 The Blomström and Kokko (1997) framework

		Locational advantages	
		Positive	Weak
Environmental change	Strong	1	2
	Weak	3	4

Summary on the Predicted Impacts of FTA on Distribution of FDI

The discussion above indicates that the predicted impact of an FTA on the distribution of FDI is uncertain *ex ante*. It would be difficult using aggregate data to test any one theory listed above. Therefore, any results derived using aggregate data are likely an aggregating of the several theories. In other words, although a test of the impact of an FTA on FDI patterns using aggregate data is very useful and insightful, such a test would not be able to identify which of the underlying theories is/are most at play. As a result, any interpretation of such evidence should be qualified by this limitation.

THE NORTH AMERICAN EXPERIENCE

North America entered into two major trade agreements in the last two decades: the Canada–US Free trade agreement (CUSFTA) in 1989, and the NAFTA in 1994. These agreements saw the elimination of tariffs in many sectors as well as the introduction of national treatment provisions which provide protection for foreign investment locating in any member country. Since these agreements do not form a customs union, there is not a common trade policy with non-members. As a result, measures were introduced to avoid the importation of goods into lower tariff jurisdictions for re-export to high-tariff jurisdictions. There are also rules of origin to ensure that only those goods that were produced with a minimum of North American value added be granted access to other countries at the preferential rates. These rules vary by industry.

North America has experienced significant changes in the distribution of its FDI which are described below. This includes North America's share of world FDI as well as the share of each NAFTA member's share of North American FDI. In the following section, the gravity model is used to explain the extent to which the free trade agreements have contributed to these changing FDI patterns.

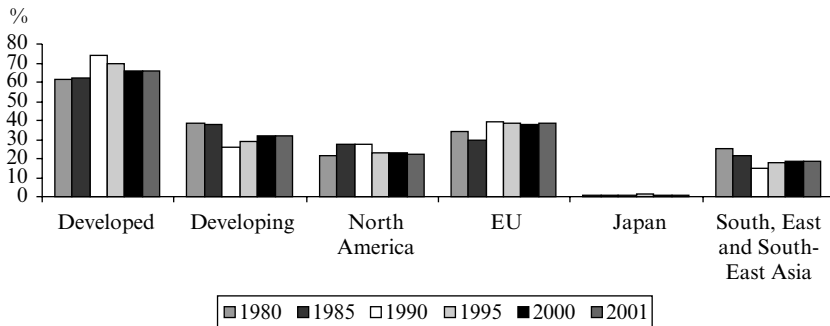
The Distribution of World FDI²

FDI stocks have grown at much faster rates than trade or GDPs. In the 1980s, the world stock of outward FDI stood at US\$700 billion. Over the subsequent two decades, this figure jumped tenfold; in 2002, the world stock of inward FDI stood at over US\$7 trillion. This is important because much of the discussion below focuses on shares, many of which have fallen. It should not be lost on the reader that the levels of FDI continue to grow quite rapidly.

Developed countries remain the dominant location and source of FDI stocks (Figure 9.1). In 2001, about 65 per cent of inward FDI stocks were in developed countries, a figure that is up from 1980 but down from 1990. On the outward side, developed countries have seen their share of FDI fall steadily from about 96 per cent in 1980 to 88 per cent in 2001. In other words, over the 22-year period 1980 to 2001, developed countries have increased their share of inward FDI stocks but reduced their shares of outward.

The corollary of this is that developing country shares of inward FDI have fallen whereas their shares of outward have increased. In 2001, developing countries received about 32 per cent of world inward FDI stocks, much below its value in the early 1980s of almost 40 per cent. On the outward side, developing countries have tripled their share: in 1980, only 3.76 per cent of world FDI stocks originated in developing countries. This value reached 11.84 per cent in 2001.

A. Distribution of world stocks of inward FDI



B. Distribution of world stocks of outward FDI

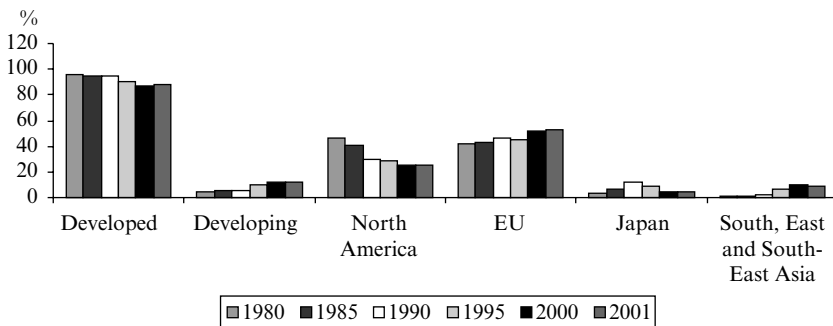


Figure 9.1 The distribution of world FDI

North American FDI

North America's share of world inward FDI increased over the 1980s and fell over the 1990s; in 2001, 22 per cent of world inward FDI stocks located in North America (Figure 9.1). The EU, on the other hand, saw its share fall over the early 1980s, and rise in the second half of the 1980s, but remained at around 39 per cent throughout the 1990s. On the outward side, the EU saw its share rise from 41 per cent of world stocks in 1980 to over 50 per cent in 2001. In sharp contrast, North America saw its share fall from 45.8 per cent in 1980 to below 25 per cent in 2001. This North American pattern is directly related to the research question to be addressed below. Specifically, the analysis in this paper identifies the extent to which these changing North American trends were influenced by free trade agreements.

The shares of world FDI locating in each of the NAFTA countries are provided in Figure 9.2. The United States has seen its share of world inward FDI rise as much as Canada's share has fallen. Also, although Canada's inward share has fallen continuously over the period, the rise in the US share occurred in the early 1980s, but has remained relatively flat over the late 1980s and 1990s. Mexico experienced a steady but very small increase in its share of inward FDI. On the outward side, Canada's share increased over the early 1980s but has fallen steadily over the 1990s. The US outward share has also fallen steadily over the period. Mexico's share of world outward FDI is quite low.

Figure 9.3 considers the same issue as above, but uses North America as the base. That is, it considers the distribution of North American FDI among the NAFTA partners. It shows that the United States received the vast majority of inward FDI among NAFTA countries. Although in 1980 Canada received about 37 per cent of NAFTA inward stocks, this has fallen over the 1980s and 1990s. In 2002, Canada received about 13 per cent of all inward FDI locating in North America. Over the same period, the United States has seen its share increase steadily from 56 per cent to 78 per cent. Mexico has also seen its share increase, although the changes are not nearly as dramatic: in 1980, Mexico received 6 per cent of all inward stocks into the NAFTA, and this figure fell over the 1980s, reaching about 3 per cent in 1989, at which point it began to increase – between 1990 and 2002, Mexico's share tripled to 9 per cent. This is likely the result of the CUSFTA and the NAFTA. As US FDI into Canada fell, and US FDI into Mexico increased, Mexico has seen its shares increase.³

Figure 9.4 reconsiders this evidence, but excludes FDI coming into the NAFTA area from abroad. Here, a similar story emerges as was seen above. In 1980, Canada had 70 per cent of all intra-North American FDI stocks.⁴ Of course, this reflects the huge stock of US FDI in Canada at the time.

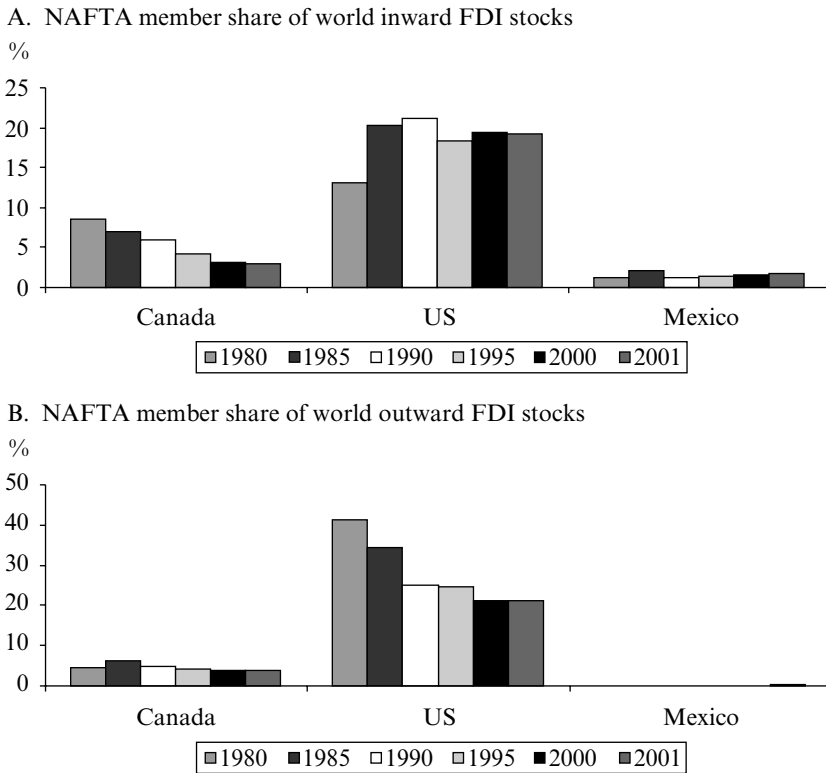


Figure 9.2 NAFTA partner FDI shares

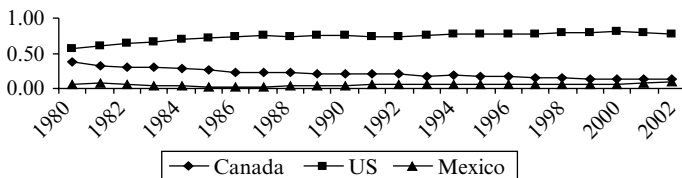


Figure 9.3 NAFTA members' inward FDI shares: all inward FDI

As the US FDI position in Canada fell, Canada saw its share of North American FDI fall from 70 per cent down to 47 per cent in 2002. At the same time, Canada has increased its position in the United States, resulting in the US share moving from 20 per cent in 1970 to 33 per cent in 2002. This FDI reversal between Canada and the United States and the role of the Canada-US FTA are discussed extensively in Rugman (1987, 1990).

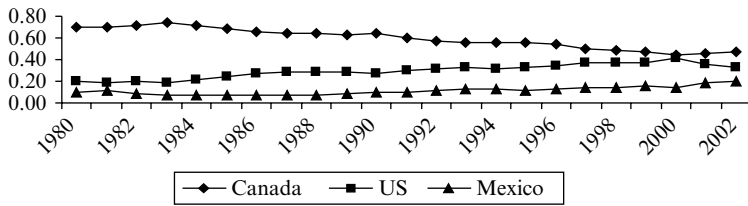


Figure 9.4 NAFTA members' inward FDI shares: intra-North American FDI

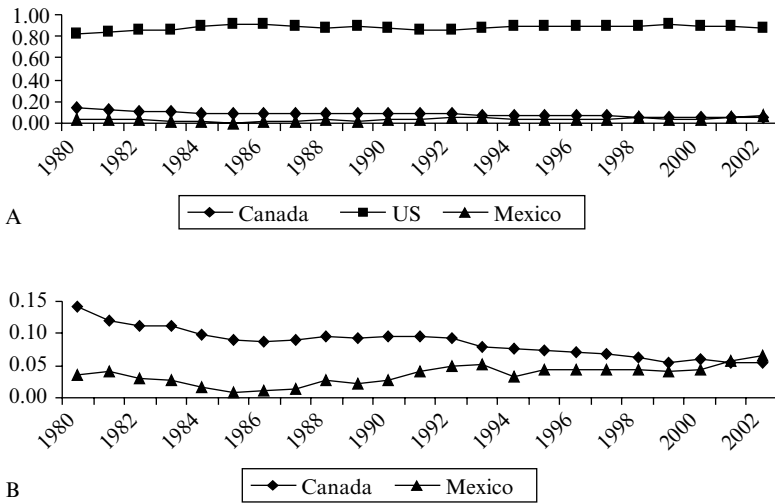


Figure 9.5 NAFTA members' inward FDI shares: net of intra-North American FDI

Figure 9.5 considers FDI coming into the NAFTA area from outside North America. Panel A shows the dominance of the United States – in 2002, it had 88 per cent of all such FDI. This is up from 82 per cent in 1980. Panel B is the same as Panel A except we do not plot the United States, thus allowing for a better view of what has been happening to Canada and Mexico. In 1980, Canada had some 14 per cent of extra-North American FDI, and Mexico received only 4 per cent. Over the 1980s and 1990s, Canada has seen its share fall steadily to 6 per cent in 2002, whereas Mexico has seen its share rise steadily, reaching 7 per cent in 2002. That is, by 2002, the stock of FDI into Mexico from countries outside the NAFTA exceeded that for Canada. As indicated above, there are important issues related to

comparing FDI data across countries given differences in how FDI is defined. Nevertheless, these differences would not affect the trends in FDI we describe here. A key issue to note, however, is that non-North American MNEs are increasingly looking south, not just to the United States, but also to Mexico, as a destination to undertake production, which in turn is used to supply the entire North American market.

US Trade and FDI Patterns within NAFTA

This section refocuses the discussion and considers patterns of US trade and FDI with Canada and Mexico. That is, how have the shares of US trade and FDI with Mexico and Canada been changing? Figure 9.6 shows that Canada has seen its share of total US outward FDI fall dramatically – from 35 per cent in 1966 to slightly over 10 per cent in 2002. At the same time, Mexico has seen its share of US outward FDI increase slightly – from 2 per cent in 1966 to 4 per cent in 2002.⁵

Canada is the United States' number one trading partner. There has been intense debate regarding whether Canada will maintain this position. Figure 9.7 provides the distribution of Canada's and Mexico's shares of US exports and imports. In 1970, Canada received almost 25 per cent of US exports and supplied about 30 per cent of US imports. Canada's share of US exports has fluctuated over the 30-year period between 19 per cent and 30 per cent. Mexico, on the other hand, has seen its share increase very slightly over the 1970 to 1986 period, but thereafter has seen its share rise from 4 per cent in 1986 to 15 per cent in 2002.

Mexico has also seen its share of US imports rise. In 1970, Mexico was the source of only 2 per cent of US imports, whereas Canada supplied about 30 per cent. Canada saw its share fall steadily over the 1970s to about 22 per

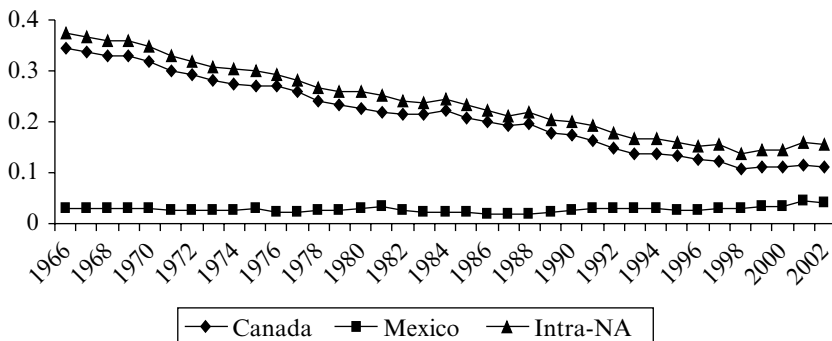


Figure 9.6 Distribution of US outward FDI stocks, by region

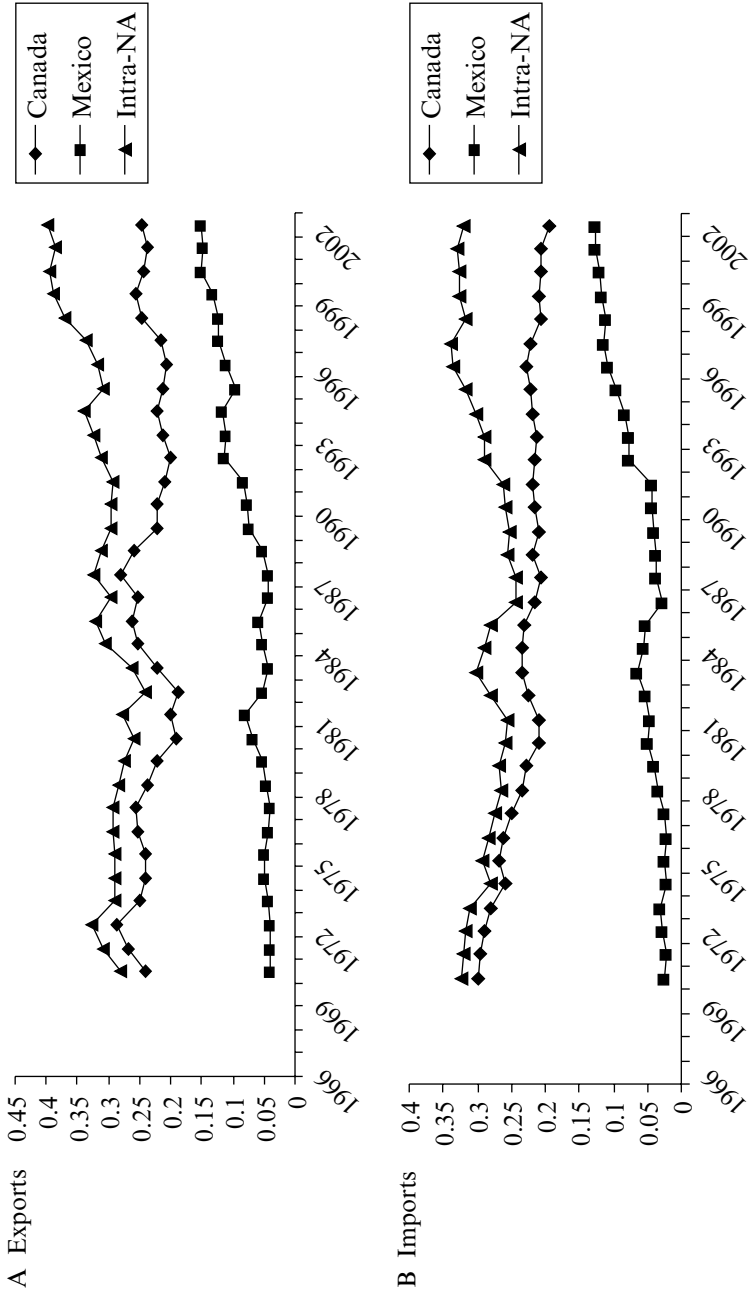


Figure 9.7 Distribution of US exports and imports: developed regions

cent, and then it fell very slowly but steadily over the 1980s and 1990s to slightly below 20 per cent. Mexico, on the other hand, saw its share rise slightly to over 5 per cent by 1984, at which point it saw its share fall to less than 5 per cent over the 1987 to 1992 period. Over the period 1990 to 2002, however, Mexico's share increased sharply, from 4 per cent to 13 per cent.

The data description provided here indicates that not only is Mexico's FDI position improving relative to that of Canada, but so too is its trade position. Of course, the industry mix of these trade flows as well as that for FDI differ between Canada and Mexico. A more detailed analysis would reconsider the trends described above but at the industry level. Our analysis below measures the role that the NAFTA has played in Canada's and Mexico's changing FDI patterns. The analyses is undertaken from two perspectives: we consider the distribution of US outward FDI at the aggregate level as well as for manufacturing and service industries. A second analysis is undertaken using inward FDI into each of 28 OECD countries over the period 1980 to 2000. The OECD data, although bilateral, are not at the industry level. These analyses are undertaken within a gravity model framework.

The Gravity Model

The essence of the gravity equation is that trade between any two countries should be positively related to their GDPs and negatively related to the distance between them. It is well known that the gravity model explains trade flows well, but what is relatively less well known is that there are theoretical foundations for the gravity equation. The early contributions to these theoretical developments include Bergstrand (1985, 1989, 1990), Leamer (1974) and Anderson (1979). More recently, the approach of Head and Ries (2004) has provided additional theoretical underpinnings for a gravity-like model.

Helpman (1987) interpreted the success of the gravity model as evidence in favour of the monopolistic competition model. This was based on the belief that the gravity model was consistent with that model and not with the Heckscher–Ohlin model. However, Deardorff (1998) has established that the gravity model is indeed consistent with both the Heckscher–Ohlin and monopolistic models of international trade, but his result was restricted to a bilateral world.

In a recent contribution, it has been shown that the gravity model for trade is consistent with a wide range of trade models (Feenstra et al., 2001). Although a gravity equation does not fall out of a Heckscher–Ohlin multi-country model, it does fall out of a model where countries are fully specialized in differentiated goods. Given this insight, it should not be a surprise that the model works well in explaining trade among OECD

countries. However, the gravity model also does well in explaining trade among developing countries, which sell more homogeneous goods. As stated by Feenstra et al., 'it is hard to reconcile the special nature of the theory behind this equation with its general empirical success'. The authors then go on to show that a wider range of theories than was previously recognized is consistent with the gravity equation.

The gravity model has been used to explain bilateral trade flows among large groups of countries and over long periods of time (Feenstra et al., 2001; Hejazi and Treffer, 1996; Frankel et al., 1995). The gravity model has also been used to explain patterns of FDI (Brainard, 1997; Grosse and Trevino, 1996; Grubert and Mutti, 1991; Hejazi and Safarian, 2004 a, b; Lipsey and Weiss, 1981; Stein and Duade, 2001; Safarian and Hejazi, 2001). In contrast to that for trade, the gravity model for FDI has not been given theoretical foundations. As such, much of the empirical evidence must be qualified. That is, without a theoretical model underlying its derivation, the gravity model is a reduced form analysis whose results must be interpreted carefully. As in the case of trade, however, ongoing research has been developing empirical models for FDI that do have theoretical foundation, although these tend at present to be quite difficult to work with.

The idea underlying the gravity model for trade is that countries of similar size and per capita GDP have similar needs both in terms of intermediate inputs (Ethier, 1982) and consumption patterns. Also, two countries' trade should be positively related to these countries' incomes, and countries that are close together and have similar languages will have smaller transactions costs of doing business and correspondingly larger levels of bilateral trade. Trade flows are also sensitive to movements in the exchange rate. Dummy variables are included for several regional groupings. These variables are meant to measure persistent patterns of trade within regional areas, which are not captured by the gravity variables.

Following the international business literature, we use the gravity model to explain the FDI patterns.⁶ We estimate several gravity models for FDI which seek to explain Mexico's and Canada's changing attractiveness to FDI. We employ two data sets. The first considers US FDI into each of 52 countries over the period 1970 to 2000. We are able to separate US FDI into three broad sectors: manufacturing, services and natural resources. The question we seek to address here is to what extent the Canada-US FTA and the NAFTA explain the increased attractiveness of Mexico and the reduced attractiveness of Canada for US MNE activity. This analysis uses the United States as the central country and considers its trade and FDI relations with 52 countries over the period 1970 to 2000.

The second data set consists of bilateral data among 28 countries over the period 1980 to 2000, rather than simply with the United States. These

data allow us to consider the impact of NAFTA on Canada and Mexico's ability to attract FDI from a broad cross-section of countries – that is, from countries inside the NAFTA area as well as those outside the NAFTA area. This therefore provides a much more powerful empirical test of the impact the NAFTA has had. Details on the data used including sources are provided in the Data Appendix.

The Estimating Equation

US outward FDI

Following the international business literature, the estimating equation for US outward FDI is written as follows:

$$\begin{aligned}
 \ln(\text{USOUT}_{jt}) = & \alpha_0 + \alpha_1 \ln(\text{GDP}_{jt}) + \alpha_2 \ln(\text{DISTANCE}_j) \\
 & + \alpha_3 \ln(\text{USRATE}_{jt}) + \alpha_4 (\text{LANGUAGE}_j) \\
 & + \alpha_5 (\text{ADJACENCY}_j) + \alpha_6 \ln(\text{USEXPORT}_{jt}) \\
 & + \alpha_7 \ln(\text{NA}_j) + \alpha_8 (\text{EU}_j) + \alpha_9 (\text{JAPAN}_j) \\
 & + \alpha_{10} (\text{LATIN}_j) + \alpha_{11} (\text{EASIA}_j) + \alpha_{12} (\text{CUSFTA}_j) \\
 & + \alpha_{13} (\text{NAFTA}_t) + \alpha_{14} (\text{NAFTA}_t * \text{CANADA}_j) \\
 & + \alpha_{15} (\text{NAFTA}_t * \text{MEXICO}_j) + e_{jt}
 \end{aligned} \tag{9.1}$$

Each variable is formally defined in the Data Appendix. Here, we are considering US outward FDI to country j in year t (USOUT_{jt}), where $j = 1 \dots 52$ countries, and $t = 1970$ to 2000 . Following the convention in this literature, the model is estimated in natural logs (\ln). These patterns of bilateral US FDI are related to the GDP of each country j (GDP_{jt}), the distance between the United States and each country (DISTANCE_j), the exchange rate between the United States and each country (USRATE_{jt}), language similarities between the United States and each country j (LANGUAGE_j), whether the country is adjacent to the United States (ADJACENCY_j), and US exports with each country (USEXPORT_{jt}). This standard gravity model is extended to include regional dummies for North America, the EU, Japan, Latin America and East Asia. These dummy variables pick up any persistent deviations between the model's predictions and trade between the United States and each region. Finally, dummy variables are included to measure the impact of the CUSFTA and the NAFTA on US FDI with the sample of countries.

The regression results for the United States outward FDI are presented in Table 9.2. The regressions are estimated for all outward US FDI as well

Table 9.2 Gravity model estimates for US bilateral outward FDI, 1970–2000

	Total			Manufacturing			Services		
	Coefficient estimate	t-stat	P value	Coefficient estimate	t-stat	P value	Coefficient estimate	t-stat	P value
Lgdp	0.546	21.220	0.000	0.621	13.800	0.000	0.167	3.410	0.001
Ldist	0.680	7.960	0.000	0.381	2.490	0.013	2.107	12.730	0.000
lrate	-0.013	-2.040	0.041	-0.019	-1.270	0.204	-0.031	-1.930	0.055
Lang	1.001	14.610	0.000	0.625	5.230	0.000	0.503	3.880	0.000
Adj	1.479	7.750	0.000	-0.117	-0.310	0.754	0.792	1.970	0.049
Lexp	1.245	8.540	0.000	1.475	11.790	0.000	0.955	14.990	0.000
Latin	1.839	7.550	0.000	1.491	8.560	0.000	2.423	12.830	0.000
Japan	-0.333	-2.630	0.010	-0.118	-2.320	0.020	-1.129	-2.640	0.009
Europe	1.757	3.150	0.000	1.732	11.800	0.000	2.616	16.440	0.000
E. Asia	0.591	6.260	0.000	0.558	3.560	0.000	0.263	1.550	0.121
NAFTA	0.316	3.690	0.000	0.243	1.530	0.128	0.298	1.720	0.086
CUSFTA	-0.173	-1.910	0.057	0.024	0.140	0.890	-0.042	-0.220	0.825
Can.*NAFTA	-0.814	-8.630	0.000	-0.503	-0.100	0.000	-0.689	-7.960	0.000
Mex.*NAFTA	-0.257	-8.850	0.000	-0.211	-0.600	0.000	-0.406	-6.660	0.000
Time trend	0.951	5.710	0.000	3.783	0.790	0.428	1.124	2.170	0.030
Constant	-7.33	-10.880	0.000	-2.97	-0.820	0.412	-8.73	-2.220	0.027
No. of observations	1680			833			831		
Adj. R ²	0.687			0.630			0.595		

as for outward US FDI in manufacturing and services. The results indicate that the larger is a host country's GDP, the more outward FDI that country receives from the United States.

Theoretically, the relationship between trade and distance is negative – transport costs are increasing in distance and information flows are falling, both of which reduce trade. The relationship between FDI and distance, on the other hand, is ambiguous. As distance increases, the incentive to undertake FDI rather than trade increases because of transport costs. On the other hand, information flows are decreasing in distance, which serves to reduce FDI. The net impact is unclear *ex ante*. The regression results in Table 9.2 indicate that US outward FDI is increasing in distance, indicating the former effect dominates in the regressions.

The impact between the exchange rate and FDI is also unclear. When a host economy has a lower exchange rate, it may be less costly to move into that market, but then all revenues that are generated thereafter must be repatriated at a lower exchange rate as well. In theory, these two effects should wash out. There are technology acquisition reasons which could predict a negative relationship between MNE activity and the exchange rate (Blonigen, 1997; Georgopoulos, 2003). The regression results here indicate that as the foreign currency appreciates relative to the US dollar, there is less US outward FDI to that country. Although this negative relationship is statistically significant for total US outward FDI and services FDI, it is insignificant for manufacturing.

As expected, both language similarities and adjacency result in increased US outward FDI. Also, the results indicate that the larger the amount of bilateral exports between the United States and another country, the more US FDI locates in that country. The results also indicate that the United States has more FDI in Europe, Latin America and East Asia than can be predicted by the gravity model, but less in Japan.

The NAFTA has resulted in more US outward FDI overall, but the Canada–US FTA reduced US outward FDI. The results that are of most interest, however, are the impacts that the NAFTA had on Canada and Mexico. To measure this, we add interactive dummies – that is, we test whether the impact of the NAFTA on US outward FDI to each of Canada and Mexico differs from its impact on US outward FDI in general.

The results indicate that the NAFTA increased US outward FDI overall, with the effect larger in services than in manufacturing. The model indicates that the effects were less for Canada and Mexico. That is, the coefficient estimates on interactive terms in the gravity model between Canada, Mexico and the NAFTA are negative. Also, the negative offsetting impact is much larger for Canada than for Mexico. The net impact of the NAFTA on US FDI into Canada is significantly negative for aggregate outward FDI

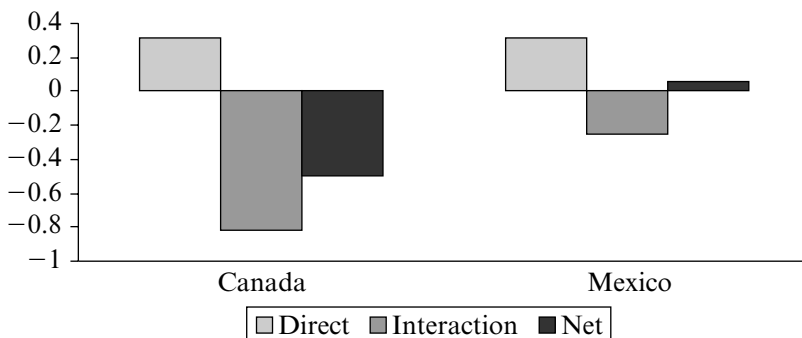


Figure 9.8 The measured impact of free trade on US FDI into Canada and Mexico

(0.316 – 0.814), but more so for services (0.298 – 0.689) than manufacturing (0.243 – 0.503). On the other hand, the net impact for Mexico is positive at the aggregate level (0.316 – 0.257), and is positive for manufacturing industries (0.243 – 0.211), but negative for services (0.298 – 4.06). These results are provided in Figure 9.8.

These results are consistent with the description of US outward FDI given earlier, showing that US FDI is increasingly outside North America. Also, although Mexico's share of US outward FDI has increased as a result of the NAFTA, its share increased by less than the increase experienced by Europe and other countries. Canada, on the other hand, saw its share of US outward FDI fall as a result of the NAFTA. Therefore, both Canada and Mexico had offsetting effects from the NAFTA that reduced their share of US outward FDI. On net, the NAFTA increased US outward FDI to the world and to a lesser extent Mexico, but reduced FDI to Canada.

OECD inward FDI⁷

In addition to the gravity model above, we also apply the gravity model to bilateral OECD FDI.

$$\begin{aligned}
 \ln(\text{OECDIN}_{ijt}) = & \alpha_0 + \alpha_1 \ln(\text{GDP}_{it}) + \alpha_2 \ln(\text{DISTANCE}_{ij}) \\
 & + \alpha_3 \ln(\text{OECDXRATE}_{ijt}) + \alpha_4 (\text{LANGUAGE}_{ij}) \\
 & + \alpha_5 (\text{ADJACENCY}_{ij}) + \alpha_6 \ln(\text{OPENESS}_{it}) \\
 & + \alpha_7 \ln(\text{NA}_t) + \alpha_8 (\text{EU}_t) + \alpha_9 (\text{CANADA}_t) \\
 & + \alpha_{10} (\text{MEXICO}_t) + \alpha_{11} (\text{CUSFTA}_t) + \alpha_{12} (\text{NAFTA}_t) \\
 & + \alpha_{13} (\text{NAFTA}_t * \text{CANADA}_t) \\
 & + \alpha_{14} (\text{NAFTA}_t * \text{MEXICO}_t) + e_{ijt}
 \end{aligned} \tag{9.2}$$

Here, the dependent variable is inward FDI into each OECD country (i) from country j ($j = 1 \dots 28$) over the period $t = 1980$ to 2000. These patterns of inward FDI are regressed on host country GDP (GDP_{it}), distance between the host (i) and home (j), the exchange rate between home and host, language similarities, adjacency and a measure of a country's openness to trade. As above, there are also regional dummies for North America, the EU, Japan, Latin America and East Asia. These dummy variables pick up any persistent deviations between the model's predictions and FDI between the United States and each region. Finally, dummy variables are included to measure the impact of the CUSFTA and the NAFTA on US FDI with the sample of countries.

The regression results provided in Table 9.3 indicate that the larger is a country's GDP, the more inward FDI that country attracts. Also, as a country's exchange rate appreciated, it attracted more inward FDI. Distance, on the other hand, is negatively related to bilateral FDI. Also, the more open a country is to trade, the less inward FDI that country receives, as home country MNEs are likely accessing the host market more through trade than FDI.

Adjacency between countries is very strongly related to inward FDI, as is being a member of the European Union. Canada received an amount

Table 9.3 Gravity model estimates for OECD bilateral inward FDI, 1980–2000

linfdi	Coefficient	t-value	P value
Lgdp	0.479	13.010	0.000
Lxrat1	0.690	34.470	0.000
ldist	-0.350	-4.170	0.000
lopen	-0.881	-11.990	0.000
Adj	2.406	22.310	0.000
Eu	0.555	5.040	0.000
Can	-0.230	-1.070	0.283
Mex	-1.302	-5.930	0.000
North America	0.634	3.060	0.002
CUSFTA	0.458	4.410	0.000
NAFTA	0.538	5.790	0.000
Mex.*NAFTA	1.876	6.510	0.000
Can.*NAFTA	0.240	0.870	0.382
Constant	-1.091	-1.450	0.148
No. of observations	4817		
Adj. R^2	0.3536		

consistent with the predictions of the model whereas Mexico received less. North America, on the other hand, received more than was predicted by the gravity model – a result driven by the United States.

Both the NAFTA and the Canada–US FTA are associated with higher levels of inward FDI stocks for the OECD countries – the coefficient estimates on the Canada–US FTA is 0.458 and 0.538 on the NAFTA, and these coefficients are highly significant. This is a reflection of both increased FDI into North America as well as more US and Canadian FDI into the European Union.

The results of most interest here, however, are the impacts that the NAFTA had on Canada and Mexico's abilities to attract FDI from the OECD – that is, the interactive terms in the regression. The results indicate that the NAFTA impacts for Canada are similar to those for the sample on average, as the interactive term is statistically insignificant (0.240 with a standard error of 0.870). On the other hand, Mexico's impact is much larger than for the sample on average, as the interactive term between it and the NAFTA is positive (1.876) and highly significant.

The results presented here are entirely consistent with the data described above. That is, the NAFTA resulted in less US FDI into Canada but more into Mexico. The increase that Mexico saw, however, was less than experienced by the sample on average. As for the OECD sample (our second test), the NAFTA has increased both Mexico's and the United States' abilities to attract FDI far more than its impact on the sample on average, whereas Canada's increase was similar to the average across the sample. These results are provided in Figure 9.9.

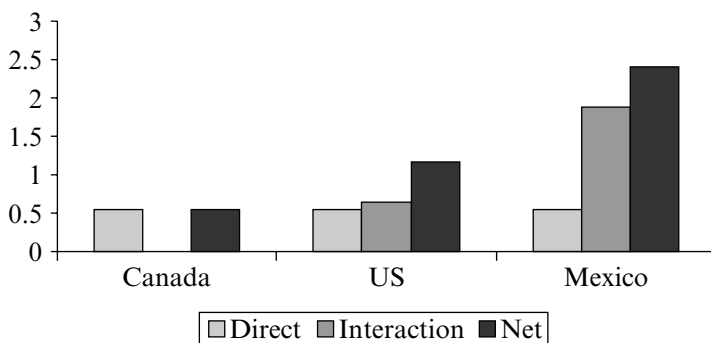


Figure 9.9 The measured impact of free trade on OECD FDI into the United States, Canada and Mexico

CONCLUSIONS, POLICY IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Regional trade agreements and free trade agreements have become far more prevalent. Although the predicted impact of such treaties on trade are well understood both theoretically and empirically, this is not the case for FDI. This is driven by three major factors. First, although there is extensive theoretical justification for reduced form empirical models for trade, there is far less formal theory available for empirical models used for FDI. Second, the data issues facing tests of FDI are daunting. Third, the complexity and environment specific strategies used by MNEs to service foreign markets are multifaceted. As a result, it is difficult to summarize succinctly the impacts that FTAs will have on FDI. Given consideration to intra-regional FDI as distinct from the distribution between the free trade area and the rest of the world provides an added level of complexity.

This paper has reviewed several theories that explain the presence and location of MNEs. These theories include internalization, Dunning's OLI theory, proximity concentration, licensing models, and the dartboard benchmarking model, as well as Harris's sunk cost model. These theories together provide keen insights into why multinationals exist as well as why they locate where they do. The discussion of these theories is extended to the introduction of a free trade agreement. We show that each of the theories also provides insights as to the predicted impact that an FTA can have on the distribution of FDI.

Using two data sets, this paper also measured the impact that the Canada-US FTA and the NAFTA had on the ability of North America and that of each member of the NAFTA, namely, Canada, the United States and Mexico, to attract FDI. The results clearly show that free trade has increased the tendency for US firms to locate in Mexico and abroad, but less in Canada. In contrast, free trade has increased the desire of non-North American firms to locate in each of the North American countries, although the United States and Mexico have benefited to a far greater extent than has Canada.

There are many possible explanations for these results. The most important have to do with locational advantages enjoyed by Mexico, as well as the relative size of the US economy and imperfect access to that economy from other members of the NAFTA. The desire for MNEs to concentrate production has also played a significant role in explaining the reduction in the share of US FDI in Canada.

The analysis in this paper contributes to the international business literature in two broad ways. First, it has reviewed some relevant literature that motivates the existence and location of multinationals and extends the

discussion of these theories to the introduction of a free trade agreement. Second, using North America as an example, this paper has provided estimates of the direction of the predicted impact that the free trade agreements have had on North America's FDI experience.

We would like to close this chapter by making a few comments about Canada and the work of A.E. Safarian. Given that much of his work has focused on Canada, then so too will this final comment. Policy makers in Canada have been quite concerned about Canada's decreasing share of inward FDI stocks. This concern stems from the benefits that accompany FDI. Much of the work undertaken by Professor Safarian, including his 1966 book of foreign ownership, his 1993 book on public policy, and his work on FDI as an important channel of R&D diffusion, has contributed significantly to this understanding of FDI. Professor Safarian's most recent work has increased our understanding of the factors that help explain these changing FDI trends. This work is summarized in his latest book entitled *Canada and Foreign Direct Investment: A Study of Determinants*. The analysis presented in that book goes deep into the factors that explain the trends noted above – but focuses on Canada as the center country, and its trade and FDI relations with 30 other countries. The analysis presented here complements that work nicely. Here, we undertake two analyses. We consider the impact the NAFTA had on Canada's and Mexico's abilities to attract FDI, from the United States as well as from the NAFTA. Our results show clearly that the NAFTA has reduced Canada's attractiveness to US MNEs, but not to OECD MNEs generally. This is good news for Canada.

Although there are many studies that measure the benefits of FDI to be positive and significant, it is not clear in this case whether Canada's reduced attractiveness to US FDI is necessarily a negative development for the Canadian economy. As we know, tariff-induced FDI (production facilities) may not operate at the most efficient scale or scope of production. There are many examples of production facilities locating in Canada to avoid tariffs that produced several different products and whose production runs were relatively short. Once the Canadian economy became more open, many of these plants were replaced by more specialized plants that had much longer production runs. The important questions that remain are: where do these new (or expanded) plants locate, and what happens to resources in Canada once any inefficient plants close? These questions are very important and require additional research.⁸

NOTES

1. To the extent the jobs or industries that are moving abroad are low-value-added industries, then that may be a positive development for the domestic economy. Over the longer term, resources and employment that move out of these lower-value-added industries will relocate into higher-value-added industries (see Hejazi, 2003; Hejazi and Pauly, 2003 for a detailed discussion of this issue).
2. There are very important data issues regarding how FDI is defined. We have made every effort to be as careful as possible, but we also recognize that some important issues remain. We believe, however, that these issues should not affect the trends that we are discussing. Furthermore, these data issues do not apply to the empirical analysis of bilateral US outward FDI, but would affect bilateral OECD data.
3. It is important to point out here that because Mexico is beginning with a small amount of FDI and the base of comparison here is the whole of North America, then a small increase in Mexico's share of North American FDI results in a large increase in Mexican FDI. Although Mexico's share of inward FDI stocks has increased to 9 per cent, the growth rate in Mexico's inward FDI from 1980 to 2000 has been 13.5 per cent on a compound annual basis, in comparison to Canada's 8 per cent.
4. North America refers to the NAFTA area only throughout.
5. A closer look at the distribution of US outward FDI reveals that the region experiencing the largest gain in the share of US outward FDI is Europe. In 1966, Europe received 35 per cent of all US outward FDI. By 2002, Europe's share had increased to 57 per cent. Over the same period, Latin America saw its share fall from 20 per cent to 12 per cent. East Asia saw its share go from 2 per cent to 10 per cent, and Japan's share increased from 2 per cent to 4 per cent. It must be stressed that this discussion is in percentages – in levels, US FDI in each region has increased. Over the period 1966 to 2002, US outward FDI grew at a compound annual rate of 9.8 per cent, outstripping its GDP growth, which was 3.6 per cent.
6. For a detailed literature review on studies that use the gravity model to explain FDI, see Hejazi and Safarian (2004a).
7. A similar approach to this has been undertaken by Eden and Li (2003). They estimate a similar model for inward FDI into Canada, the United States and Mexico.
8. See Baldwin, Caves and Gu, Chapter 10, this volume, for a discussion of this issue.

REFERENCES

- Anderson, James E. (1979), 'A theoretical foundation for the gravity equation', *American Economic Review*, **69**, 106–16.
- Baldwin, John and David Sabourin (2001), 'Impact of the adoption of advanced information and communication technologies on firm performance in the Canadian manufacturing sector', Statistics Canada working paper.
- Bergstrand, Jeffrey H. (1985), 'The gravity equation in international trade: some microeconomic foundations and empirical evidence', *Review of Economics and Statistics*, **67**, 474–81.
- Bergstrand, Jeffrey H. (1989), 'The generalized gravity equation, monopolistic competition, and the factor proportions theory of international trade', *Review of Economics and Statistics*, **71**, 143–53.
- Bergstrand, Jeffrey H. (1990), 'The Heckscher–Ohlin–Samuelson model, the Linder hypothesis and the determinants of bilateral intraindustry trade', *Economic Journal*, **100** (403), 1216–29.
- Bloomström, Magnus and Ari Kokko (1997), *Regional Integration and Foreign Direct*

- Investment: A Conceptual Framework and Three Cases*, Policy Research Working Paper 1750, World Bank.
- Blonigen, Bruce A. (1997), 'Firm specific assets and the link between exchange rates and foreign direct investment', *American Economic Review*, **87** (3), 447–65.
- Brainard, S. Lael (1997), 'An empirical assessment of the proximity–concentration trade-off between multinational sales and trade', *American Economic Review*, **87** (4), 520–44.
- Buckley, Peter J. and Mark Casson (1976), *The Future of the Multinational Enterprise*, London: Macmillan.
- Coase, Ronald H. (1937), 'The nature of the firm', *Economica*, **4**, 386–405.
- Coe, David and Elhanan Helpman (1995), 'International R&D spillovers', *European Economic Review*, May, 859–87.
- Deardorff, Alan V. (1998), 'Determinants of bilateral trade: does gravity work in a neoclassical world?', in Jeffrey A. Frankel (ed.), *The Regionalization of the World Economy*, Chicago: University of Chicago Press.
- Dobson, Wendy (2002), *Shaping the Future of the North American Economic Space: A Framework for Action*, C.D. Howe Institute Commentary 162, April.
- Dunning, John H. (1977), 'Trade, location of economic activity and the MNE: a search for an eclectic approach', in Bertil Ohlin, Per-Ove Hesselborn and Per Magnus Wijkman (eds), *The International Allocation of Economic Activity*, Proceedings of a Nobel Symposium held at Stockholm, 8–11 June 1976, London, pp. 395–418.
- Dunning, John H. (1988), 'The eclectic paradigm of international production: a restatement and some possible extensions', *Journal of International Business Studies*, **19** (1), 1–30.
- Dunning, John H. (1993), *Multinational Enterprises and the Global Economy*, New York: Addison-Wesley.
- Eden, Lorraine and Dan Li (2003), 'Do insiders contribute more than outsiders? An investigation of FDI in NAFTA countries', working paper.
- Ethier, W. (1982), 'National and international returns to scale in the modern theory of international trade', *American Economic Review*, **72**, 389–405.
- Feenstra, Robert C., James R. Markusen and Andrew K. Rose (2001), 'Using the gravity equation to differentiate among alternative theories of trade', *Canadian Journal of Economics*, **34** (2), 430–47.
- Frankel, J.A., Ernesto Stein and Shang-Jin Wei (1995), 'APEC and regional trading arrangements in the Pacific', in Wendy Dobson and Frank Flatters (eds), *Pacific Trade and Investment: Options for the 1990s*, Kingston, Ontario: John Deutsch Institute.
- Georgopoulos, George (2003), 'US acquisitions of Canadian firms and the role of the exchange rate', York University Working Paper.
- Graham, Edward (1993), *U.S. Outward Direct Investment and U.S. Exports: Substitutes or Complements? With Implications for U.S.–Japan Policy*, Washington, DC: Institute for International Economics.
- Grosse, Robert and Len Trevino (1996), 'Foreign direct investment in the United States: an analysis by country of origin', *Journal of International Business Studies*, first quarter, 139–55.
- Grubert, Harry and John Mutti (1991) 'Taxes, tariffs, and transfer pricing in multinational corporate decision-making', *Review of Economics and Statistics*, **73** (2) 285–93.

- Head, Keith and John Ries (2002), 'Making Canada the destination of choice for internationally mobile resources', working paper.
- Head, Keith and John Ries (2004), 'Judging Japan's FDI: the verdict from a dart-board model', University of British Columbia working paper.
- Hejazi, Walid (2003), 'Increased Canadian investment abroad is good for the Canadian economy', *Policy Options*, August.
- Hejazi, Walid and Peter Pauly (2002), *Foreign Direct Investment and Domestic Capital Formation*, Industry Canada working paper series, number 36.
- Hejazi, Walid and Peter Pauly (2003), 'Motivations for FDI and domestic capital formation', *Journal of International Business Studies*, **34**, 282–9.
- Hejazi, Walid and A.E. Safarian (1999a), 'Trade, foreign direct investment, and R&D spillovers', *Journal of International Business Studies*, **30** (3), 491–511.
- Hejazi, Walid and A.E. Safarian (1999b), *Modeling Links Between Canadian Trade and Foreign Direct Investment*, Industry Canada Working Paper Series entitled *Perspectives on North American Free Trade*, April.
- Hejazi, Walid and A.E. Safarian (2001), 'The complementarity between U.S. FDI stock and trade', *Atlantic Economic Journal*, **29** (4), 420–37.
- Hejazi, Walid and A.E. Safarian (2004a), 'Explaining Canada's changing FDI patterns', University of Toronto Working Paper.
- Hejazi, Walid and A.E. Safarian (2004b), 'NAFTA effects and the level of development', University of Toronto Working Paper.
- Hejazi, Walid and Daniel Trefler (1996), 'Explaining Canada's trade with the Asia-Pacific', in Richard Harris (ed.), *The Asia Pacific Region and the Global Economy: A Canadian Perspective*, Calgary: University of Calgary Press, The Industry Canada Research Series.
- Helpman, Elhanan (1987), 'Imperfect competition and international trade: evidence from fourteen industrial countries', *Journal of the Japanese and International Economies*, **1**, 62–81.
- Horstmann, Ignatius and James R. Markusen (1987a), 'Strategic investments in the development of multinationals', *International Economic Review*, **28** (1), 109–21.
- Horstmann, Ignatius and James R. Markusen (1987b), 'Licensing vs. foreign direct investment: a model of internationalization by the multinational enterprise', *Canadian Journal of Economics*, **20** (3), 464–81.
- Horstmann, Ignatius and James R. Markusen (1992), 'Endogenous market structures in international trade', *Journal of International Economics*, **32** (1/2), 109–29.
- Horstmann, Ignatius and James R. Markusen (1996), 'Exploring new markets: direct investment, contractual relations, and the multinational enterprise', *International Economic Review*, **37** (1), 1–19.
- Krugman, Paul (1983), 'The "new theories" in international trade and the multinational enterprise', in D.B. Audretsch and Charles Kindleberger (eds), *The Multinational Corporation in the 1980s*, Cambridge, MA: MIT Press, pp. 57–73.
- Leamer, Edward E. (1974), 'The commodity composition of international trade in manufactures: an empirical analysis', *Oxford Economic Papers*, **26**, 350–74.
- Lipsev, Robert E. and Merle Yahr Weiss (1981), 'Foreign production and exports in manufacturing industries', *The Review of Economic Statistics*, November, 488–94.
- Lipsev, Robert E. and Merle Yahr Weiss (1984), 'Foreign production and exports of individual firms', *The Review of Economics and Statistics*, 304–8.
- Rao, Someshwar, Ashfaq Ahmad and Colleen Barnes (1996), *Foreign Direct Investment and APEC Economic Integration*, Industry Canada Working Paper Series, No. 8, February.

- Rugman, A.M. (1980), 'A new theory of the multinational enterprise: internationalization versus internalization', *Columbia Journal of World Business*, **15** (1), 23–9.
- Rugman, A.M. (1981), *Inside the Multinational: The Economics of Internal Markets*, New York: Columbia University Press.
- Rugman, A.M. (1987), *Outward Bound: Canadian Direct Investment in the United States*, Toronto: C.D. Howe Institute.
- Rugman, Alan M. (1990), *Multinationals and Canada-United States Free Trade*, Columbia, SC: University of South Carolina Press.
- Rugman, Alan M. (2000), *The End of Globalization*, New York: Random House.
- Safarian, A.E. (1966), *Foreign Ownership of Canadian Industry*, Toronto: McGraw-Hill of Canada, reprinted Toronto: University of Toronto Press, 1973.
- Safarian, A.E. (1993), *Multinational Enterprise and Public Policy: A Study of the Industrial Countries*, Aldershot: Edward Elgar.
- Safarian, A.E. and Walid Hejazi (2001), *Canada and Foreign Direct Investment: A Study of Determinants*, University of Toronto Centre for Public Management.
- Stein, Ernesto and Christian Duade (2001), 'Institutions, integration and the location of foreign direct investment', *New Horizons for Foreign Direct Investment*, OECD Global Forum on International Investment, Paris: OECD, pp. 101–28.
- Tang, Jianmin and Someshwar Rao (2001), *R&D Propensity and Productivity Performance of Foreign-Controlled Firms in Canada*, Industry Canada Working Paper 33.
- Trefler, Daniel (1999), 'Does Canada need a productivity budget?', *Policy Options*, July–August, 66–71.
- Trefler, Daniel (2004), 'The long and short of the Canada–U.S. Free Trade Agreement', *American Economic Review*, forthcoming.
- van Pottelsberghe De La Potterie, Bruno and Frank Lichtenberg (2001), 'Does foreign direct investment transfer technology across borders?', *The Review of Economics and Statistics*, **83** (3), 490–97.

DATA APPENDIX

Series title/label	Definition	Availability	Source
US bilateral outward FDI stocks $USOUT_{jt}$	Stocks of US FDI in each of 52 countries, recorded on a historical cost basis. These data are available for all industries, as well as for each of natural resources, manufacturing and services	1970 to 2000	US Bureau of Economic Analysis http://www.bea.gov/
US bilateral exports $USEXP_{jt}$	Exports from the US to each of 52 countries. The data are in current dollars, and are deflated using an export deflator obtained from CITIBASE	1970 to 2000	IMF Direction of Trade Statistics
OECD bilateral inward FDI stocks $OECDIN_{ijt}$	Bilateral stocks of inward FDI in each OECD country from each OECD country	1980 to 2000	OECD www.source-oecd.org
OECD bilateral imports $OECDIMP_{ijt}$	Bilateral imports to each OECD country to each OECD country	1980 to 2000	OECD Bilateral Trade Database 2000
GDP GDP_{jt}	Gross domestic product, real, on a PPP basis	1970 to 2000	Penn World Tables www.nber.org
US exchange rate $USXRATE_{jt}$	The nominal exchange rate between the US and each of the 52 countries in the sample	1970 to 2000	Penn World Tables www.nber.org
OECD exchange rates $OECDXRATE_{ijt}$	The nominal exchange rate between each OECD country and each other OECD country	1980 to 2000	OECD
Openness $Openness_{jt}$	Exports plus imports, divided by GDP	1970 to 2000	Penn World Tables www.nber.org
Distance $Distance_{ij}$	A measure of distance between countries i and j	Constant through time	Authors
Language $Language_{ij}$	A dummy variable taking on a value of one if two countries share a common language, zero otherwise	Constant through time	Authors

Series title/label	Definition	Availability	Source
$Adjacency_{ij}$	A dummy variable taking on a value of one if two countries share a common border, zero otherwise. For data set one, this dummy equals one for Canada and Mexico, and zero otherwise	Constant through time	Authors
$CUSFTA_t$	This dummy variable captures the impact of the Canada–US FTA that took effect in 1989. This variable is equal to one over the period 1989 to the end of the sample, and zero otherwise	Over the sample	
$NAFTA_t$	This dummy variable captures the impact of the NAFTA that took effect in 1994. This variable is equal to one over the period 1994 to the end of the sample, and zero otherwise	Over the sample	
NA_j	A North America dummy, which is equal to one for countries in North America, and zero otherwise		
$Europe_j$	A Europe dummy, which is equal to one for countries in Europe, and zero otherwise		
$EAsia_j$	An East Asia dummy, which is equal to one for countries in East Asia, and zero otherwise		
$Japan_j$	A Japan dummy, which is equal to one for Japan, and zero otherwise		
$Canada_j$	A Canada dummy, which is equal to one for Canada, and zero otherwise		
$Mexico_j$	A Mexico dummy, which is equal to one for Mexico, and zero otherwise		

10. Responses to trade liberalization: changes in product diversification in foreign- and domestic-controlled plants*

John R. Baldwin, Richard E. Caves and Wulong Gu

INTRODUCTION

This paper studies the impact that a small country joining a regional trade agreement, but particularly a small country, might be expected to gain from the exploitation of scale economies. It makes use of the experience of Canada when it entered into the North American Free Trade Agreement (FTA) in the early 1990s.

Diversification has long remained a murky area in our understanding of industrial organization generally and in particular as it affects the efficiency of open economies, which undertake extensive international trade and foreign direct investment but also subject them to government controls.¹ Diversification is not routinely measured by census takers, leaving us short of both basic facts and research inputs. Economic theory offers certain predictions about where diversification will occur, but these rest on diverse assumptions and analytical bases and point to different normative verdicts. Furthermore, their implications for the small, open economy have not been pulled together. These are particularly important for Canada, hosting extensive foreign direct investment and with a long tradition of heavy protection giving way under the Canada–United States Free Trade Agreement (FTA) and subsequently the North American Free Trade Agreement (NAFTA).

This paper examines diversification levels and changes in Canadian manufacturing plants, chiefly over the period stretching from the 1980s to the late 1990s, during which NAFTA was implemented. It also investigates whether the changes varied between foreign-controlled and domestically controlled firms.

Changes in the diversification of plants' outputs across commodities reveal how firms have adapted multi-product production to the presence of scale and scope economies at the plant level and changing levels of protection associated with trade liberalization. Changes in the magnitude of plant-level diversification arise from firms' attempts to adapt to changes in underlying production economies. Traditionally, the importance of product-line scale economies provided the foundation for studies of plant specialization. Failure to fully exploit scale economies in the product line was seen to result from high transportation costs (e.g. Scherer et al., 1975) due to geographical distance between markets or from tariff constraints that exacerbated the effects of distance (Eastman and Stykolt, 1967). Baumol et al. (1982) emphasized that scope economies at the plant level can also cause firms to choose to produce multiple products, since the economies of joint production could offset the costs of not exhausting scale economies for each product line.

A study of the level of diversification of plants and changes therein reveals whether the relative importance of scale and scope economies has been changing in face of trade liberalization. It is particularly important in the Canadian context since major changes in trade policy in the late 1980s allow us to examine whether changes in trade policy were associated with changes in plant specialization that led to a narrower range of products. In the late 1980s, the Free Trade Agreement with the United States not only moved to eliminate tariffs but also set in place an arbitration procedure that was meant to assure firms of a more stable trading environment.

Economists have made reference to different models to suggest that trade liberalization might be expected to affect production efficiency. In the Canadian literature, the Eastman–Stykolt (1967) model of foreign investment stressed that tariff barriers in a small country with oligopolistic markets could lead to suboptimal plant size. Associated with problems of suboptimal plant size were difficulties arising from short production runs. Harris (1984) formalized a general equilibrium model, applied to the Canadian industrial structure, which examines the effects of trade liberalization on the production process.²

Safarian's pioneering survey on the relative costs of foreign multinationals operating in Canada (1966, ch. 7) reported that most foreign affiliates operating in Canada had higher unit costs than parent companies' plants located in the US. These higher costs were attributed to a variety of sources; but shorter production runs was the most common reason for those reporting higher unit costs.

Shorter production runs can arise either from suboptimal plant size or excessive product line diversity. Earlier studies on the Canadian market by Daly et al. (1968) and Caves (1975) investigated evidence that Canadian

plants suffered from excessive levels of diversity. Operating behind tariff barriers, Canadian plants were seen to have had production runs that were too short to exploit the economies of large-scale production.

Based on this framework, both the Economic Council (1967, 1975) and the Royal Commission on Corporate Concentration (1978) predicted that the lowering of Canadian tariff barriers would increase Canadian average plant size and that it would reduce product diversity at the plant level and improve the length of production runs.

In this study, we focus on changes that have taken place over time in plant diversification around the time of the introduction of the FTA. We focus on the manufacturing sector since comprehensive and reliable time series data are available for this Canadian sector. We are particularly interested in whether changes in specialization are related to changes in the trade regime facing Canadian industry.

This paper addresses these issues in three steps. The first section organizes theories of diversification and selected empirical evidence in the context of the small, open economy. The second reports on levels of diversification in Canadian manufacturing plants and their changes over 1973–97. With these materials in hand, we report statistical tests of the association (in levels and changes) between diversification and the exposure of Canadian manufacturing industries to international trade and foreign direct investment.

OUTPUT DIVERSITY: SOURCES AND EFFICIENCY

Output Diversity at the Plant Level

Theoretical models of diversification can be divided into those pertaining to diverse outputs of the plant and diverse activities of the firm, each of whose plants could none the less be specialized. Although our empirical analysis addresses diversification at the plant level, the firm's incentive to diversify demands attention because it can trigger decisions to diversify a plant's output. The central idea is that a value-maximizing firm might profitably market several (diverse) products because it enjoys some sort of scope economies. The scope economies might arise either within the plant or in other activities that the firm undertakes. Examples of the latter include running several goods through a multi-product distribution system subject to economies of scale, or realizing scale economies in sourcing an input used in common to produce several goods. The firm thus might make several products in a single plant either because it enjoys scope economies in production, or because the diverse production warranted by non-production scope economies might be carried out no less economically in one diversified

plant than in separate plants. Assume that plants potentially able to turn out diversified products are subject to scale economies in their overall capacities – floor space, common systems and facilities, supervision, etc. It could be cheaper to produce two goods in a single large plant than in two smaller plants. Indeed, this condition could hold even if diseconomies of scope occur within the plant. These could take a number of forms discussed by Skinner (1974).

The possibility that output diversity arises in Canadian plants not from scope economies but despite scope diseconomies is linked to longstanding discussions of Canadian policy that have focused on the status of Canadian manufacturing as an import-competing sector serving a small national market (Eastman and Stykolt, 1967). The equilibrium structure that emerged for many manufacturing industries involved a small (oligopolistic) number of producers charging a price pegged to the tariff-ridden price of imports. This number of sellers could represent what is now called a free-entry equilibrium: each (identical) incumbent earns normal profits, perhaps somewhat more, but the entry of one more firm would make all of them unprofitable. Each firm (plant) would face a downward-sloping demand curve and produce an output that does not exhaust available scale economies, and firms would have the reason just noted to diversify their plants' outputs, to mitigate the disadvantage of small plant scales even at the cost of some scope diseconomies.

Consider a specific cost structure that could underlie this plant-diversity problem. Assume that each activity incurs a constant marginal cost, but scale economies result from fixed costs. Designate the fixed cost of a plant (it may embrace the overhead cost of the firm as well) as F , the fixed cost of producing any particular product as G . If the plant supplies more than one output, it incurs an additional coordination cost Z that is a function of the number and size distribution of the outputs assigned to the plant. Z includes the cost of coordination to mitigate any diseconomies of scope plus the unmitigated cost penalty that remains. If sets of products assigned to the plant give rise to any scope economies, however, Z could be partially or fully offset.³ The larger is F , given G , the more products does the profit-maximizing firm assign to the plant, and the higher Z results from the firm's choice of activities. A larger G , given F , deters the production of a particular good in several plants unless G once incurred creates a capability that can costlessly be applied at additional sites (a case that we consider subsequently). Elevation of Z encourages the firm to employ smaller and more specialized plants. While this framework is useful for predicting and evaluating plant-level diversification, it omits some potentially important factors. One of these is how Z might vary with the plant's overall scale. Adam Smith's famous proposition that the division of labour increases

with the extent of the market implies that coordination costs are subsumed by the advantages of specialized activities. Adding an activity entails an additional G but also buys a lower variable cost for the combined output, so that any increase in coordination costs may be offset by the advantages of proliferating activities as overall scale increases.

It is useful to consider how plant diversity responds to exogenous changes in market size. We consider subsequently how plant-level diversification relates to the open economy, with its market disturbances and policy interventions. The exact effect of size on the organization of production depends on how firms compete, differentiation of the product, supply of potential entrants, etc. However, under reasonably general conditions (including constant marginal costs), we expect enlargement of the market to induce some combination of increased output per firm and increased numbers of competitors, accompanied by a lowered equilibrium price. Given the assumed structure of costs, this change reduces the firm's incentive to pack diversifying products into a plant in order to spread plant fixed costs. In-plant diversification should on average decline over time as the economy grows, a pattern that Gollop and Monahan (1991) observed for the United States.

A little statistical evidence pertains to this formulation. Caves (1975) found that little of the variance in diversification levels among Canadian manufacturing industries could be explained statistically. However, these diversification levels are significantly correlated with plant-level diversification in counterpart US industries. Furthermore, several statistical relationships that emerged are consistent with the hypothesized tradeoff between plant-level diversification and plant size.

Output Diversity at the Firm Level

The reasons for diversification to occur at the firm level have been studied more extensively (Montgomery, 1994, provided a good survey), so will be treated briefly here. A natural starting point is the firm-level counterpart of economies of scope at the plant level. In the preceding section, these were implicitly regarded as an artifact of technology. An economic choice is involved, however, and its determinants stand out when we consider how scope economies arise for the firm. In many industries production requires the services of inputs or assets that share three key properties. First, they are useful or required inputs in producing or distributing several individual products. An example is the distribution system that can efficiently place many individual products on the shelves of grocery markets. Second, they are subject to substantial economies of scale, so that the manufacturer of a single food product tends to use its distribution system at an inefficiently small scale, or subject to excess capacity. Third, the asset should be not only

'lumpy' and prone to excess capacity but also durable, so that the excess capacity incurs a substantial cumulative cost.

The force of these conditions needs some explanation. Why does the single-product firm employing a lumpy asset not expand in its base market sufficiently to exhaust this economy of scale? The obvious answer echoes the logic of chosen plant sizes: the required scale would be large relative to the market for the firm's core product, so that diminishing marginal revenue (perhaps associated with resistance from oligopolistic rivals) limits this way to exhaust lumpy assets' capacities. Why does the firm deploying such a lumpy asset choose to own it, when it and other users might rent its services from an independent owner who could thereby keep it fully used? The answer is supplied by Williamson's (1985) analysis of the hazards to arm's-length transactions in the services of assets that possess transaction-specific properties – his explanation why vertical integration likely prevails to combine the ownership and use of such assets. Empirical evidence supporting this model of diversification was provided by Lemelin (1982) and MacDonald (1984).

A related analysis of these conditions was offered by Montgomery (1994), who invoked Penrose's (1959) analysis of the growth of the firm. Growth involves the continual acquisition of lumpy assets that leave the firm with a constantly shifting pattern of excess capacities in individual assets that are gradually absorbed by its growth. Diversification might be an efficient way to fill such a capacity at a particular point in time, yet the excess capacity that warranted adding another product might be invisible to the observer who subsequently tries to understand the firm's diversification history.

An important lesson for our empirical analysis from the preceding explanations for the firm's diversification is that we should control for differences in industries' structures that are likely to activate these motives for diversification. Other explanations exist for corporate diversification, but they pertain little to the statistical relationships explored in this study. One such explanation turns on shortcomings of corporate governance that can promote diversification within the firm (e.g. Markides, 1995). Another identifies the possibility that diversified firms meeting each other in several markets will compete less vigorously (Bernheim and Whinston, 1990). The role of multinational firms in diversification will be considered subsequently.

CHANGES IN SPECIALIZATION AND TRADE LIBERALIZATION

The theory of plant diversity that was outlined in the preceding section was keyed to the assumed disturbance of a change in market size, whereas our

empirical concern is with trade liberalization as the exogenous agent of change. A summary of the major changes in Canada's trade policy and their principal consequences sets the scene for linking diversity choices to trade restrictions.

Changes in specialization have coincided with major changes in trade intensity associated with trade liberalization. Canadian tariffs steadily declined over the three decades studied here, first with the Kennedy round in the 1970s and then with the Tokyo round in the 1980s. The average nominal tariff (customs duties paid divided by imports) was 6.5 per cent in 1973 and had declined to 4.0 per cent by 1984 and then to 3.3 per cent by 1989. With these declines came an increase in trade intensity. The ratio of exports to production in the manufacturing sector increased steadily from 25 per cent in 1973 to 31 per cent in 1989. Over the same period, imports as a percentage of domestic disappearance (production minus exports plus imports) increased from 26 per cent to 32 per cent.

Liberalization and Expansion of Trade

Starting in 1989, two major changes occurred in the trading environment that faced Canadian manufacturers. First, the Canada–United States Free Trade Agreement (FTA) guaranteed a new type of open-border arrangement between these two countries. Then the North American Free Trade Agreement (NAFTA) in 1994 brought together Canada, Mexico and the United States. These agreements continued a process that extended back to the post-World War II commitments to reduce tariffs and expand international trade. The average tariff collected continued its downward trend during the 1990s – from 3.3 per cent in 1989 to 1.1 per cent in 1996. But the FTA and NAFTA changes marked a turning point in that they set a timetable for the elimination of tariffs and a framework for the resolution of trade disputes that was intended to give companies greater certainty for foreign direct investment.

The result was an increase during the 1990s in both the export intensity and the import intensity of the Canadian manufacturing sector. Export intensity and import intensity increased from around 31 per cent in 1990 to 47 per cent in 1997. The FTA allowed a process that had begun in the 1970s and 1980s to continue into the 1990s. Manufacturing activity shifted from primarily facing import competition to being more export-oriented; this transition provided the link between trade liberalization and the expected impact of increased market size on diversity. The import-competing segments of Canadian manufacturing may also have responded to trade liberalization as there would be increased competition in an enlarged domestic market.

Previous empirical work suggests that trade liberalization in the early 1990s might have been expected to increase plant specialization. Earlier studies by Baldwin and Gorecki (1983b, 1986) made use of data for the 1970s to study whether the reduction in tariffs that occurred following the Kennedy round was associated with an increase in plant specialization. During this period of gradual tariff reductions, plant specialization increased slightly, as did the length of the production run. Increases in the latter, though not the former, were greater in those industries where tariffs declined the most.

Liberalization, Specialization and Multinational Enterprise: Theory

The exact effect of trade restrictions or liberalization on firms' diversification choices depends on how competition is modeled.

Eastman and Stykolt (1967) employed assumptions that predict a positive relationship between import restrictions and the diversity (and small size) of import-competing producers. These assumptions may have been a good fit to the Canadian manufacturing sector at the time of their research, but they undeniably look very specialized relative to the range of options offered by economic theory.

A standard quantity-setting (Cournot) approach, for instance, gives the opposite answer: restricting imports increases protected producers' outputs and reduces the incentive to diversify plants' outputs. Also, the FTA simultaneously reduces protection and expands exporting opportunities, calling for a theoretical approach that can accommodate some producers exporting while their competitors contend with competing imports – that is, consistent with intra-industry trade.

We therefore propose to consider trade policy and plant diversification in a market with pervasive product differentiation, such that each producer faces a downward-sloping demand curve. Each supplier produces subject to scale economies, and costs curves may be diverse in average-cost level and extent of plant-scale economies (scale economies for plants with the industry's output as their principal product). Imports and potential imports are similarly differentiated and supplied by price-setting producers. A Nash equilibrium prevails, each producer (and importer) taking its rivals' prices as given.

The high protection of a Canadian manufacturing industry removed importable varieties from the market, lessening the substitution possibilities that face the typical domestic producer, lowering the elasticity of its individual demand curve, and raising the average domestic price. However, some entry of domestic producers likely was attracted. It is possible, though certainly not necessary, that the typical domestic producer's equilibrium

output shrank and the incentive to pack the domestic plant with diversifying outputs intensified. In this case, unilateral tariff reductions should correspondingly reduce plant diversity. The plausibility of a positive relation between import restrictions and plant diversity should not detain us, however, because in the FTA's adoption, import liberalization occurs in the context of multilateral tariff reduction. A small country's producers, if they gain access to external markets in which prices now exceed their marginal costs, are likely to face highly elastic demand curves thanks to large markets for exportables. They then select large plant scales that remove the incentive for plant diversification. Other domestic producers with high costs that deny them access to exporting either shut down or expand their production for the domestic market (if the elasticity of the demand that they face has increased). Either way, their actions contribute to reduction of diversity for the industry's average plant.

Notice that these conditions imply that multilateral reductions in trade restrictions, natural or artificial, cause the expansion of intra-industry trade. Economists have widely noticed its expansion over the last half-century, but little attention has been paid to the conditions theoretically sufficient to trigger a simultaneous expansion of imports and exports of closely similar products. Standard trade theory, of course, predicts that trade liberalization will cause a market's competing imports to rise, or exports to fall, but not both. Empirical evidence supports some aspects of this adjustment process. Caves (1990) found that reduced Canadian protection led to the expected contraction of employment in import-competing industries, but capital expenditures, productivity and ultimately exports indeed increased.

If foreign subsidiaries and domestic Canadian firms face the same demand and production-cost conditions, it is not obvious that they will make different choices about diversification. However, the standard theory of the multinational enterprise (MNE) does suggest that firms under foreign and domestic control might differ in their quantitative responses to changes in trade restrictions. A staple proposition holds that the MNE exploits its possession of some intangible asset or capability that favors it with lower costs (or greater demand at a given selling price) than a competitor not so blessed. That process can affect its decisions to diversify.

We continue to depict the firm's costs as either fixed or constant variable. Assign the firm one central fixed cost F as before, but also a fixed product-development cost E for each good that it produces anywhere in the world. E once incurred creates an intangible asset that can be put to use anywhere in the world. To serve any given national market (Canada), the firm can either export from its home-country plant, incurring a border-crossing cost t per product unit shipped, or establish a local plant. In setting the specifications

for the local plant it faces the choice described previously between a larger and more diversified or smaller and more specialized plant. A new element now enters in the set of products for which the MNE has already incurred cost E and can arbitrage at no further cost to a Canadian plant. A domestic firm could of course have its own portfolio of established products for which E had been incurred, but then it could claim symmetrical status as an MNE. Given the numerical preponderance (in other industrial countries as well as Canada) of domestic-market firms, we expect to find a substantial difference in any given industry between the portfolio of E -paid products of a multinational and that of the average national firm. A disturbance (tariff increase, for example) that makes in-plant diversification more attractive should then elicit a greater infusion of E -paid products from the MNE than its domestic competitor. But the process should also work in reverse. The removal of tariff protection (reduction of t) finds the MNE with the opportunity to transfer the production of secondary products to plants elsewhere in the world. Higher price–cost margins could result by accessing elsewhere lower variable costs for such products or reducing the penalty for scope diseconomies somewhere outside of Canada. In short, we expect a trade-policy incentive for diversification to elicit a larger increase in diversification by the MNE, and similarly the removal of such an incentive.

NATURE OF THE DATA

The data used here to investigate changes in plant-level diversification come from a longitudinal data file on all plants in the Canadian manufacturing industry over the period 1973–97. This longitudinal file is based on data that are derived from both survey and administrative sources that provide plant-level data for the universe of plants in the manufacturing sector. The survey data are derived from long-form questionnaires (generally filled in by the largest plants) that contain the most detailed information, including commodity data, and short-form questionnaires (generally filled in by smaller plants) that are much less detailed. In addition, for the very smallest plants, administrative data on sales and employment come from tax records.

In this database, a plant's sales are classified to one industry.⁴ Each plant is identified as being part of a firm and thus firm-level information on the distribution of its sales by industry is available for the measurement of patterns of diversification across industries. Detailed information at the plant level includes the 1980 SIC, employment, value of shipments and value added, nationality of control, age of plant, exports, the SIC of the industry to which the plant is classified, and whether the owning firm possesses multiple plants.

Since each of the plants in the database possesses a firm-level identifier, firm diversification indices can be calculated by examining the number of manufacturing industries in which the plants of a firm operate and the distribution of the relative importance of a firm's activity in these industries.⁵ In this study, each firm is classified to a principal industry according to its value-added weighted manufacturing activity of all of its plants, and its diversification across all industries based on the location of its plants is then calculated.

In addition, annual commodity data for all products produced (both primary and secondary) are available for all plants that received a long-form (detailed) questionnaire. The survey collects data on the value of shipments and quantity of each commodity produced in the plant. We use these commodity data to calculate an index of diversity across commodities for plants and for firms.

It should be noted that sometimes a multi-plant firm does not report commodity data for all its plants. Therefore, firm commodity data may not be completely accurate.⁶ In an earlier paper Baldwin et al. (2001) examined whether this creates a problem by grouping the plants for which commodity data are available into different categories based on the type of firms to which they belong – whether the firm is diversified across unrelated or related industries. We then compared the results for each category to see if major differences exist in the changing patterns of diversity and found they did not.

ENTROPY MEASURES OF DIVERSIFICATION

In this paper, we use a diversification measure that takes into account both the number of commodities that a firm produces and the distribution of its activity across commodities. The commodity dimension utilizes over 7000 commodities. An entropy measure of diversification is employed (see Jacquemin and Berry, 1979). We estimate how concentrated a plant's sales are at the commodity level. The entropy index takes the general form:

$$E(s) = \sum_{i=1}^N s_i \log(1/s_i) \quad (10.1)$$

where s_i equals the share of total firm or plant sales in product i . The entropy diversification index takes a value of zero when sales are concentrated within a single product line. At the other extreme, if the plant's activity is spread evenly across K products, the plant's entropy is maximized at $E(s) = \log(K)$. The log entropy measure can be standardized by dividing by $\log(K)$.

The entropy measure will be calculated both for the universe of plants and for only those that are multi-product entities.

PLANT-LEVEL COMMODITY DIVERSIFICATION

Changes over Time

In order to investigate commodity diversification at the plant level, we make use of the commodity data from the Annual Survey of Manufactures. Not all plants are asked to enumerate the types of commodities that are produced. In what follows, we report the entropy measure for all plants that enumerated commodity data – what is referred to as the long-form population. A more extensive description of the data can be found in Baldwin et al. (2001).

We begin with summary statistics on the extent and trend of product diversification for Canadian manufacturing plants. Figure 10.1 presents mean diversification indexes for foreign-controlled and domestic-controlled plants over the period 1973–97. There is a downward trend in plant diversification over the period for both types of plants. The decline is faster for foreign-controlled plants, particularly before 1988. In the 1970s, foreign-controlled plants are much more diversified than their domestic-controlled counterparts. In 1996, their difference in diversification was quite small.

This pattern is arguably consistent with the theoretical analysis of the MNE's product-allocation decisions (see earlier discussion). At the start of the period, business units in Canada's manufacturing sector had enjoyed a long history of relatively high protection, and foreign trade restrictions

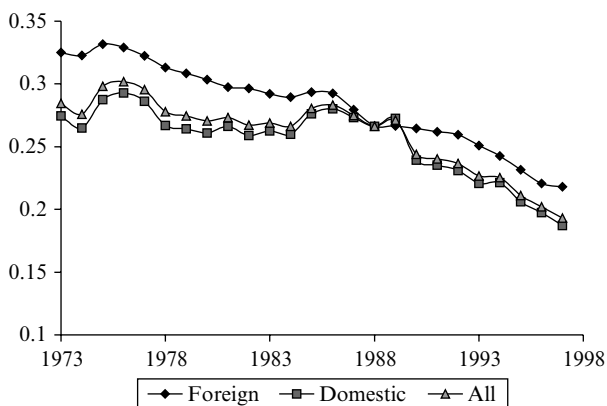


Figure 10.1 Trends in product diversification of manufacturing plants

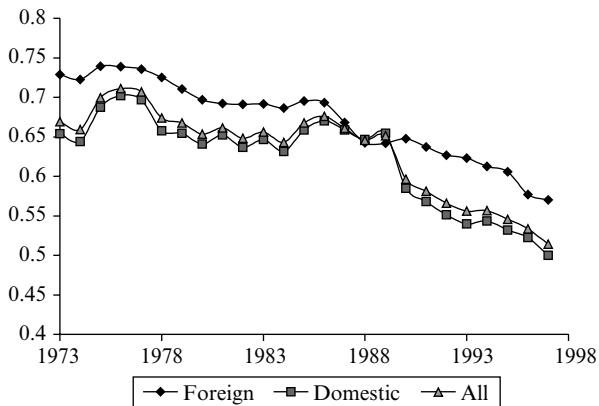


Figure 10.2 Trends in share of multi-product plants in manufacturing

(along with underlying comparative-advantage patterns) had confined sales to the domestic market. MNEs responded to these conditions by packing products in their repertory into diversified Canadian plants. They were also, however, well equipped to dismantle this diversification as the policy incentives changed. We do not attribute any particular significance to the remaining difference between domestic and foreign plants. We have not yet controlled for important factors such as plant-size differences or differences in industry mix that could account for a permanent differential. It may be significant, though, that before 1988, the decline in diversification in product specialization was more rapid for foreign-controlled plants. However, after 1988, the decline was faster for domestic plants.

The decline in plant diversification in Figure 10.1 is a result both of a decline in the share of plants that produce more than one product and a decline in the diversification of these multi-product plants, as shown in Figures 10.2 and 10.3. In 1973, 73 per cent of foreign-controlled plants and 65 per cent of domestic-controlled plants produced more than one product. By 1997, the share of multi-product plants was 57 per cent for foreign-controlled plants and 50 per cent for domestic-controlled plants. That represents about a 15 percentage point drop for both foreign and domestic-controlled plants. Figure 10.3 demonstrates that the decline in the product diversification for multi-product foreign-controlled plants is much faster than domestic-controlled plants over the period 1973–97. Output diversification was higher for foreign-controlled plants in 1973. In 1997, output diversification was similar between the two groups.

We naturally inspect these figures for evidence of two major changes that occurred for the Canadian manufacturing sector. First, the Free Trade

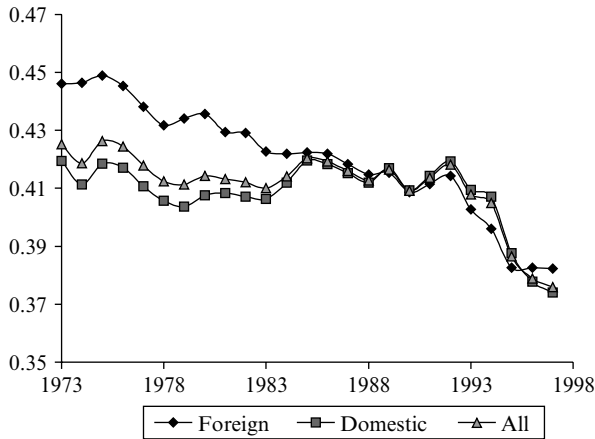


Figure 10.3 Trends in product diversification of multi-product plants in manufacturing

Agreement (FTA) between Canada and the United States, which took effect 1 January 1989, led to the gradual removal of tariff barriers between the two countries. Then the North American Free Trade Agreement in 1994 brought together Canada, Mexico and the United States. Our data on plant specialization show a clear break around the time that the FTA was adopted. As shown in Table 10.1, product specialization in Canadian manufacturing plants advanced much faster after 1988. During the FTA period, both the amount of decline in the share of multi-product plants and in the diversification of multi-product plants have increased. This is consistent with the view that trade liberalization drove the increased plant specialization in the 1990s.

Analysis of Changes in Plant Specialization

While the relationship that we have described in the previous section between relatively aggregate measures of the changes in commodity specialization and trade barriers suggests that the two were linked, corroborative evidence is required that links changes in trade barriers at the plant level to changes in specialization that were occurring.

We do so first by using cross-sectional data to examine the extent to which plant diversity varies with industry characteristics and the level of the tariff. In this section, we test the basic hypotheses outlined in the previous sections on the nature of industry characteristics that lead to diversity, with particular attention being paid to the effect of tariffs on diversity and

Table 10.1 Annual changes in product diversification of foreign- vs domestic-controlled plants

	1980–88	1988–97	Changes in two periods
All plants			
Changes in product diversification	–0.0005	–0.0081	–0.0076
Contribution from:			
changes in share of multi-product plants	–0.0004	–0.0058	–0.0054
changes in product diversification of multi-product plants	–0.0001	–0.0024	–0.0023
Foreign-controlled plants			
Changes in product diversification	–0.0046	–0.0054	–0.0008
Contribution from:			
changes in share of multi-product plants	–0.0029	–0.0032	–0.0003
changes in product diversification of multi-product plants	–0.0017	–0.0022	–0.0005
Domestic-controlled plants			
Changes in product diversification	0.0007	–0.0088	–0.0095
Contribution from:			
changes in share of multi-product plants	0.0003	–0.0064	–0.0067
changes in product diversification of multi-product plants	0.0004	–0.0024	–0.0028

whether foreign-controlled plants differ from domestic plants after conditioning on their industry and plant characteristics. We then turn to panel data to test whether changes over time in tariffs and other plant characteristics have led to behavioral changes that our theory has suggested.

Determinants of plant diversification, 1990

In this section, we ask two questions. First, what are the characteristics of industries that are linked with plant diversification? Second, what are the characteristics of plants that are related to plant diversification?

The first question focuses on the demand and supply conditions at the industry level that determine the ‘average’ forces behind the level of diversity chosen. The second question allows us to examine heterogeneous behaviour within industries. Plants and firms within industries differ substantially – both with regard to the demand conditions faced and the technologies utilized. Foreign-controlled plants, for example, have been hypothesized to have different supply conditions (the possession of assets) that generate lower fixed costs per product that would engender more diversity but at the same time also provide more possibilities for interplant allocation of production.

To answer these questions, we use a cross-section of plants and regress the plant diversification index (PD_p) on a set of industry characteristics (X_i) and a set of plant characteristics (Z_p):

$$PD_p = \alpha + \beta X_i + \chi Z_p + \varepsilon_p. \quad (10.2)$$

For this exercise, we construct a data set on plants in the manufacturing sector for the years 1980 to 1997. Data on manufacturing output (shipments) and employment are available throughout the period from the Census of Manufactures for each plant in the manufacturing sector. From this data set, measures of individual plant product diversity are calculated, as well as other plant characteristics. To these data are added characteristics of the plant’s owning enterprise – whether the firm is foreign-owned, small or large, young or old, or part of a multi-plant enterprise. In addition, the percentage of sales that are exported is added. While the latter is only available for plants that answer the long-form questionnaire, this is the same group for whom we have commodity data and for whom we calculate a commodity entropy measure – our product specialization ratio.⁷

The industry characteristics X_i include Canadian and US tariff rates, and binary variables to account for industry differences in the factors attracting diversification. The plant characteristics Z_p include plant ownership, plant size, age of plant, export participation, and multi-plant status of the firm to which the plant belongs.

Canadian and US tariff rates Tariff rates cover the period 1980–96.⁸ The Canadian tariff rates are based on duties paid that are collected by commodity. These commodities are assigned to industries based on the primary industry of production. Average tariffs are then calculated using import values as weights. US tariff rates are once again based on import duties by commodity, are assigned to an industry using the same Canadian concordance table used for Canadian commodity duties, and then aggregated based on US import weights.

Canadian tariff rates against imports from the United States and the US tariff rates against Canadian imports are expected to be positively related to plant diversification.

Diversity potential Our hypotheses about diversification and trade restrictions address market mechanisms and changes in public policy that can trigger them. To isolate these, we need to control the technical synergies that affect plant-level diversification. Not only should these contribute to explaining diversification and its changes, but as we also suggested in an earlier section, motives for firms to diversify surely affect their plants' diversity of output. The reasons for firm-level diversification are numerous, and many vary in their force from industry to industry. We thus need to control for inter-industry differences in bed-rock features of technology and demand.

As argued, the existence of lumpy fixed assets that have not been fully exploited should be associated with greater levels of diversity. A number of different industry characteristics are hypothesized to signal the existence of these types of assets. They provide an avenue for identifying observable characteristics of industries that should affect their potential for efficient diversification.

First, industries that enjoy substantial scale economies are hypothesized to have more incentive to add product lines to a plant to exploit these economies. Second, advertising intensity, which is associated with the presence of value reputation associated with brands, should lead to higher levels of diversity. Differentiation embraces both intrinsic physical heterogeneity and complexity in the product and subjective or style-based differentiation. The former is conducive to heavy international trade and large responses to trade liberalization – the familiar intra-industry trade model. The latter is more prone to national taste differences, so that processed food products (for example) tend to enter rather little into international trade.

Industries that stress new product and process innovations also possess the indivisible type of assets that enhance the incentive to diversify – since these assets can be applied to related products in various ways. A patent on one production process may cheapen investments in other product lines that have related production processes. Industries that are R&D intensive are therefore likely to possess the types of assets that lead to diversification.⁹

To capture essential industry characteristics, we have two alternative strategies available to us. In the first case, we can devise single measures that are proxies for the characteristics outlined above. For example, we could proxy the existence of scale economies with a variable that measures concentration. Or style differentiation seems to be well identified by

industry-level advertising/sales ratios. To capture the science base of an industry, the ratio of R&D expenditures to industry sales could be used. Another characteristic that serves as a general proxy for the activities that generate intangible assets of various sorts is the number of non-production employees as a percentage of total employees. Non-production workers include research scientists, salespeople and managers. Research workers may discover new product lines or new processes that can produce new product lines. Salespeople may be able to promote additional products at low marginal costs. Plants in industries with high overhead costs are expected to have more incentive for producing multiple outputs.

As an alternative to using each of the above single characteristics, we adopt a different strategy and draw upon a simple classification of industries that in past research has proved strikingly successful at supplying a control that captures the type of industry classification that is needed here. We aggregate manufacturing industries defined in the standard industrial classification into just five categories – five groupings that capture in a broader way the nature of differences in the existence of complementary assets that lead to diversification. The differences that we have described may not be captured adequately by the set of variables like R&D or advertising. The industry groupings used here are natural resources, labour-intensive, scale-based, product differentiated and science-based industries.¹⁰ These groupings were constructed via discriminant analysis using a large number of industry characteristics – such as R&D, advertising, estimates of economies of scale, wage rates, the ratio of value added to total sales, ratios of non-production employment to total employment.

Science-based industries are those where R&D and non-production workers are more important than elsewhere. These industries develop knowledge-based assets that are conducive to diversification. Scale-based industries are those with high capital intensity and where scale economies are more important and where suboptimal scale is costly. Labour-intensive industries are those with lower wage rates and higher labour/ capital ratios than elsewhere. Product-differentiated industries possess assets associated with brands. The natural resource sector contains industries where raw material inputs are relatively important, but also includes the food processing sector where product differentiation is high.

Nationality of plant ownership To examine differences between plants that are foreign and domestically controlled, we use a binary variable that takes on a value of one if the plant is owned by a firm that is controlled from abroad and zero otherwise. The definition that is employed here is basically that used in the Corporate and Labour Returns program – that is, at least 50 per cent of voting equity is controlled by foreign residents.¹¹

Foreign subsidiaries should be less attracted to ‘excess’ diversification than domestic enterprises, because they generally have options for adjusting to small markets that are not open (or open only with contractual hazards) to their domestic competitors. For example, items in a product line or inputs subject to scale economies can be sourced abroad from a corporate sibling rather than produced at high cost domestically. However, multinational status should also increase the firm’s propensity to undertake local production in response to trade restrictions. Thus foreign control might well increase a plant’s move toward specialization in response to tariff reductions: the relative level of diversity in foreign-controlled plants thus should depend on the prevailing degree of trade restriction.

Export participation The concept of excess plant diversification is associated with the notion that domestic markets are constrained in size and that the response of producers to this constraint involves a tradeoff between scale of product line and scale of plant. Plants that export should not face the same tradeoffs because they already compete in the larger American market. Therefore we add a binary variable to denote whether the plant is an exporter. While these variables are only available for plants that answer the long-form questionnaire, this is the same group for whom we have commodity data and for whom we calculate a commodity entropy measure – our product specialization ratio.¹² A large number of previous studies find that exporters are more productive and more innovative than non-exporters (Baldwin and Gu, 2003; Bernard and Jensen, 1999). However, there is little evidence on the link between export participation and plant diversification. One exception is the paper by Baldwin et al. (2001), which found that more export-intensive plants are more specialized, producing fewer products.

Plant size If economies of large-scale plant operation encourage diversification, a positive relation between the scale of a plant’s production in the Canadian market and its output diversity should be expected. Some firms will find an effective diversification strategy that supports larger scale and lower costs, while others will choose to operate at a smaller scale with more specialization.

A limitation of our analysis is that the selection of a plant’s scale is theoretically interdependent with the choice of its product mix. We put this problem aside, because endogenizing plant size is a difficult problem to address, and our concern is not with obtaining an unbiased coefficient but confirming the relatedness of two variables.

We measure scale here as the logarithm of total employment in the plant. Gort (1962) and Baldwin et al. (2001) found that large firms are more diversified than small firms.

Age of plant We have constructed a binary variable for each plant which takes a value one if the plant is less than five years old and zero if more than five years old in the year used for the multivariate analysis. There are two reasons to suspect that young plants will be more specialized.

The first relies on the notion that optimal diversification may have changed over time – with specialization becoming greater. In this case, young plants are hypothesized to be more likely than older plants to choose a product mix that is optimal under current conditions. If reductions in tariff barriers and increases in market size over time are related to higher plant specialization, young plants will be more specialized than older plants.

The second relies on the belief that heterogeneity found in firm and plant populations is partially the result of the stage of the learning process at which each producer finds itself. Young plants are less likely to have learned how to combine products in order to exploit scope economies, just as they are less likely to have learned how to develop more capital-intensive technologies, or to collaborate with other firms to produce innovations.

Multi-plant status A firm's complexity, particularly the extent to which it is operating plants across different regions and industries, is expected to affect the extent of product specialization – though the sign is ambiguous. A multi-plant firm is one that has already decided that scale economies are close to being exploited or it would not have moved to producing out of separate plants (Lyons, 1980). In this case, these plants have less incentive to diversify in order to exploit economies of scale. Additionally, a multi-product firm has the possibility of producing a given product in another plant (specialized or not) rather than the plant at hand. On the other hand, it must be recognized that multi-plant status is connected to cross-industry diversification and difficult empirically to separate from it. And firms that are cross-industry diversified are more likely to possess the types of assets that lead to greater product diversification at the firm level – and therefore to simply produce more products per plant, even if there are scope diseconomies at the plant level. In this case, we would expect a positive coefficient on multi-plant status. Therefore the sign that is hypothesized for the coefficient associated with this variable is uncertain. This variable is captured with a dummy variable that takes on a value of one if the plant belongs to a multi-plant firm.¹³

The regression results from a cross-section of some 18 000 plants are presented in Table 10.2. Variable descriptions are included in Appendix A. Means and standard deviations of the variables are included in Appendix B. A Tobit regression is used because of the large number of plants that produce only a single product.^{14,15} OLS estimates that fail to account for this left-censoring in the sample are downward biased.

Table 10.2 Determinants of plant diversification in 1990

	(1) Expected sign	(2) All plants	(3) All plants	(4) All plants	(5) Foreign plants	(6) Domestic plants
Industry characteristics						
Canadian tariff	+		0.580* (6.60)	0.461* (5.43)	0.728* (3.95)	0.340* (3.55)
US tariff	+		1.690* (11.77)	1.663* (12.06)	1.369* (3.77)	1.790* (11.79)
Labour-intensive sector	+	0.015 (1.85)	0.148* (14.69)	0.134* (13.73)	0.082* (3.45)	0.145* (13.59)
Natural resources sector	+	-0.007 (-0.81)	0.176* (15.56)	0.132* (12.05)	0.093* (3.62)	0.141* (11.66)
Scale-based sector	+	-0.111* (-10.04)	0.027** (2.14)	0.014 (1.14)	0.075* (2.79)	-0.007 (-0.47)
Product-differentiated sector	+	-0.056* (4.12)	0.097* (6.49)	0.067 (4.63)*	0.130* (4.810)	0.018 (0.99)
Science-based sector	+					
Plant characteristics						
Foreign-controlled plants	?	-0.019** (-2.18)		-0.014 (-1.62)		
Plant size	+	0.089* (34.51)		0.084* (32.99)	0.079* (14.92)	0.086* (29.33)
Young plants	-	-0.077* (-8.37)		-0.081* (-10.82)	-0.134* (-6.31)	-0.075* (-9.30)

Table 10.2 (continued)

	(1) Expected sign	(2) All plants	(3) All plants	(4) All plants	(5) Foreign plants	(6) Domestic plants
Exporters	-	-0.055* (-4.96)		-0.051* (-7.82)	-0.019 (-1.26)	-0.055* (-7.64)
Multi-plant firm	?	-0.038* (-4.96)		-0.025* (-3.33)	0.068* (3.93)	-0.043* (-5.08)
Constant		-0.090* (-8.53)	-0.050* (-4.77)	-0.247* (-19.13)	-0.319* (-9.05)	-0.246* (-17.27)
No. of observations		18 374	18 372	18 372	3418	14 954
Likelihood ratio		-10 881	-11 475	-10 637	-1 890	-8 691

Notes:

t-statistics are in parentheses and are heteroskedastic-consistent. * represents a level of significance of better than 1 per cent and ** 5 per cent.

In Table 10.2, the first column contains the hypothesized signs. The second column contains the parameters for all the control variables without tariffs. The third column includes both tariffs and industry characteristics associated with the incentive to diversify. The fourth column is the complete set of industry, plant and tariff variables. Columns 5 and 6 reproduce the results for the complete set of variables used in column 4, but split the sample into foreign and domestic plants respectively.

Higher Canadian and US tariff rates are both linked to greater plant diversification. This is consistent with the view that plants in industries that are protected by trade barriers tend to be more diversified, producing too many products with limited scales. Interestingly, US tariff rates have a greater impact on product diversification levels than do domestic tariffs. It is the tariff rates in the larger country that dominate the diversification decision of plants in the smaller country. When the sample is broken down into foreign and domestic plants (columns 5 and 6), the diversification levels of both foreign and domestic plants are affected relatively more by US tariffs – though the ratio of the effect of US to Canadian tariffs is greater for domestic plants (5:1 versus 2:1). This is consistent with the normal argument that foreign plants react to the Canadian tariff by establishing plants here that benefit by diversification – and that domestic Canadian plants face barriers in export markets that they partially offset by diversification. Despite this difference, the important point is that both groups are affected to some extent by both sets of tariffs.

Substantial differences exist across industries in plant diversification (Table 10.2, column 3). The rank order of these sectors arguably matches one's sense of the prevalence of synergistic opportunities, with scale-based industries plausibly more diversified than labour-intensive industries. The high incidence of diversification in scale-based industries matches our model of plant-level diversity as a way to mitigate diseconomies of small plant scale. The position of natural resources may seem surprising, but note that it includes food processing, a subsector with substantial product differentiation.

If specific industry characteristics are included rather than the five-sectoral variables included here, the industry characteristics generally have the hypothesized signs (results not reported here). There are positive and significant coefficients on advertising/ratios and the share of non-production workers, thereby suggesting that plants in industries with large overhead costs are more diversified.

We add plant characteristics to the industry classifications in column 4 of Table 10.2. Once this is done, the coefficients attached to the industry variables retain their significance – though they decline slightly, not unnaturally because some plant variables (size, foreign ownership) are also related to them.

The coefficient estimates on plant characteristics indicate that: (1) foreign-controlled plants are more specialized than domestic-controlled plants; (2) large plants are more diversified than small plants; (3) young plants are more specialized than older plants; (4) exporters are more specialized than non-exporters; (5) the output diversification of a plant is negatively related to the multi-plant status of its parent firm.

Our findings on plant size and export participation are consistent with the evidence from previous studies (Baldwin et al., 2001; Gort, 1962). Large plants differ from small plants in that they are more diversified. The finding that exporters are more specialized confirms that plants serving export markets are less likely to face the constraints of small markets that lead to plant diversification. Moreover, the export status is more likely to affect domestic plants, which once more suggests that border effects are less severe for multinationals that are better able to arrange their portfolio of products across plants on both sides of the border.

The finding that foreign-controlled plants are more specialized after considering other plant characteristics indicates that this group benefits from being able to optimize the production of products across national boundaries.

Large plants are more diversified and younger plants are more specialized. These results emphasize that the population of plants is a dynamic one. On average, plants start at a smaller scale than the average size. And these are relatively specialized. Over time, the more successful firms grow their plants. To do so, they have to make difficult transitions. Most have to learn how to increase their capital intensity. But they also grow by learning how to combine products in the production process – to exploit both scope and scale economies.

Finally, plants of multi-plant firms are more likely to be specialized, thereby confirming the hypothesis that these plants have already exhausted scale economies and are less prone to diversification. But it should be noted that the sign of this coefficient differs for foreign as opposed to domestic plants. It is negative for domestic plants – but it is positive for foreign plants. This is consistent with the argument that foreign firms possess more of the intangible assets that lead to higher levels of firm diversification (for reasons of firm scope economies in distribution or R&D). Firms with more diversification will add products at the plant level even when scale economies are exhausted.

Trade liberalization and changes in product diversification

Prior to the Canada–US Free Trade Agreement, it was argued that a reduction in trade barriers would reduce product diversification at the plant level and improve the length of production runs. Operating behind tariff barriers

and with limited market size, Canadian plants were seen to have production runs that were too short to exploit economies of large-scale production. However, there is little existing evidence on the link between tariff reductions and increases in plant specialization, though Baldwin et al. (2001) report that plants that became more export-intensive had larger declines in product diversification. As rising export intensity is related to tariff reductions in the Canadian manufacturing sector, this evidence is consistent with the view that trade liberalization is related to increased plant specialization.

In this paper, we take a different approach and directly examine the relationship between changes in tariff rates and increases in product specialization. We use a panel regression that relates changes in plant diversification to tariff reductions in the industry to which the plant belongs:

$$\Delta PD_{pt} = \alpha_t + \beta_1 \Delta \tau_i^{\text{CAN}} + \beta_2 \Delta \tau_i^{\text{US}} + \gamma_1 X_{pt} + \gamma_2 Z_{it} + \varepsilon_{pt}, \quad (10.3)$$

where ΔPD_{pt} is the average annual change in the product diversification of plant p during a period t ; $\Delta \tau_{it}^{\text{CAN}}$ is the average annual reduction in Canadian tariff rates against the US imports; $\Delta \tau_{it}^{\text{US}}$ is the average annual reduction in the US tariff rates against Canadian imports (where, for expository purposes, a tariff reduction is treated as a positive number); X_{pt} is the set of plant characteristics *at the start of a period* that includes initial diversification levels, plant ownership, the log of plant employment, age of plant, and multi-plant status of the owning firm. Z_{it} is the set of industry characteristics that are proxied by the industry sector variables that were used in the last section.

We ask whether plants in industries with larger tariff cuts had larger declines in plant diversification. As we have defined tariff changes as $-\Delta \tau$ over a period, a negative coefficient on the tariff cut variable indicates that the plants in the industries with large tariff cuts have a bigger decline in product diversification.

Our strategy, in the first instance, is to ask whether changes in the variable of interest (tariffs) are related to changes in specialization, all the while conditional on the values of plant and industry characteristics with which plants and industries began the period. Changes in tariffs are included to investigate the key issue addressed herein – whether trade liberalization, as represented by tariff cuts, was associated with improvements in product specialization.

The industry characteristics are included to capture whether reductions in diversity are related to the underlying demand and supply conditions that led, in the first instance, to higher *levels* of diversification.

The plant characteristics are included to provide us with evidence on the changes that were taking place within industries in terms of specialization.

They allow us to determine whether improvements in specialization took place in specific subsets of the population and thereby to infer what the basic underlying forces behind changes might have been. For example, the diversification of the plant relative to the diversification of the industry in which the plant is located is included to test whether the plants where coordination costs were highest because of existing levels of diversification were those that took greatest advantage of the new opportunities opened up by expanding markets to increase their degree of specialization.

We also recognize that dynamic processes other than changes in tariff rates would have been at work that should be related to changes in specialization. In particular, the normal growth process should be associated with increases in diversity, since this is one of the routes used to enable firms to exploit scale economies. Therefore we include changes in plant size in the regression, all the while recognizing that this introduces a variable that is likely to be simultaneously determined with changing diversity. Moreover, previous efforts have discovered that modeling growth (finding a strong instrument) is difficult (Baldwin et al., 2004b). However, omitting plant growth offers the equally daunting consequence of specification bias. Our compromise is to provide the reader with two alternatives – one without this variable and one with it included.

To estimate equation (10.3), we composed a panel of plant-level changes over the 1980–88 and 1988–96 periods. The sample of plants available for estimation consists of those that produce more than one product at the start of each period. For single-product plants, changes in diversification are necessarily left-censored.¹⁶

The results from regression (10.3) are contained in Table 10.3, where the first column contains the hypothesized signs. The second column contains the parameters for the control variables without tariffs. The third column includes both tariffs and plant characteristics. The fourth column is the complete set of plant, industry and tariff variables. Columns 5 and 6 reproduce the results for the complete set of variables used in column 4, but split the sample into foreign and domestic plants respectively.

When introduced separately, we found that the Canadian and US tariff cuts both lead to increased specialization. The coefficients on Canadian tariff cuts were large and statistically significant at the 1 per cent level, suggesting that a one percentage-point annual decline in Canadian tariff rates is associated with a 0.002 annual decline in plant diversification. This represents a 5 per cent decline in plant diversification per year for an average plant in our sample. However, with the inclusion of both tariff variables, the American tariff rate reduction became insignificant. The political economy that governed tariff reductions has produced similar cross-industry reductions in the two countries that make it difficult to separate out the effect of

Table 10.3 *Effects of tariff reductions on changes in product diversification, 1980–96*

	(1) Hypothesized sign	(2) All plants	(3) All plants	(4) All plants	(5) Foreign plants	(6) Domestic plants
Tariff cuts	–		–0.128* (–3.94)	–0.122* (–3.74)	–0.150** (–2.16)	–0.116* (–3.14)
Relative plant diversification	–	–0.012* (28.881)	–0.012* (–28.94)	–0.012* (–28.89)	–0.010* (–14.90)	–0.013* (–25.50)
Foreign-controlled plants	–	–0.002* (–3.92)	–0.002* (–4.06)	–0.002* (–3.86)		
Plant size		0.001* (5.50)	0.001* (2.55)	0.001* (5.52)	0.001* (3.50)	0.001* (4.15)
Young plants	?	0.0003 (0.29)	0.0009 (0.98)	0.0002 (0.25)	–0.0004 (–0.20)	0.0004 (0.41)
Multi-plant firm	?	0.0001 (0.29)	–0.0006 (–0.99)	0.0001 (0.11)	0.002** (1.99)	–0.001 (–0.81)
Plant growth	+	0.046* (11.65)	– (–)	0.046* (11.59)	0.068* (8.98)	0.039* (8.25)
Labour-intensive sector			– (–)	– (–)		
Natural resources sector	?	0.002* (2.74)	0.001 (1.49)	0.001 (1.31)	0.002 (1.12)	0.001 (0.94)
Scale-based sector	?	0.0006 (0.77)	–0.0001 (–0.12)	–0.0005 (–0.60)	–0.002 (–1.37)	0.000 (0.34)
Product-differentiated sector	?	–0.005* (–4.54)	–0.005* (–4.87)	–0.005* (–5.23)	–0.004* (–2.55)	–0.006* (–4.33)

Table 10.3 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	Hypothesized sign	All plants	All plants	All plants	Foreign plants	Domestic plants
Science-based sector	?	-0.003* (-2.68)	-0.004* (-2.73)	-0.004* (-3.11)	-0.003 (-1.32)	-0.006* (-3.20)
Fixed effect for period 1988-96	?	-0.003* (-4.84)	-0.002* (-3.60)	-0.002* (-2.93)	0.0001 (0.06)	-0.002* (-3.51)
Constant		-0.015* (-11.67)	-0.010* (-7.69)	-0.014* (-10.49)	-0.018* (-6.83)	-0.013* (-8.23)
No. of observations		10769	10769	10769	3619	7602
R ²		0.12	0.11	0.12	0.13	0.12

Notes:

t-statistics are in parentheses and are heteroskedastic-consistent. * represents a level of significance of better than 1 per cent and ** 5 per cent.

each set of tariff reductions. Therefore, in Table 10.3, we combined the two by taking the simple summation of both. Reductions in this tariff rate variable are accompanied by large significant increases in Canadian plant specialization.

A number of findings emerge on the link between plant characteristics and changes in product diversification. First, plants that were growing became more diversified. Plant growth and the addition of product lines are closely connected. Diversification is part of the dynamics of the growth process. While the coefficient on this variable suffers from potential simultaneity bias, entering this variable (Table 10.3, column 2) or omitting it (Table 10.3, column 1) has no significant impact on the other coefficients in the equation.

Second, the decline in product diversification was faster for foreign-controlled plants than for domestic-controlled plants. Moreover, when the results are run separately for foreign-controlled as opposed to domestic plants, the tariff effect is greater for foreign plants. This confirms that these plants were better able to adapt to changes in trade liberalization during the specialization process.

Third, plants that were relatively more diversified¹⁷ are those where plant diversification declined the most. Plants that were relatively more diversified would have had the highest product coordination costs and therefore would have been expected to have increased specialization the most as market size increased.

Fourth, specialization increased at faster rates for large plants than for small plants. It is noteworthy that if we do not include the initial level of plant diversification in our regression, the coefficient on plant size is negative. Large plants alone have a bigger decline in diversity than small plants; but this is due to the fact that large plants are more diversified. Once we control for initial diversification, plant size has a positive coefficient.

This suggests that plant-level or scope economies have become more important for larger plants over the period, relative to the cost penalties associated with diversity. Even though the coefficient on plant size is positive in the cross-section regression, it is not obvious that it should also be positive for changes in diversification. For this to happen, the attraction of scale must have changed across plant sizes classes – that is, the advantages of incremental improvements in size must have increased for larger plants. This suggests a shift in the nature of technologies or capital intensity between small and large plants in favour of large plants that led to increased opportunities to exploit scale economies via diversification in the 1990s.

In related work, we have found evidence of this occurring. Baldwin et al. (1999) report the gap in advanced technology use between small and large plants increased in the 1990s. Baldwin and Dhaliwal (2001) report that output per worker in larger plants has increased relative to smaller plants

throughout the period. Baldwin et al. (2004a) report the same phenomenon can be found in both Canada and the United States. These studies suggest that the degree of scope economies that provide the incentive to increase diversification probably increased in large plants at the same time as trade liberalization was occurring.

Fifth, the plants that belong to firms with multi-plant operations showed no bigger declines in product diversification than single-plant firms. This is consistent with the explanation that the multi-plant variable is essentially capturing situations where plant-scale economies are already exploited. But it should be noted that the sign on this variable in the sample of foreign plants is positive and significant. After conditioning on plant and industry characteristics, foreign multi-plant firms were actually increasing diversification over this period. An explanation of this, like that associated with the plant-scale variable referred to above, is that the value of the assets of multinational firms that led to diversification was enhanced by the Free Trade Agreement and that they reacted by actually increasing diversity at the firm level – and this effect was reflected in increased plant diversity.

Sixth, increases in product specialization were greatest in the product-differentiated and in the science-based sector. It was here that there is the most evidence that the type of agglomeration economies that led to product packing at the plant level were mitigated by tariff policies.

Seventh, the negative coefficient on the dummy for the period 1988–96 indicates that the decline in product diversification is more rapid in the period after the FTA. This acceleration in the trend toward product specialization is not explained by deeper tariff cuts in the period. A possible explanation for the negative coefficient on the dummy for the 1988–96 period comes to mind: when the government lowers a particular tariff, businesses keep in mind the possibility that some future political-economy disturbance might boost it back up again. A treaty-based reduction, however, commits the reduction and reduces or eliminates this incentive to hedge commercial bets, so a given post-FTA reduction could have more effect than the same reduction pre-FTA.

To examine whether the impact of tariff reductions on the change in plant diversification depends on the initial level of diversification at the plant, we also experimented with the interaction of tariff cuts and relative plant diversification (results not reported here). The coefficient on the interaction of tariff cuts and relative plant diversification is negative, which indicates that tariff reductions had a bigger impact on more diversified plants. For a plant with the mean level of plant diversification, a one-percentage-point tariff cut is associated with a 0.14 decline in the plant diversification index. A 10 per cent increase in plant diversification is associated with a 9 per cent increase in the impact of tariff cuts on the decline in plant diversification.

CONCLUSION

Events like the introduction of the North American Free Trade Agreement (FTA) provide opportunities to test long-standing hypotheses that are at the core of the economic profession's policy kit. In particular, it allows for studies regarding the industrial benefits that a small country joining a regional trade agreement might be expected to gain from the exploitation of scale economies. This paper studies one change that has been predicted to accompany trade liberalization – the increased specialization of plants.

It does so by examining the Canadian experience during a period during which trade was liberalized with the United States and, in particular, the Canadian experience following the adoption of the Canada–US Free Trade Agreement in the early 1990s. It finds that commodity specialization increased over both the 1980s and 1990s; but the pace of commodity specialization increased around the time of the implementation of the Free Trade Agreement between Canada and the United States. This was one of the fundamental outcomes that policy analysts had predicted would occur as a result of the relaxation of trade barriers between the two countries. Canadian industrial structure was seen to be deficient in terms of both plant size and product-run length. While little has been found in the way of adaptation in plant size (Head and Ries, 1999), our work shows that plant specialization changed dramatically after the implementation of the FTA.

The paper has also shed light on the phenomenon of plant diversity that is poorly understood in the industrial organization literature because of a lack of studies in this area. Plant diversity was found to be higher in larger plants based in industries with assets that are associated with scope economies, thereby confirming the related-asset theory of diversification. But diversity is also higher in industries with higher rates of tariff protection, thereby suggesting that both demand and supply conditions determine the level of diversity at the plant level. This finding helps to define another source behind the negative impact of tariff protection on industrial efficiency.

Over the 1980s and 1990s, plant diversity was shown to have decreased most where tariffs fell most. And the decline was greater during the post-FTA era than before, thereby suggesting that this treaty had an impact above and beyond just the tariff reductions that were associated with it.

The study also sheds new light on differences between foreign-controlled and domestic-controlled plants – an area in which Safarian pioneered the careful study of the characteristics and behaviour of this group. Our study found the average foreign-controlled plant was more diversified than the average domestic-controlled plant. But these differences were primarily related to the larger size of foreign-controlled plants and the nature of the

industries to which they were attracted. After accounting for their larger size and industry of location, they were no more diverse than domestic plants in 1990. More importantly, the study shows that foreign-controlled plants tended to adjust more after NAFTA. The implication of this study is that we can look to this group adapting relatively quickly to changes in commercial policy.

The results of this study need extending in one very obvious direction. This paper has only focused on one part of the trade–industrial structure puzzle. A related paper finds a positive impact on productivity of new export activity that took place during the 1990s (Baldwin and Gu, 2003). The work reported here suggests one of the sources thereof. Tracing changes in tariff rates through to changes in industrial structure and trade patterns and the ultimate impact on productivity growth is required if we are to obtain a more complete picture of the complex interaction between trade liberalization, industrial structure and productivity growth.

NOTES

- * The authors' names are listed alphabetically. We are indebted to Des Beckstead for his help in calculating the plant diversity indices used in this paper. Bob Gibson created the rest of the database used here. This paper represents the views of the authors and does not necessarily reflect the opinions of Statistics Canada.
- 1. For earlier studies on plant diversification see Caves (1975), Baldwin and Gorecki (1983a), Gollop and Monahan (1991), Streitweiser (1991), Jovanovic (1993).
- 2. There is also an extensive literature that focuses on the effect of trade liberalization on the price–cost margin (Markusen, 1981; Markusen et al., 1995).
- 3. This set-up draws on Caves (1975) and a series of papers by Horstmann and Markusen (e.g. Horstmann and Markusen, 1992).
- 4. Plant specialization ratios are published to indicate what proportion of the sales of plants in an industry is derived from commodities that are classified to that industry.
- 5. Since the source of data is a manufacturing survey, only manufacturing plants are included. This means that diversification of manufacturing firms outside of the manufacturing industry is not covered here.
- 6. The survey is designed with the plant, not the firm population in mind.
- 7. Long-form plants accounted for 66 per cent of the population in the year 1974 but only 49 per cent in 1993. However, they accounted for 95 per cent and 87 per cent of shipments in these two years.
- 8. These tariff rates were kindly supplied by Professor Trefler. The Canadian tariff rates were calculated by the International Trade Division of Statistics Canada to his specifications. Trefler calculates the US tariff rates using data from Feenstra (1996).
- 9. A finding that is substantiated by the classic work of Gort (1962).
- 10. For a discussion of the definitions of these sectors, see Baldwin and Rafiqzaman (1995).
- 11. Exceptions are made when it is known that control is obtained with less than a 50 per cent voting share.
- 12. See note 7.
- 13. We also experimented with a measure of the industry diversity of the owning firm, which is closely related to whether a firm is multi-plant. Our results were qualitatively the same whether we use the diversity or the multi-plant measure. We would like to be able to

distinguish those firms that are horizontally as opposed to vertically diversified but cannot do so in this database.

14. Because we combine both plant and industry characteristics, we tested whether there was autocorrelation across industries and found none.
15. Some small plants are excluded from the ASM sample – but they most likely produce single products.
16. We have also run a censored regression using a sample of plants that includes both single- and multi-product plants; the results are similar.
17. The relative diversification of a plant is calculated as the percentage difference in the diversification of the plant and the mean plant diversification of the 4-digit SIC industry to which the plant belongs.

REFERENCES

- Baldwin, J.R. and N. Dhaliwal (2001), 'Heterogeneity in labour productivity growth in manufacturing: differences between domestic and foreign-controlled establishments', in *Productivity Growth in Canada*, Ottawa: Statistics Canada.
- Baldwin, J.R. and P.K. Gorecki (1983a), *Trade, Tariffs, Product Diversity and the Length of the Production Run in Canadian Manufacturing Industries*, Discussion Paper No. 247, Ottawa: Economic Council of Canada.
- Baldwin, J.R. and P.K. Gorecki (1983b), *Trade, Tariffs, Relative Plant Scale in Canadian Manufacturing Industries, 1976–79*, Discussion Paper No. 232, Ottawa: Economic Council of Canada.
- Baldwin, J.R. and P.K. Gorecki (1986), *The Role of Scale in Canada–U.S Productivity Differences in the Manufacturing Sector: 1970–79*, Toronto: University of Toronto Press.
- Baldwin, J.R. and W. Gu (2003), 'Participation in export markets and productivity performance in Canadian manufacturing', *Canadian Journal of Economics*, **36**(3), 634–57.
- Baldwin, J.R. and M. Rafiquzzaman (1995), *Restructuring in the Canadian Manufacturing Sector from 1970 to 1990: Industry and Regional Dimensions of Job Turnover*, Research Paper No. 78, Analytical Studies Branch, Ottawa: Statistics Canada.
- Baldwin, J.R., Des Beckstead and R.E. Caves (2001), *Changes in Diversification of Canadian Manufacturing Firms and Plants (1973–1997)*, Research Paper No. 179, Analytical Studies Branch, Ottawa: Statistics Canada.
- Baldwin, J.R., R. Jarmine and J. Tang (2004a), 'The trend to smaller producers in manufacturing: a Canada/U.S. comparison', *Small Business Economics*, **23**(4), 349–61.
- Baldwin, J.R., E. Rama and D. Sabourin (1999), *Growth of Advanced Technology Use in Canadian Manufacturing During the 1990s*, Research Paper No. 105, Analytical Studies Branch, Ottawa: Statistics Canada.
- Baldwin, J.R., D. Sabourin and D. Smith (2004b), 'Firm performance in the Canadian food processing sector: the interaction between ICT, advanced technology use, and human resource competencies', in *The Economic Impact of ICT–Measurement, Evidence and Policy Implications*, Paris: OECD.
- Baumol, W.J., J.C. Panzar and R. Willig (1982), *Contestable Markets and the Theory of Industry Structure*, New York: Harcourt, Brace Jovanovich.
- Bernard, A.B. and J.B. Jensen (1999), 'Exceptional export performance: cause, effect or both?', *Journal of International Economics*, **47**, 1–25.

- Bernheim, B.D. and M.D. Whinston (1990), 'Multimarket contact and collusive behavior', *Rand Journal of Economics*, **21**, 1–26.
- Caves, R.E. (1975), *Diversification, Foreign Investment and Scale in North American Manufacturing Industries*, Ottawa: Economic Council of Canada.
- Caves, R.E. (1990), *Adjustment to International Competition: Short-Run Relations of Price, Trade Flows, and Inputs in Canadian Manufacturing Industries*, Ottawa: Economic Council of Canada.
- Daly, D.J., B.A. Keys and E.J. Spence (1968), *Scale and Specialization in Canadian Manufacturing*, Economic Council Staff Study No. 21, Ottawa: Queen's Printer.
- Eastman, H.C. and S. Stykolt (1967), *The Tariff and Competition in Canada*, Toronto: Macmillan.
- Economic Council of Canada (1967), *Fourth Annual Review: The Canadian Economy from the 1960s to the 1970s*, Ottawa: Queen's Printer.
- Economic Council of Canada (1975), *Looking Outward*, Ottawa: Information Canada.
- Feenstra, R.G. (1996), 'U.S. imports, 1972–1997: data and concordances', National Bureau of Economic Research Working Paper No. 5515, Cambridge, MA: NBER.
- Gollop, F.M. and J.L. Monahan (1991), 'A generalized index of diversification – trends in United States manufacturing', *Review of Economics and Statistics*, **73**, 318–30.
- Gort, M. (1962), *Diversification and Integration in American Industry*, Princeton, NJ: Princeton University Press.
- Harris, R.G. (1984), 'Applied general equilibrium analysis of small open economies with scale economies and imperfect competition', *American Economic Review*, **74**, 1016–32.
- Head, K. and J. Ries (1999), 'Rationalization effects of tariff reductions', *Journal of International Economics*, **47**(2), 295–320.
- Horstmann, I.J. and J.R. Markusen (1992), 'Endogenous market structures in international trade (natura facit saltum)', *Journal of International Economics*, **32**, 109–29.
- Jacquemin, A.P. and C.H. Berry (1979), 'Entropy measures of corporate growth', *The Journal of Industrial Economics*, **27**, 359–69.
- Jovanovic, B. (1993), 'The diversification of production', *Brookings Papers on Economic Activity, Microeconomics*, pp. 197–247.
- Lemelin, A. (1982), 'Relatedness in the patterns of interindustry diversification', *Review of Economics and Statistics*, **64**(4), 646–65.
- Lyons, B.R. (1980), 'A new measure of minimum efficient size in manufacturing industries', *Economica*, **47**: 19–34.
- MacDonald, J.M. (1984), 'Diversification, market growth, and concentration in United States manufacturing', *Southern Economic Journal*, **50**(4), 1098–111.
- Markides, C.C. (1995), *Diversification, Refocusing, and Economic Performance*, Cambridge, MA: MIT Press.
- Markusen, J. (1981), 'Trade and the gains from trade with imperfect competition', *Journal of International Economics*, **11**, 531–51.
- Markusen, J., T. Rutherford and L. Hunter (1995), 'Trade, liberalization in a multinational-dominated industry', *Journal of International Economics*, **38**, 95–117.
- Montgomery, C.A. (1994), 'Corporate diversification', *Journal of Economic Perspectives*, **8**(3), 3–78.

- Penrose, E.T. (1959), *The Theory of the Growth of the Firm*, Oxford: Blackwell.
- Royal Commission on Corporate Concentration (1978), *Report*, Ottawa: Minister of Supply and Services Canada.
- Safarian, E. (1966), *Foreign Ownership in Canadian Industry*, Toronto: McGraw-Hill of Canada.
- Scherer, F.M., A. Beckenstein, E. Kaufer and R.D. Murphy (1975), *The Economics of Multi-plant Operation: An International Comparison Study*, Cambridge, MA: Harvard University Press.
- Skinner, W. (1974), 'The decline, fall, and renewal of manufacturing plants', *Industrial Engineering*, **6**, 32–8.
- Streitwieser, Mary L. (1991), 'The extent and nature of establishment-level diversification in sixteen U.S. manufacturing industries', *Journal of Law and Economics*, **24**, 503–34.
- Williamson, O.E. (1985), *The Economic Institutions of Capitalism*, New York: Free Press.

APPENDIX A VARIABLE DESCRIPTION AND SOURCES

The data for this paper come from a special database that was created for this research project. Most of the data come from a Longitudinal Research File (LRF) derived from the Census (Survey) of Manufactures – a file that was created and is maintained by the MicroEconomics Division of Statistics Canada. The plant characteristics and the industry characteristics variables that are used for this exercise provide us with a time series from 1980 to 1996.

Age of Plant

A binary variable for each plant which, for a particular year, takes a value one if the plant is less than five years old in that year and zero if it is more than five years old. Age is defined as number of years since the plant first enters the file. The source is the LRF.

Exporter

Derived as a binary variable if the plant lists exports, zero otherwise. The source is the LRF.

Foreign Control

A binary variable for each plant that takes a value of one if the plant is foreign-controlled and zero if it is not. The data come from the Corporate and Labour Returns data collected by Statistics Canada. The definition that is employed here is basically that used in the Corporate and Labour Returns program – that is, at least 50 per cent of voting equity is controlled by foreign residents. Exceptions are made when it is known that control is obtained with less than a 50 per cent voting share. The variable exists for the years 1980–96. The source is the LRF.

Multi-plant

Derived as a binary variable with a value of one if the plant belongs to a firm with more than one plant and zero otherwise. The source is the LRF.

Plant Size

The logarithm of total employment of a plant. The source is the LRF.

Product Diversity

An entropy measure of the plant's product diversification. See Baldwin et al. (2001). The entropy variable is created using commodity data at the plant level from the Census (Annual Survey) of Manufactures for the period 1980–96.

Sectoral Variables

Labour-intensive, natural-resource, scale-based, product-differentiated, science-based sectors. These groupings were constructed via discriminant analysis using a large number of industry characteristics – such as R&D, advertising, estimates of economies of scale, wage rates, the ratio of value added to total sales, ratios of non-production employment to total employment. For a discussion of the definitions of these sectors and the variable used in the discriminant analysis, see Baldwin and Rafiquzzaman (1995).

Tariff Rates

Tariff rates cover the period 1980–96. The Canadian tariff rates are based on duties paid that are collected by commodity. These commodities are assigned to industries based on the primary industry of production. Average tariffs are then calculated using import values as weights. US tariff rates are once again based on import duties by commodity, are assigned to an industry using the same Canadian concordance table used for Canadian commodity duties, and then aggregated based on US import weights. Tariff rates were kindly supplied by Professor Trefler. The Canadian tariff rates were calculated by the International Trade Division of Statistics Canada to his specifications. Trefler calculates the US rates using data from Feenstra (1996).

APPENDIX B SUMMARY STATISTICS OF VARIABLES

Table 10B.1 Summary statistics of variables in the sample for estimating the determinants of product diversification

Variables	Mean	Standard deviation
Plant diversification	0.244	0.268
Canadian tariff	0.056	0.059
US tariff	0.029	0.037
Labour-intensive sector	0.254	0.435
Natural resources sector	0.334	0.472
Scale-based sector	0.221	0.415
Product-differentiated sector	0.122	0.327
Science-based sector	0.070	0.255
Foreign-controlled plants	0.185	0.388
Plant size (log employment)	3.314	1.457
Young plants	0.260	0.439
Exporters	0.482	0.500
Multi-plant firm	0.368	0.482

Table 10B.2 Summary statistics of variables in the sample used for estimating the effects of tariff changes

Variables	Mean	Standard deviation
Changes in plant diversification	-0.008	0.029
Tariff cuts	0.006	0.010
Relative plant diversification	-0.188	0.754
Foreign-controlled plants	0.294	0.456
Plant size (log employment)	4.427	1.180
Young plants	0.110	0.313
Multi-plant firm	0.597	0.491
Plant growth	0.002	0.076
Labour-intensive sector	0.200	0.399
Natural resources sector	0.368	0.482
Scale-based sector	0.265	0.441
Product-differentiated sector	0.100	0.300
Science-based sector	0.067	0.251

PART IV

Public Governance, Multinationals and Growth

11. FDI and the international policy environment. Back to the future? Not quite!

John H. Dunning

INTRODUCTION

I first met Ed Safarian when he visited me at Reading University, UK in the spring of 1965. Over a delightful lunch at a Thames-side restaurant, we discussed the progress of his seminal volume on *Foreign Ownership of Canadian Industry*;¹ and how his research methodology and findings compared and contrasted with those of mine in my own monograph *American Investment in British Manufacturing Industry*, which had been published seven years earlier (Dunning, 1958).

One of the key ideas behind both Ed's and my research, and that of Donald Brash, Michael Kidron, Arthur Stonehill and R.S. Deane who, respectively, published similar studies on the role of foreign (or US) owned affiliates in Australia, India, Norway and New Zealand in the 1960s,² was to examine the ways in which the governments of the host countries did affect, and/or could affect, the extent and pattern of inbound FDI, and its contribution to the economic welfare of their constituents. Though there were (and continue to be) significant differences in FDI related policies between countries according *inter alia* to their size, economic structure, institutions, GNP per head, export propensity, proximity and/or psychic distance to the major outward investor(s), and political ideology, there were (and are) many common influences – most of which were (are) exogenous to the country specific variables just identified. And it is these common influences that I shall seek to identify and analyse in this chapter, and, more particularly, how these have evolved and impacted on, and been impacted by, FDI and the activities of multinational enterprises (MNEs).³

The sequencing of my observations falls neatly into three main chronological phases. These broadly correspond to the pursuance of (i) liberal, (ii) regulatory and (iii) global (or neo-liberal) attitudes and policies by governments towards FDI and MNEs. In each phase, I shall distinguish

and inducements to effective entrepreneurship and innovation). Second, national governments have the responsibility for creating and sustaining the necessary and supportive social capital within their jurisdiction. Such capital is the foundation for building values such as trust, commitment, forbearance and reciprocity so necessary in the age of alliance capitalism;¹⁷ and also of a variety of enforcement mechanisms to ensure that the participants in wealth creation and distribution behave in a socially acceptable way.

In summary, the 20/21 global policy environment is characterized by four main features:¹⁸

1. The spatial width, variety and depth of cross border transactions, along with a burgeoning of global supply chains and the growth of alliances and networks, as part of an integrated innovatory, sourcing and production strategy of MNEs.
2. The growing competition between nation states for mobile resources and capabilities – particularly all kinds of knowledge – and or a better understanding by them of their need to provide the complementary location bound assets and institutions to attract and retain such resources and capabilities.¹⁹
3. The increasing number and types of stakeholders giving voice to the character and content of global capitalism. In particular, the influence of civil society actors in their interaction with corporations, governments and supranational agencies is probably greater than at any time in recent history. Truly the 20/21 international policy environment in which the interface between MNEs and nation states is embedded is dominated by multi-stakeholder initiatives.²⁰
4. The growing attention paid by the various constituents of global capitalism to its multiplicity of goals, to the means of achieving such goals, and the way its benefits are distributed more specifically. In particular, 20/21 globalization is requiring not only more attention to be paid to the social and cultural implications of the interface between MNEs and national economic policy formation, but also a realignment and enlargement of the institutions and enforcement instruments (of both the *bottom-up* and *top-down* variety) necessary to achieve these objectives.²¹

How, then, are national governments responding to 20/21 globalization as far as both their general economic policies and those specifically directed to FDI and MNEs are concerned? As already emphasized, there are inevitably many differences in this response due to the distinctive economic, cultural and other characteristics of countries.²² Nevertheless, in comparison with the 1970s and 1980s, there is a strong suggestion of a growing

convergence of both macroeconomic policies and the micro-management of those nation states which have opened up, or are currently opening up, their borders to global commerce – and that this convergence essentially reflects the demands of the global marketplace, and the reduced costs of the cross border movement of information, ideas, goods, assets and people.

At the same time, precisely because each country is different in its economic and social objectives, in its resources, capabilities and access to markets, and in the kind and quality of its institutions and enforcement mechanisms, the policies of national governments, and the interaction between these and their constituent wealth creators are likely to continue to exhibit important variations. The challenge facing most market oriented economies – and such economies now dominate the global policy space – is how to reconcile the demands of the international marketplace – constrained as they may be by various supranational institutions – with their unique incentive structures and social and ideological needs.

Some of the relevant issues arising from this challenge are touched upon by Hall and Soskice in their recent volume *Varieties of Capitalism* (Hall and Soskice, 2001). In particular, I believe that their distinction between the institutional reactions of *liberal market* economies and *coordinated market economies* to the advent of global capitalism is a useful one; as indeed is the proposition that when institutions are factored into the concept of comparative dynamic advantage, this may require a somewhat different national response to globalization than is normally emphasized. Such differences in institutional environment also help explain divergences in the perceived merits of a whole range of supranational and national governance forms.²³

It is my personal opinion that both at a macro and micro level, much of the disquiet of the British public about joining the EMU reflects major differences in its perception of the form and content of belief systems and institutions in the UK and those of the rest of Europe. And an enlarged EU will only present more challenges. More generally, but at a more micro level and one directly related to national policy towards FDI, is the current debate on the efficacy of bilateral investment agreements, the terms of which often constrain the policy space of national governments towards FDI (UN, 2003a).

Certainly 20/21 globalization is compelling national governments to review the contents and flexibility of their policy space; and to do so in a way that can best reconcile the benefits of being part of a system of global economic governance with those of pursuing their own political and social agenda. Over the last two decades, too, international agencies, notably the UNCTC (later part of UNCTAD) have adopted a more liberal approach to advising national governments in their dealings with inbound foreign investors (Sagafi-nejad, 2005).

It is this latter agenda that (as we have seen) is being increasingly influenced by the attitudes and actions of a wide variety of special interest groups making up civil society. It is because of their widely different objectives, and of the demands placed by the global policy environment between (and sometimes among) these groups, that some of those wishing to promote a more responsible global capitalism prefer to put their faith in the upgrading of the institutional infrastructure and enforcement mechanisms of national governments and supranational entities. A more conciliatory approach is needed to recognize that each of the constituent organizations in the global economic arena has its own distinctive, yet complementary, contribution to make.

Sometimes the advocacy of the NGOs in the developed countries is allied (or claims to be allied) to the policies currently being pursued by some of the poorer developing economies, and/or those which currently are not benefiting from globalization, and sometimes it is more widely directed to issues of income distribution, the treatment of labour, the environment, social justice and corporate malfeasance. More generally, however, it reflects concerns about the ability of both national governments and supranational entities to deliver and fairly distribute particular goods and services, e.g. pharmaceutical and food products, or take account of particular interest groups (women's rights, etc.).

It is particularly interesting that such concerns are being increasingly addressed by the global community and its constituents. Perhaps the most obvious recent examples are the 'Global Compact' between business corporations and the rest of the stakeholders in global economic transactions, which was introduced by Kofi Annan at the World Economic Forum in 1999,²⁴ and the World Commission on the Social Dimensions of Globalization, which was set up by the ILO in February 2002.²⁵ These *top-down* initiatives are matched by a myriad of complementary *globalization from below* initiatives of families, individuals and special interest groups – most of which are less concerned with upgrading the quality and efficiency of resources and capabilities, and more with promoting particular global values, and the requisite institutions for integrating these values into economic and strategic decision taking (Falk, 2003; Doh and Teegen, 2003).

In conclusion, the current era of globalization is throwing up a huge array of new challenges and opportunities, most of which arise because of the impact of economic liberalization and technological advances on the freedom of choice of individuals, and on the character, ownership and geography of value added activity. Such a freedom – particularly among the wealthier nations of the world – is being increasingly focused on issues relating to the quality of life, including such goods as security, advancing

health standards, and the reduction of bads, e.g. crime, terrorism and social misbehaviour.

Because of their intrinsic nature, these 'collective' or 'public' goods need to be at least partially supplied and/or financed by extra-market organizations. These are not only often location bound, but frequently need a different institutional infrastructure to those traded across the markets of the world. Yet both help to make up the economic fabric of society and the kind of value added activities engaged in by both domestic and foreign corporations. It is those countries that are able to reconcile the needs of such firms with the aspirations and values of their own citizens, and provide the appropriate institutions and enforcement mechanisms, and to do both by an efficient but socially responsible mosaic of incentive structures, that, I believe, are likely to best prosper in a 20/21 global environment.

CONCLUSION: THE SAFARIAN LEGACY. WHAT NEXT?

Over the past three decades, no one has made a more careful analytical appraisal of the interface between MNE activity and national government policies than Ed Safarian (Safarian, 1978, 1983, 1993). Though, quite naturally, much of his attention has been directed to examining the efficacy of Canadian government policy in the light of both internal and external events and institutional change, his volume that documents the nature and effectiveness and compares and contrasts the policy and institutional framework of some developed countries towards both inbound and outbound FDI (Safarian, 1993) remains a classic and influential piece of work. In particular, Ed's views on (what he terms) 'managed internationalism in the 1980s' predate much of the thinking on the appropriate policy and institutional responses to globalization by national governments in the early 2000s.

Perhaps to a greater degree than some other commentators, including myself, Ed has been more interested in addressing the appropriate national policies towards FDI than to those of a more general economic nature – particularly at a micro level²⁶ – as they might be affected by FDI and, more broadly, by globalization and/or regionalization. Partly this may be due to his focus on the particular characteristics of the Canadian economy which has long since been so dependent on both inward and outward FDI. Moreover, it is true that, for most countries, the role of MNE related activity continues to increase.²⁷ Yet I believe that the policies of government towards FDI *per se* are becoming a less important component of their economic and social management than those directed to fashioning a dynamic

reconfiguration and/or fine tuning of their institutions and policies directed to promoting the upgrading and restructuring of their resources, capabilities and markets in the light of globalization.

Of course, government actions specifically directed to affect both inward and outward MNE activity remain important – witness, for example, the explosion of bilateral investment agreements and the increasing emphasis given to the work of investment promotion agencies in the last two or three years (UN, 2003a). But I sense the main arena of FDI *specific* policy is shifting from national governments to regional associations (notably the European Union and NAFTA), supranational entities (particularly that of the WTO), and a variety of special interest groups including consumers, individual investors and workers, as each struggles to embrace and tackle at least some of the implications of MNE activities in their frames of reference.²⁸ After all, this is essentially what has occurred over the years in the case of trade policy and, to a lesser extent, in that of environmental and social policy – though there are always nation specific let-outs to the general ‘rules of the game’ and the enforcement mechanisms decreed by the regional and international entities.

In the 1960s and early 1970s the issue taxing governments was the impact of FDI on the economic prosperity of home and host countries. From the early 1970s through to the early 1980s the unit of account moved from FDI as a modality for the cross border flow of resources and capabilities to the MNE as an organizing unit of control and a (partial) surrogate for (a) integrating cross border production and trade and (b) the transference of both resources and capabilities *and* cultural mores across national boundaries. For our contemporary economic environment, we are back again to many of the issues of the 1960s, except that both the determinants and effects of FDI have to be looked at as part and parcel of 20/21 globalization.

Admittedly, MNEs, and particularly the larger MNEs, continue to exert great power. At the same time I sense that this power is, in part at least, counteracted by the other constituents of globalization. Sometimes this takes the form of top–down formal or informal institutional arrangements; sometimes by bottom–up initiatives (e.g. by civil society). At the same time, in contrast to the earlier post-war periods, the countries now most dependent on inward FDI are also significant outward foreign investors so that FDI is more balanced. For example, in 2003, 14 out of the 21 developed countries, identified by the UN, recorded that the stock of their outbound FDI exceeded that of their inbound FDI. Moreover, the outbound stock of FDI from less developed countries increased from 26.7 per cent of their inward stock in 1990 to 37.5 per cent in 2002 (UN, 2003a).

I believe that this growing balance between inward and outward FDI (which, of course, does not apply to all countries) is tending to shift

attention from the organizations making the investment to the consequences of FDI for national competitiveness and economic and social development. One important exception is the increasing focus of the various stakeholders in global capitalism on corporate social responsibility (CSR) or good corporate citizenship.²⁹ This issue has come to the fore in recent years, partly as a result of the coming to light of a variety of unacceptable business practices, and partly as a consequence of the huge rise in the number of cross border M&As in the 1990s (UN, 2000). However, depending on exactly how CSR is defined, it seems to me to signal the resurrection of the idea of performance requirements expected of MNEs, and the institutions and enforcement mechanisms which underpin its characteristics. Again, there is a parallel with contemporary attitudes and policies towards the environment, labour related issues and trade,³⁰ the determinants and impact of which are becoming increasingly difficult to disentangle from that of MNE related activity – particularly at a global or regional level.

The future international policy environment affecting TNC–nation state interaction is uncertain to say the least. The last decade has seen an increasing number of multi-stakeholder initiatives, each with its own particular agenda. Some of these are of a top–down, and others of a bottom–up, variety. Some are asserting the need for a neo-regulatory approach to FDI and the activities of MNEs, but geared towards much wider objectives (e.g. those to do with the environment, health standards and security) than in the 1970s and 1980s. Others favour the spontaneous or voluntary disbandment of unacceptable corporate behaviour and/or of corruption and other kinds of malfeasance by governments.

But two things do seem certain. First we are moving into a more challenging and problematic stage in the evolution of the international policy environment – one, perhaps, which is not too unlike that foreseen by Raymond Vernon in his volume *In the Hurricane's Eye* (Vernon, 1998), but with the added risks and destabilizing threats posed by international terrorism and other security issues. In his usual perceptive way, Ray had earlier argued that the 1990s were a ‘honeymoon’ period for the MNEs following the collapse of the Berlin wall and the renaissance of a (quasi) market economy in China. However, in the early 2000s, he foresaw a return to the tension and struggles between MNEs and governments of the 1970s and 1980s, albeit in a modified form. After reviewing the various policy options open to the international community to minimize the tensions and struggle, Ray concludes his book with the following sentence (which I’m sure all of us would endorse):

To shorten that struggle and reduce its costs will demand an extraordinary measure of imagination and restraint from leaders on both sides of the business–government divide. (Vernon, 1998, p. 219)

Second, if the changing international policy environment *is* to successfully fulfil its purpose, there must be more and more carefully constructed partnerships and networking both among the multiple stakeholders of society, and between them and the MNEs. Even within the UN system, for example, until recently there has been no coordinated view of the role MNEs might play in promoting international public goals. In 2003, however, the UN issued a draft statement which firmly placed at least part of the responsibility for the respect and promotion of human rights on the shoulders of TNCs (UN, 2003c).

To quote just one paragraph from this statement:

Transnational Corporations and other business enterprises shall respect civil, cultural, economic, political and social rights and contribute to their realisation, in particular the rights to development, adequate food and drinking water, the highest attainable standard of physical and mental health; adequate housing, education, freedom of thought, conscience and religion; and freedom of opinion and expression, and refrain from actions which obstruct the realisation of these rights. (UN, 2003c, p. 2)

Is this, I wonder, a (partial) resurrection of the aborted code of conduct proposed by UNCTAD several years ago, or is it flagging the UN's realization that TNCs now need to take on at least some of the social responsibility previously thought to be the exclusive (or near exclusive) province of national governments? At the same time, in a recently published book Ann Zammit argues the need for the UN and its agencies to devise a new strategy and policy framework towards economic development. In particular she stresses the urgency of bolstering the efforts of developing countries to draw up their poverty reduction strategies, and to determine the critical mass of coordinated investments (including FDI) needed to generate positive externalities and a virtuous circle of growth (Zammit, 2004).

But if counterproductive actions and unintended consequences are to be avoided, I believe a more careful and sustained pro-active strategy is desirable. One recent example is that of the introduction of the Global Compact – an optional top-down approach not only gives MNEs new avenues to influence public affairs, but is helping to protect them from those pressing for legally binding regulations to upgrade corporate social responsibility.

Perhaps that is no bad thing, some would argue. But differences of opinion on the appropriate institutional framework to promote the optimal role of MNEs in an increasing global economy, which, at one and the same time and in different ways, is more integrated, yet more fragmented than ever before,³¹ are more in evidence than at any time since the mid-1970s.³² *Inter alia* the recent exposures of corporate malfeasance by US (and other) MNEs, e.g. Enron, WorldCom and Arthur Andersen and Parmalat, are all

too reminiscent of those in the early 1970s which led to the Church Committee Hearings into the questionable behaviour of US MNEs.³³ One of the great challenges of the next decade will be to reconcile or resolve such differences before 'the goose that lays the golden egg is killed'. Another will be to better incorporate many of the issues raised by Ed Safarian in his various writings over the last four decades into the mainstream international business literature.

NOTES

1. Published a year later (Safarian, 1966).
2. Brash (1966), Kidron (1965), Stonehill (1965), and Deane (1970).
3. Throughout we shall use the term multinational enterprise and transnational corporation to mean the same thing and define each as an enterprise or corporation which owns and controls value-adding activities in more than one country.
4. In his essay, written in the early 1970s, Paul Streeten (1974, pp. 255–6) identifies no less than ten such deficiencies, that is, gaps in terms of resources, foreign exchange, budgeting, management, skills, technology and entrepreneurship; and weaknesses in negotiating skills related to negotiations on foreign contracts, employment generation, terms of trade, and efforts to create a more efficient market structure.
5. For example, the number of foreign affiliates of US based MNEs grew from 7417 in 1950 to 23 282 in 1966.
6. The intra-firm exports of US manufacturing affiliates to the EC and other EC destinations accounted for 68.8 per cent of all intra-EC exports in 1977 and 68.6 per cent in 1982 (UN, 1993, p. 67).
7. That part which was levied to protect infant industries (and assuming the infant eventually grew up!) was probably less so.
8. As documented *inter alia* by the SEC and Church Committee Hearings. These included bribes paid by several MNEs, including the Lockheed and Northrop Corporations to foreign officials; illegal transactions by Chase Manhattan Bank and other malfeasances such as pay-offs abroad by Exxon and Gulf Oil. See also Sagafi-nejad (2005).
9. This initiative initially came from Juan Somavia who, in 1972, was in charge of Chile's response to regional integration, and whose father-in-law was ambassador to the UN. Somavia wanted to take the steam out of the emotion engendered by the ITT involvement in Chilean politics by urging the UN to commission an unbiased enquiry into the role of MNEs in economic development.
10. See e.g. Sunkel (1972). For a harsh critique of the role of MNEs in economic development and industrial restructuring see Levitt (1970) and Barnett and Muller (1974).
11. In his book *Le Défi Américain* (The American Challenge).
12. And also the frustration and disillusionment of the latter countries with the results of MNE activity.
13. Particularly in respect of technological advances and the reduction of cross border transport and communication costs.
14. Indeed the concept of subsidiarity in respect of FDI policy has been increasingly embraced by the US and the European Union.
15. An expression which embraces both equity and non-equity value added cross border activity in which MNEs exercise control and major influence.
16. As documented, for example, in the annual *World Investment Reports* of UNCTAD (UN, 1991–2003).
17. As explored in some length in Dunning (2002, 2005).
18. In a recent paper Dara O'Rourke has identified and evaluated the role of some of these.

- They include the Fair Labour Association (FLA), Workers Rights Consortium (WRC), Social Accountability International (SA 8000), Ethical Trading Initiative (ETI), Worldwide Responsible Apparel Production (WRAP), Global Union Framework Agreements, UN Global Compact, OECD Guidelines for MNEs and the Global Reporting Initiative: O'Rourke (2003).
19. The role of location bound assets and institutions in enhancing the competitive advantages of firms and the productivity of nation states was explored by John Dunning, Michael Porter and David Teece in a panel discussion which took place at the Academy of Management Annual Meetings in Boston in August 1997 (Dunning and Porter, 1997).
 20. These are further explored by several authors including Sen (1999), Stiglitz (2002) and several contributors to Dunning (2003a).
 21. As identified, for example, in North (1999) in Dunning (2003a) and several participants in a 2003 UNRISD conference (UNRISD, 2003).
 22. Due *inter alia* to size, stage of development, political ideology, openness to international commerce: cf. China with Belgium, or Canada with Indonesia, or the US with New Zealand.
 23. One of the earliest attempts to introduce 'culture' into the traditional model of comparative advantage was made by Richard Lipsey and Wendy Dobson (1986).
 24. The idea behind the Compact is to gain acceptance by all stakeholders in the global community – but particularly business corporations – for the need for certain values to be respected and adhered to in global commerce. These include nine ethical principles built around three basic values, i.e. protection of and respect for human rights; the fundamental principles and rights of labour and the Rio Declaration on the Environment and Development (UN, 2003b). For a critique of the Compact, and particularly its lack of effective enforcement mechanisms, see Zammit (2004).
 25. The Commission was due to report in February 2004.
 26. Sometimes referred to as macro-organizational policy. It includes actions taken by government in respect of industrial, regional, environmental, trade and FDI, transport, innovation and education policy.
 27. As a percentage of gross national product, the combined value of the stock of inbound and outbound FDI throughout the world rose from 11.8 per cent in 1980 to 17.9 per cent in 1990, to 43.9 per cent in 2003 (UN, 2003a).
 28. Most noticeably, as shown by a proliferation of multilateral agreements (or attempts to conclude such agreements), including the abortive Multinational Agreement on Investment (MAI) implemented over the past decade or so (Brewer and Young, 2001: UN, 2003a).
 29. See *inter alia* papers given to a recent conference sponsored by the United Nations Research Institute for Social Development on this subject (UNRISD, 2003).
 30. With a few exceptions – and especially in sensitive resource, financial and export/import sectors – little attention is given by either economists or organizational scholars to trading corporations *per se*.
 31. The integration is mainly economic, but partly cultural; the fragmentation is mainly social and institutional, but partly cultural. Some of these issues are explored by several authors in Dunning (2003a).
 32. Compare, for example, favourable reaction of the International Chamber of Commerce (ICC) to the Global Compact compared with that of the UNDP which, in its 1999 report, expressed the need for more 'coherent and democratic architecture for global governance in the 21st century including the establishment of a binding code of conduct for multinational corporations' (UNDP, 1999, pp. 12, 100).
 33. For further details see Sagafi-nejad (2005).

REFERENCES

- Barnett, R. and Muller, R. (1974), *Global Reach. The Power of Multinational Corporations*, New York: Simon and Schuster.
- Bevan, A., Estrin, S. and Meyer, K. (2000), 'The determinants of foreign direct investment in transition economies', London: *CEPR Discussion Paper* No. 2638.
- Bevan, A., Estrin, S. and Meyer, K. (2004), 'Foreign investment location and institutional development in transition economies', *International Business Review*, 13(1), 43–64.
- Birkinshaw, J. and Hood, N. (eds) (1998), *Multinational Corporate Evolution and Subsidiary Development*, Basingstoke: Macmillan.
- Brash, D.T. (1966), *American Investment in Australian Industry*, Canberra: Australian University Press.
- Brewer, T.L. and Young, S. (2001), 'Multilateral institutions and policies: their implications for multinational business strategy', in Rugman, A.M. and Brewer, T.L. (eds), *The Oxford Handbook of International Business*, Oxford: Oxford University Press, pp. 282–313.
- Canadian Task Force on the Structure of Canadian Industry (1968), *Foreign Ownership and Structure of Canadian Industry*, Ottawa: Queen's Printer.
- Deane, R.S. (1970), *Foreign Investment in New Zealand Manufacturing*, Wellington: Sweet and Maxwell.
- Doh, J.P. and Teegen, H.J. (eds) (2003), *Globalization and NGOs: Transforming Business, Governments and Society*, Westport, CT: Praeger Books.
- Dunning, J.H. (1958), *American Investment in British Manufacturing Industry*, London: Allen and Unwin.
- Dunning, J.H. (1993), *Multinational Enterprises and the Global Economy*, Wokingham, UK: Addison Wesley.
- Dunning, J.H. (1997), *Alliance Capitalism and Global Business*, London and New York: Routledge.
- Dunning, J.H. (2002), 'Relational assets, networks and international business activity', in Contractor, F.J. and Lorange, P. (eds), *Cooperative Strategies and Alliances*, Amsterdam and London: Elsevier Science, pp. 569–94.
- Dunning, J.H. (ed.) (2003a), *Making Globalization Good: The Moral Challenges of Global Capitalism*, Oxford: Oxford University Press.
- Dunning, J.H. (2003b), 'Institutional reform, FDI and European transition economies', Reading, UK: Reading Business School (mimeo).
- Dunning, J.H. (2003c), 'The moral response to capitalism: can we learn from the Victorians?', in Birkinshaw, J., Ghoshal, S., Markides, C., Stopford, J. and Yip, G. (eds), *The Future of the Multinational Company*, Chichester: John Wiley, pp. 14–33.
- Dunning, J.H. (2005), 'Towards a new paradigm of the interface between international business and economic development', *Transnational Corporations* (forthcoming).
- Dunning, J.H. and Porter, M.E. (1997), *Knowledge Capitalism: Competitiveness Re-evaluated*, Boston Academy of Management Annual Meeting (Video).
- Emmerij, L., Jolly, R. and Weiss, T.G. (2001), *Ahead of the Curve? UN Ideas and Challenges*, Bloomington, IN: Indiana University Press.
- Falk, R. (2003), 'On the political relevance of the global civil society', in Dunning, J.H. (ed.), *Making Globalization Good: The Moral Challenges of Global Capitalism*, Oxford: Oxford University Press, pp. 280–300.

- Gray Report (1972), *Foreign Direct Investment in Canada*, Ottawa: Report by the Honorable Herb Gray prepared for the Government of Canada.
- Hall, P. and Soskice, D. (2001), *Varieties of Capitalism*, Oxford: Oxford University Press.
- Holland, D., Sass, M., Benacek, V. and Gronicki, M. (2000), 'The determinants and impact of FDI in Central and Eastern Europe: a comparison of survey and econometric evidence', *Transnational Corporations*, **9**(3), 163–211.
- Kidron, M. (1965), *Foreign Investments in India*, London and New York: Oxford University Press.
- Levitt, K. (1970), *Silent Surrender*, Toronto: Macmillan.
- Lipsey, R.E. and Dobson, W. (1986), *Shaping Comparative Advantage*, Ontario: Prentice Hall for C.T. Hare Institute.
- Litvak, I.A. and Maule, C.J. (eds) (1970), *Foreign Investment: The Experience of Host Countries*, New York and London: Praeger. See also chapter on Canada by the editors, pp. 76–104.
- North, D.C. (1999), *Understanding the Process of Economic Change*, London: Institute of Economic Affairs, Occasional Paper, 106.
- O'Rourke, D. (2003), 'Evaluation experiments in corporate accountability', paper presented at UNRISD Conference, November (see UNRISD, 2003).
- Ozawa, T. (1992), 'Foreign direct investment and economic development', *Transnational Corporations*, **1**, 27–54.
- Perkins, J.O.N. (1970), 'Foreign investment in Australia', in Litvak, I.A. and Maule, C.J. (eds), *Foreign Investment: The Experience of Host Countries*, New York: Praeger, pp. 31–63.
- Rugman, A.M. and Verbeke, A. (2001), 'Subsidiary-specific advantages in multinational enterprises', *Strategic Management Journal*, **22**(3), 237–50.
- Safarian, A.E. (1966), *Foreign Ownership of Canadian Industry*, Toronto: University of Toronto Press.
- Safarian, A.E. (1978), 'Policy on multinational enterprises in developed countries', *Canadian Journal of Economics*, **XI**(4), 641–55.
- Safarian, A.E. (1983), *Governments and Multinational Corporations*, Saskatchewan: The Timlin Lecture.
- Safarian, A.E. (1993), *Multinational Enterprises and Public Policy*, Aldershot, UK: Edward Elgar.
- Sagafi-nejad, T. (with the collaboration of Dunning, John H.) (2005), *The UN and Transnational Corporations: The Eye of the Hurricane – From Code to Compact*, Bloomington: Indiana University Press (in preparation).
- Sen, A. (1999), *Development as Freedom*, Oxford: Oxford University Press.
- Servan Schreiber, J. (1968), *The American Challenge*, London: Hamish Hamilton.
- Stiglitz, J. (2002), *Globalization and its Discontents*, London: Allen Lane.
- Stonehill, A. (1965), *Foreign Ownership in Norwegian Enterprises*, Oslo: Central Bureau of Statistics.
- Streeten, P. (1974), 'The theory of development policy', in Dunning, J.H. (ed.), *Economic Analysis and the Multinational Enterprise*, London: Allen and Unwin, pp. 252–78.
- Sunkel, O. (1972), 'Big business and dependencia. A Latin American view', *Foreign Affairs*, **50**, 517–31.
- UN (1972), *From the Common Market to EC 92*, New York, UN EST/CTC/144.
- UN (1974a), *The Impact of Multinational Corporations on Development and on*

- International Relations*, Group of Eminent Persons Report, New York: UN, United Nations Publication, Sales No. E.74. II. A. 5.
- UN (1974b), *Charter of Economic Rights and Duties of States*, New York: UN General Assembly Resolution 3281(XXIX), 12 December.
- UN (1974c), *Permanent Sovereignty Over Natural Resources*, New York: UN, UN Document No. A.CN.9/104.
- UN (1974d), *Activities of the United Nations System Closely Related to the Subject of Transnational Corporations*, New York: UN Document E/5592.
- UN (1991–2004), *The World Investment Reports* (annual publications), Geneva and New York: UN.
- UN (2000), *World Investment Report. Cross Border Mergers and Acquisitions and Development*, Geneva and New York: UN.
- UN (2003a), *World Investment Report. FDI Policies for Development: National and International Perspectives*, New York and Geneva: UN.
- UN (2003b), *The Global Compact: Report on Progress and Activities*, New York: UN.
- UN (2003c), *Draft Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights*, New York: UN.
- UNDP (1999), *Human Development Report*, Oxford: Oxford University Press.
- United Nations (1964), *Proceedings of the United Nations Conference on Trade and Development (UNCTAD): Final Act and Report*, New York: United Nations, E/CONF 46/141 (I).
- UNRISD (2003), *Corporate Social Responsibility and Development*, Conference held at UN Palais des Nations in Geneva, 17–18 November.
- US Congress, Senate Committee on Foreign Relations, Sub Committee on Multinational Corporations (1973–76), *Multinational Corporations and United States Foreign Policy*, US Senate 93–94th Congress Hearings, Washington: US Government Printing Office.
- Vernon, R. (1998), *In the Hurricane's Eye: The Troubled Prospects of Multinational Enterprises*, Cambridge, MA: Harvard University Press.
- Zammit, A. (2004), *Development at Risk. UN–Business Partnerships*, Geneva: United Nations Institute for Social Development.

12. Economic issues raised by NAFTA Chapter 11 investor-to-state dispute settlement cases having environmental implications*

Edward M. Graham

PROLOGUE

I first met Ed Safarian in 1976, and the location was France. This proved a great location for a discussion focused on why exactly it is that Canadians were ambivalent in their attitudes about direct investment in Canada from their large neighbor to the south. This was the era of the Foreign Investment Review Agency (FIRA) before it became the more benign Investment Canada, and many Canadians were out-and-out opposed to further direct investment by US-based multinationals, no matter how many benefits could be shown to derive from it. Times have changed, Canadian attitudes have softened, and the United States itself went through a period of distrust of inward foreign direct investment, even from Canada. Also, both the US–Canada Free Trade area and NAFTA, the North American Free Trade Area, have come into effect, formally liberalizing treatment by both nations of direct investment. But, even so, much of that discussion of 1976 remains relevant. Given this, when invited to contribute a paper to this Festschrift in honor of Ed Safarian, something having to do with direct investment and NAFTA seemed appropriate and hence this chapter. At this point, let me confess: the chapter had an earlier life as a background paper for a conference on NAFTA Chapter 11 held jointly by the Institute for International Economics – my home base, located in Washington, DC – and the International Institute for Sustained Development in Ottawa. But it was never published, and it seemed ideal for the Festschrift. Moreover, it has been revised, corrected and updated such that, in the end, I have put in almost as much work as if I had written an entirely new paper. So, I would hope that Ed would now consider this paper in the same sense as a thor-

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oughly refurbished house: he might not be the original owner but, as it is now, the item is meant just for him.

INTRODUCTION

This paper examines in particular and from an economic perspective whether North American Free Trade Area (NAFTA) Chapter 11 dispute settlement procedures are likely to affect adversely law and regulation of the environment in the member countries (the 'Parties') of the Agreement. NAFTA creates a number of obligations on the part of these Parties (Canada, Mexico and the United States) with respect to investors from the other parties and their investments (Chapter 11, part A) and also creates an 'investor-to-state' dispute settlement mechanism whereby investors who believe that they have been damaged by breaches of these obligations can, in effect, sue the relevant governments for compensation for these damages.¹ Environmental organizations have expressed concern that the dispute settlement mechanism creates a means by which environmental laws and regulations might be weakened. Indeed, as of the end of 2003, 29 cases had been brought formally to dispute settlement under this mechanism, with a number of others pending, where Hufbauer and Schott (2004) reckon that nine of them are environment-related.² Of these nine cases, five have been settled by determination by Dispute Settlement Tribunals established under NAFTA Chapter 11B, one was settled outside the Tribunal in favor of the petitioner (i.e. the investor company), one was withdrawn from dispute settlement (effectively a victory for the government), and preliminary findings have been issued in one other that go against the petitioner. Of the five cases settled by Tribunal, one was a resubmission by a petitioner that had lost a previous case, where no award was made to the petitioner by the Tribunal. Of the four remaining cases, the Tribunals decided in two instances in favor of the petitioner, granting monetary awards, and two were decided in favor of the relevant government. Thus, to date, for those environment-related cases brought to dispute settlement under Chapter 11 that have been settled one way or the other, half have resulted in some sort of victory for the petitioner and half for the defending government.

Whether because of these outcomes or in spite of them, the environmental community continues to hold concerns that NAFTA Chapter 11 dispute settlement procedures will ultimately result in diluted environmental law or regulation. The main concern is centered on Article 1110 of Chapter 11 concerning expropriation. The specific language is: 'No Party may directly or indirectly nationalize or expropriate an investment of another Party in its territory or take a measure tantamount to nationalization or expropriation

of such an investment (“expropriation”) except (a) for a public purpose; (b) on a non-discriminatory basis; (c) in accordance with due process of law and Article 1105(1);³ and (4) on payment of compensation . . . [there follows text about this compensation].’ Some cases brought to NAFTA Chapter 11 dispute settlement have been based on the line of reasoning that imposition of an environmental regulation, or a ban of a product for environmental reasons, is a measure ‘tantamount to an expropriation’ as per the above language and therefore that any damages resulting from such a measure require compensation. This line of reasoning is parallel to one under domestic US law that holds that ‘regulatory takings’ (the loss of value of a property resulting from governmentally imposed regulation) is a ‘taking’ of property which, under the US Constitution 5th Amendment, should require compensation by the government to the holder of the property.⁴ Domestic claims based on this argument have, with some exceptions, been rejected by US courts or at least so during the past 60 years so.⁵ But one worry of environmentalists is that this line of reasoning, even if largely rejected in a domestic law context, will re-emerge in the context of international law and in a way that causes damage to the environment or (as many ‘economically literate’ environmentalists agree should be the criterion) net damage taking into account the social gain created by the underlying economic activity.

Thus, this chapter attempts to determine whether requiring public compensation of private investors for diminishment of value resulting from government regulatory action has the potential of achieving anything close to an ‘optimal’ outcome from a societal cost–benefit point of view (defined below). This determination makes use of tools of economic analysis and, in particular, Coase’s theorem regarding achieving optimal outcomes where negative externalities are present.⁶ The overall conclusion is that, although Coase’s theorem can be invoked to argue that such an outcome can be achieved either via a ‘polluter pays’ approach or a ‘public pays’ or ‘public must compensate’ approach, which would argue that (economically literate) environmentalists really need not be too concerned about the outcome of NAFTA Chapter 11 cases, as a matter of practical application, the first approach is preferable to the second for a number of reasons, including government ‘fiscal illusion’ and ‘moral hazard’.

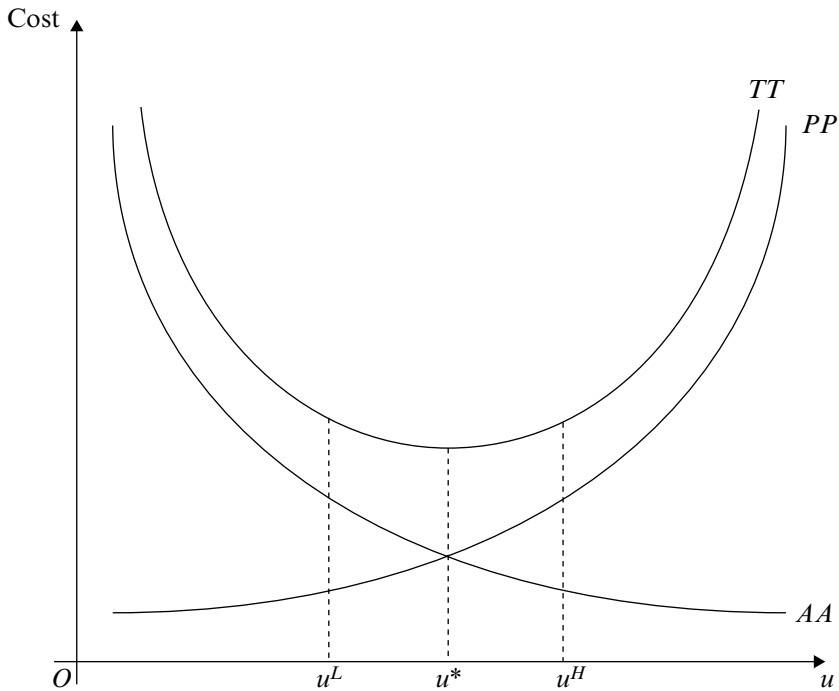
The second section of this paper reviews Coase’s theorem and establishes the main result that follows from it: if a bargaining process can be established and properly managed under the right circumstances, either of the two approaches noted above can in principle yield the same outcome in terms of achievement of a goal to reduce an external cost. As is well known, the two approaches do yield differing results with respect to who actually bears the costs associated with this reduction. The third and fourth sections then discuss respectively the issues posed by fiscal illusion and moral hazard;

the conclusion in each is the same – that in spite of the neutrality in principle of Coase’s result regarding the best direction for public policy to take with respect to whether to assess the polluter or the public for costs of pollution abatement, the former dominates the latter when issues of practicality are considered. The overall conclusion then is that, although the case for public compensation of investors for diminished value of investments induced by environmentally motivated regulations is not wholly without merit, as a practical matter, application of the ‘polluter pays’ principle is preferable. To the extent that this is correct, it is also arguable that use of NAFTA Chapter 11 as a vehicle to force such compensation for such diminished value is likely to lead to nonoptimal results.⁷ This of course would suggest that the expropriation provisions of NAFTA Chapter 11 should be interpreted, or perhaps even amended, so that these would not cover this type of taking; this matter is discussed in the concluding section.

COASE’S THEOREM ON EXTERNAL COSTS⁸

From an economic perspective, environmental problems originate, to a large extent, from ‘market failure’, i.e. a situation where the working of a market, even one in which most of the standard conditions for optimality would seem to be met, fails to create a socially optimum outcome. These standard conditions for optimality include that the market be characterized by something approaching perfect competition, which in practical terms means that no seller or buyer in the market has market power (i.e. can unilaterally affect the price or quantity of the good or service being sold in the market), and that no buyer or seller possesses information bearing on the market not possessed by other buyers and sellers that can be used as the basis for gaining advantage.

Under most circumstances, if these conditions are present, a market will produce an optimal outcome in the sense that consumer surplus minus total costs will be maximized when a market-clearing price and quantity are achieved. This is equivalent to saying that, on a social benefit–cost basis, total benefit is maximized. The details of how and why this happens are explained in any standard textbook on microeconomics and thus further explanation is omitted here. Market failure can of course result if sellers or buyers are able to exert market power; however, this again is standard fare and not the topic here. Rather, we are concerned about market failure that results from a ‘negative externality’ associated with use of a public good.⁹ If present, such an externality results in total costs associated with the buying and selling of a good exceeding the costs that are borne privately by sellers. Such an externality (or, equivalently, an ‘external cost’) could occur



Note:

PP = social external cost of pollution at level u .

AA = cost of reduction of pollution to level u .

TT = sum of PP and AA .

u^* = optimal level of emission.

$u^H = TT$ can be reduced by moving to u^* ; this raises cost of reduction of emission but this cost is more than offset by reduction of the social external cost of emission.

$u^L = TT$ can be reduced by moving to u^* ; this raises social external cost of emission but this is more than offset by reduction in cost of reduction of emission.

Figure 12.1 External costs associated with use of a public good (unpolluted air), and private costs associated with reducing the use of this good (reducing the amount of pollution)

in the form of harm to the environment, e.g. as the result of an increase in air pollution that causes degradation in human health (or, also, degradation in the health of forests or wildlife).

Suppose, for example, that air pollution, measured in units of total emission of pollutant u (where u is interpreted as a total of u units of pollution), creates total external costs as represented in curve PP in Figure 12.1. Note that these are indeed external costs and not the costs associated with the production of some product; costs of the latter sort also are incurred, but

are private ('internal') costs. The *PP* curve not only rises with the total amount of emission, but it also rises with increasing slope. This 'rise at an increasing rate' occurs because, as total emission of the pollutant grows, the total external costs created by it increase at an increasing rate (if the amount of pollutant released into the air is doubled, for example, this is likely to result in more than double the number of pollution-related illnesses). Removal of these costs creates a benefit to society that is, in magnitude, exactly the same as the cost.

Another curve – the *AA* curve – is indicated on the same figure. It shows the total cost of reducing the pollution to level u , given some initial level of pollution. This cost would be expected to rise as a function of how much pollutant is removed from the air and, thus, because removal of pollutant is the inverse of emission of pollutant, on this figure the *AA* curve falls as the total amount of such emission increases. This fall is at a decreasing rate (the slope gets flatter as total emission increases) because the marginal cost of cutting out an additional unit of pollution rises as total emission of pollution is cut back.

The optimal output is that which minimizes total cost, where this total cost is the sum of the *AA* and the *PP* curves. This sum is given by the *TT* curve, and it is, as drawn, U-shaped.¹⁰ As can be seen from the figure, this minimum is reached at point u^* , which is in fact where the slopes of the *AA* and the *PP* curves are equal in magnitude.¹¹ To the right of this point, e.g. at point u^H , adding a unit of pollution increases external costs by an amount greater than the cost of abating that unit. But, to the left of u^* , e.g. at point u^L , reducing a unit of pollution costs more than the benefit that is gained from a reduction in the external cost associated with this unit of pollution.

But if u^* indeed is the optimum level of pollution, in the sense that net benefit is maximized at this point, the question remains – how to get to u^* ? Ronald Coase suggested in an article published more than 40 years ago (see note 6) that two approaches would work. In the first approach, property rights to the air would be assigned to society at large, so that holders of these rights, members of the general public, could in effect sell to producers the right to pollute. Suppose that, at the moment that these rights were established, the actual level of pollution was u^H . In order to continue in production, polluters must either (1) acquire property rights for use of the air and, by buying these rights, compensate the public for the costs that the pollution forced citizens to incur, or (2) undertake pollution abatement, so that the public's property rights are not violated. As long as pollution levels were currently above u^* (which is in fact so, by assumption), it would in fact be cheaper for the polluters to abate their pollution than to buy property rights, assuming that the public would sell these rights for no less than the costs created by the pollution. But, once pollution is reduced to u^* ,

a crossover point is reached, where further abatement costs more than purchase of property rights, or at least so if the rights are priced at the same level as the external costs. The least cost strategy for polluters would thus be to reduce pollution to u^* and then to buy from the public the right to pollute at this level.

Alternatively, property rights to use of the air, even as a garbage dump, could be assigned to the polluters, but polluters could be required to forego pollution if these rights were bought by the public. Under this approach, if at the time that this right is assigned the actual level of pollution were again to be u^H , citizens could organize to buy from the polluters enough rights to force the polluters to reduce emissions to u^* . As long as the price paid for these rights were at least as great as the cost of the abatement, the firm should be eager (or at least indifferent) to selling the rights and incurring the abatement costs. Because the cost of reducing pollution from u^H to u^* remains less than the external cost borne by citizens at u^H , citizens should be willing to pay a price equal to the cost of abatement. But once u^* is attained, the cost of further abatement (which now must be borne by the public) becomes greater than the costs associated with enduring this level of pollution. Therefore the public might be expected to buy rights to clean air until the level u^* is attained, but not to buy rights to drive pollution below u^* .

Thus, by Coase's logic, the optimum u^* can be reached by assigning a property right to air either to the public or to the polluter. The two approaches of course do have differing implications for the one who bears the cost of pollution abatement, the polluter or the public. Even so, the point established by Coase is that, under either approach, the optimum can be achieved.

The issue of who pays the costs of abatement is important, of course. If property rights to the air belong to the public, it is the polluter who must pay these costs (and this is essentially the same as the 'polluter pays' principle and variants on it, such as 'cap and trade').¹² If, by contrast, the property rights to the air belong to the users of the air (the polluters), the public must pay them in exchange for them taking action that reduces external costs. Given that someone must pay for the reduction of pollution, it becomes a matter of social choice as to who exactly pays.

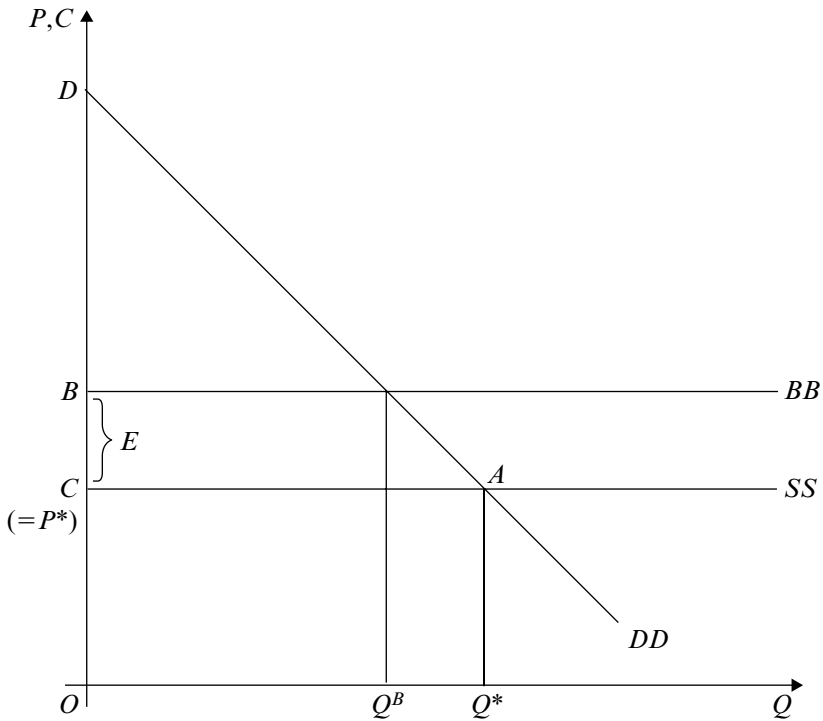
There is a practical problem of how to determine the external cost borne by a member of society as the result of pollution. This is at best difficult and the determination can depend upon values of members of society that differ from member to member.¹³ Coase had in mind that each member of society would know with some precision what the cost to her or him of pollution actually is, such that he or she could then, armed with this knowledge, bargain with the polluters over the price to be paid for exchange of property rights. The polluters also are assumed to be knowledgeable with respect to the precise external costs associated with pollution. If both sides

are thus knowledgeable, a bargaining process might indeed lead to an outcome whereby the 'right' price would be established by which exchange of property rights would result in an optimal level of pollution.¹⁴

However, in reality, most persons probably have no real idea of the cost to them of breathing polluted air; indeed, if they did, many people might choose to live someplace other than where they currently do! And, also, it is quite plausible that polluters are similarly ignorant about the external costs created by their pollution, even if they might claim otherwise.

Even if both the external costs of pollution and the costs of abatement were accurately known both to polluters and the public, to organize the trading of pollution rights so as to achieve the optimum, irrespective of who initially held these, might itself prove to be quite costly or even ineffective. This is why such trading requires a little more than a purely imaginary auction: suppose that property rights were given to the polluters for the air over Los Angeles, California, and then a public auction were to be held whereby (it was hoped) trading of rights would lead to an optimal outcome. All polluters and all citizens would be required to come to this auction. A very large tent would be needed. Collective action problems would almost surely occur. For example, citizen A might be willing to pay for cleaner air, but might hold back from bidding for clean air rights in the hope that these would be bought by his neighbors. Of course, if the neighbors did so, citizen A would get the benefit without having to pay his share of the cost. In order to prevent such 'free riding' by individual citizens, some sort of complex mechanism would have to be agreed upon whereby the cost of property rights acquired by the public was shared by all members of the public, where account was taken of the possibility that the value of clean air might not be the same for all such members. Similar problems could be imagined if the property rights were held by the public initially. Given these problems, it has been suggested that, for anything like a Coasian bargaining process to work, an agent representing the public (e.g. the government) must do the bargaining and, where appropriate, the assessing of the public. It has been further suggested that, if property rights for clean air rest initially with the public, for an efficient outcome to be achieved, the best approach might be for the government to assess an effluent tax on polluters, or to sell pollution rights in some form of a 'cap and trade' scheme.¹⁵ The effluent tax is discussed below. Likewise, if the property rights rest initially with the polluters, the best approach might be for the government to require pollution to be reduced to the optimal level (assuming that this can be determined) and then to compensate relevant parties for abatement.

The analysis thus far is of the nature of a 'partial equilibrium' analysis, i.e. the effect of pollution abatement on product prices is not considered.¹⁶



Note:

DD = demand curve.

SS = supply curve at constant private marginal cost C .

BB = supply curve, modified to take account of external cost E .

Figure 12.2 Reaching the optimum price and quantity where an external cost is present

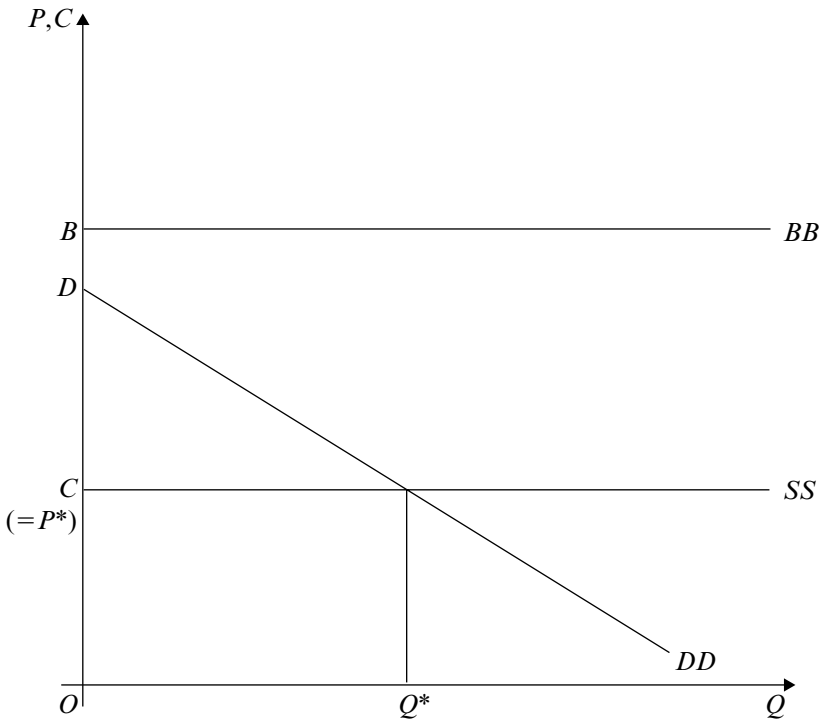
But, if these prices change as the result of the trading of property rights to use of the air, these changes do have implications for social benefit. Because this matter is of some importance, we now explore it using some simplifications that are necessary to keep things manageable. Figure 12.2 is a modified version of a simple supply and demand schedule, where the DD curve represents demand for some product. Total social benefit created by sale of this product is measured by 'consumer surplus', the area under the DD curve bounded by the Q axis and Q^* . The SS curve represents total supply under an assumption that competition is 'perfect' and marginal cost of production is constant with respect to total output; thus the price-cost axis intercept of this curve (at point C) is equal to the unit cost of production as borne by sellers of the product, and the SS curve is a horizontal line

extending from this intercept.¹⁷ The intersection of the SS and DD curves (at point A) represents the price and quantity (P^* and Q^*) that both clear the market and maximize consumer surplus. Thus, also, in the absence of an external cost, these are the price and quantity at which net social benefit, i.e. total social benefits minus total social costs, is maximized. The latter, total social costs, are in this instance given by the area under the SS curve, bounded on the right by point A , and thus are given by the area of the rectangle $OCAQ^*$. Net benefits equal total benefits minus total costs and are given by the area of the triangle CDA .

However, what again is at issue is that there is an external cost – one that is borne by the society rather than by sellers of the products – that must be accounted for. To account for this additional cost in a way that keeps things simple, let us assume that this cost increases by an equal increment E for every unit of the product sold in this market. In other words, we assume that each unit of production produces a constant amount of pollution and total external costs of the pollution increase linearly with pollution. (And, thus, we have dropped, in the interests of keeping things simple, the assumption used earlier that total external costs rise, as a function of total pollution, at an increasing rate. Also, the reader should note that, in this example, to reduce pollution, it is necessary to reduce output. This is by design; the goal here after all is to demonstrate welfare effects of changes in output.) Thus the unit social cost is no longer equal to private cost but rather is equal to the marginal (private) cost C plus the unit external cost E , so that the social cost per unit of output is B , where $B = C + E$. Marginal social cost thus is given by the curve BB , which by virtue of the simplifying assumptions is constant with respect to output. Total social cost is given by the area under this curve, again bounded by the Q axis and the amount of the good that is bought and sold.

To maximize social benefits (which still equal consumer surplus) net of social cost, the quantity of the good bought and sold should now be Q^B , the quantity at which DD equals BB . One should note that Q^B is less than Q^* , reflecting that the true cost of the good is not C but the higher B . By reducing the amount of the good bought and sold from Q^* to Q^B , the amount of pollution is reduced, and external costs are reduced accordingly, to an optimal level.

An environmental purist might argue that, if sale of this good creates an environmental harm, societal interests dictate that its sale ought to be banned. In fact, this possibility is not precluded from this analysis. Figure 12.3 depicts a case where such a ban is warranted but where, in the absence of a ban or a measure equivalent to a ban, sales will proceed. In this instance, the total social cost of producing even one unit of the good, where that cost takes into account the environmental harm, exceeds any



Note: In the instance where $C + E = B$ exceeds D , no output of the product will occur when full social costs are reflected in the private costs of production, even if there would be production when external costs are ignored.

Figure 12.3 If total costs, B , including both internal private costs and external social costs, exceed the reservation price, D , there will be no output of the relevant product. Internalization of the external cost is equivalent to a ban on the production and sale of this product

possible benefit achieved from sale and use of the good. The activist must recognize, however, that, in the absence of the external cost, there is a net benefit to producing the good; if there were no benefit, there would be no production under any circumstance. But production of the good should not take place if the true costs of such production at any level of sales exceed any possible benefit. Picnic tables made from the wood of first-growth redwood trees come to mind (see note 13). There may be some benefit from such tables (they are attractive and durable), but this benefit is scant compared to the cost to society of loss of magnificent redwood groves.

But how do we achieve the socially optimal quantity Q^B rather than the market-clearing quantity Q^* ? After all, left to its own devices, the market will deliver Q^* and not Q^B . Again, we can make an appeal to the reasoning behind Coase's theorem.

As before, there are in fact two ways to get to the desired equilibrium. Let us, in what follows and consistent with the first example, assume that the external cost in our example is attributable to air pollution. Again, one approach is to assign property rights to clean air to society at large, such that society can charge suppliers for use of this air as a place to dump their gaseous wastes, while an alternative approach is to assign property rights for use of the air to the suppliers, but to allow society at large to buy back some of these rights.

Consider first the case where property rights are assigned to society at large. In order to use the clean air (where to 'use' the air means to dump effluent into it), the suppliers of the product must pay to acquire the right to pollute. As suggested above, a more practical means of achieving this payment and transfer of rights than Coasian bargaining might be that the government, acting on behalf of society, impose a tax on the suppliers for use of the air, and then to distribute revenues gained from this tax to members of society affected by the pollution.¹⁸ An issue that then presents itself is what price per unit of output (or rate of tax) is right? Clearly, to get to the equilibrium, this price/tax should be equal to $(E - C)$, the external cost, so that $(E - C)$ becomes fully internalized by the producers and an ordinary market-clearing process yields the desired outcome. Fortunately, for the holders of the property rights, $(E - C)$ in fact is exactly the price that maximizes benefit to members of society. This becomes evident from the following considerations: if a price/tax less than $(E - C)$ is charged, members of society are under-compensated for the external costs that they must bear (see Figure 12.4). But, also, if a price/tax greater than $(E - C)$ is charged, members of society will lose consumer surplus that is in excess of the revenue gained from the tax (see Figure 12.5), such that total benefit to society is reduced. Only when $(E - C)$ is charged is the sum of net benefit, i.e. consumer surplus plus revenue from the sale of the property right minus total social costs, maximized.

But a similar case can be made if property rights are granted to the suppliers. As long as the amount of the product offered on the market exceeds Q^B in Figure 12.2, external costs borne by the public will exceed additional consumer surplus created by a lower price being offered than the price which clears the market at Q^B (see Figure 12.5). Thus there would be a net gain to society to paying suppliers an amount equal to $Q^B \times (E - C)$ to limit output to Q^B .¹⁹ This could be done in two ways: by society paying the suppliers the amount $Q^B \times (E - C)$ in a lump sum, in exchange for which

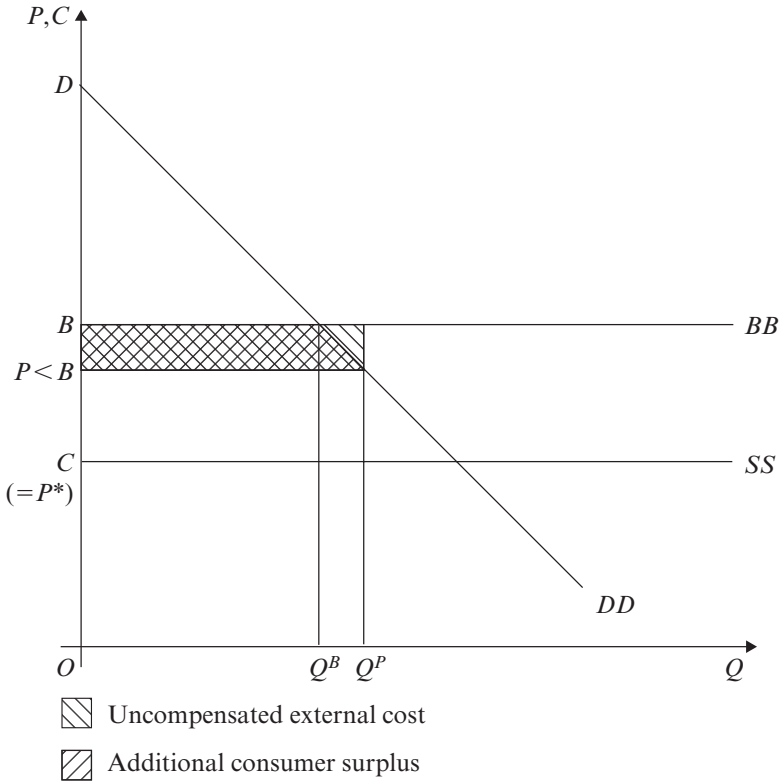


Figure 12.4 If output, Q^P , is set above the socially optimal quantity, Q^B , uncompensated external cost will exceed appropriable consumer surplus

the suppliers would agree to limit supply to Q^B but to hold price at C . Alternatively, suppliers could agree to limit supply to Q^B , causing the price to rise to the new equilibrium ($C + E$), and to appropriate the amount $Q^B \times (E - C)$ as a rent.²⁰

Thus, by Coase's reasoning, the same (and desired) outcome again is achieved either by assigning a property right to clean air to the general public and allowing this to be sold to suppliers who need this air in order to make a product which is desired by society or, alternatively, by assigning the property right to the air to the suppliers but allowing society to compensate these in some manner for reduction of use of the right in order to meet a socially desired end (i.e. reduction of effluent).

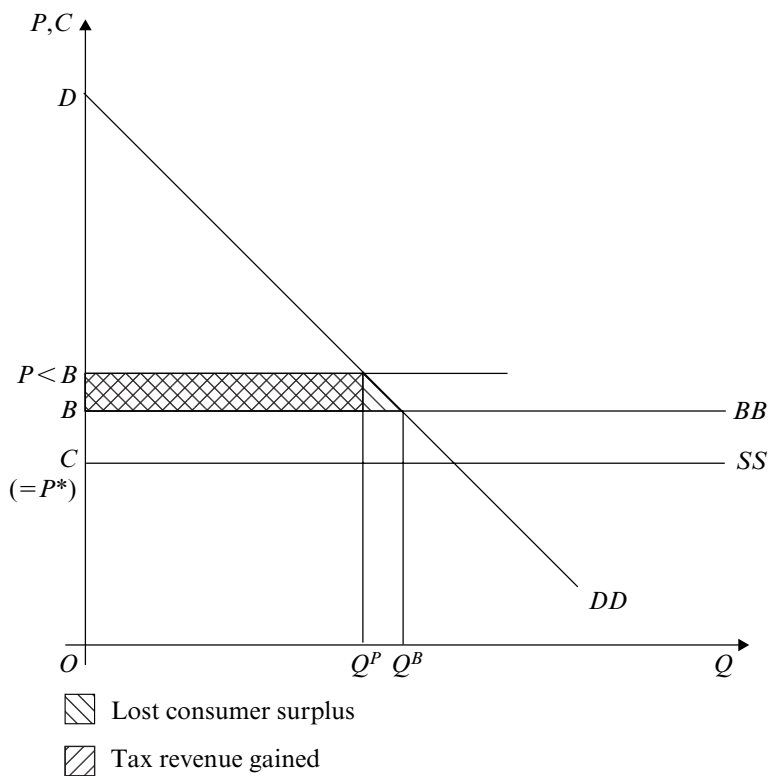


Figure 12.5 If output, Q^P , is set below the socially optimal, Q^B , appropriable consumer surplus will be lost in excess of compensation of external cost

As in the earlier example of Figure 12.1, there is a big difference between the two assignments in terms of who ultimately pays in order to achieve the optimum level of output Q^B . In the present case, in both assignments, the achievement of the optimum is accomplished via a rise in price of the product and a consequent scale-back of production. Thus, in both assignments, the ultimate payer is the user of the product, who must pay a higher price for a more constrained quantity of this product. But, even so, if property rights are assigned to suppliers, all consumer surplus appropriated by them is retained by them. By contrast, where property rights are assigned to the general public, consumer surplus appropriated by suppliers is returned to the general public in the form of tax revenue (or, in a cap and trade scheme, public revenue generated by initial sale of effluent rights).

In the usual spirit of Coasian analysis, this article could end here with a conclusion to the effect ‘polluter pays or public pays, the public must take its pick. Either approach will get society to a desired outcome.’ But we will not end here. Rather, we will examine two additional argumentations where both, if one accepts them, lead to a conclusion that the better path, from an economics perspective, to achieving the desired outcome is ‘polluter pays’.

FISCAL ILLUSION

An argument made by those who oppose the implicit granting of ownership rights to what otherwise are considered ‘public goods’ to suppliers is as follows: if diminishment of value of an investment resulting from a regulatory action by a government requires compensation to the investor by the government, the effect of this requirement will be to reduce significantly the willingness of governments to pass and enforce needed environmental and health regulations. Does this argumentation have any economic validity?

The argument is, in effect, an appeal to the idea of ‘fiscal illusion’. Boiled to its essence, fiscal illusion occurs when a government evaluates whether to pursue an action on the basis of budget cost to the government rather than on the basis of whether the action will create net social benefit. A very real example where fiscal illusion is, in fact, official policy is to be found in US trade policy. Under the Gramm–Rudman Act, any law or measure that affects the revenues or expenses to the US government must be either revenue neutral or, if the law reduces revenue or increases expenses, must make provisions to offset these gains or losses. This applies to tariff reduction, which almost always will result in revenue reduction (although the case might be found where elasticity of demand for a particular import is high enough that tariff reduction actually causes demand to increase enough to cause total revenues to expand; this in practice happens rarely if ever). But, by standard economic analysis, reduction of tariffs almost always results in net social welfare gains for the United States, even after taking into account loss of tariff revenue; in fact, this loss almost always is recaptured in the form of additional consumer surplus, which is, as noted, a social benefit. Thus, the fact that US law requires that tariff reductions be accompanied by other measures to recover lost tariff revenue does indicate that this law embodies some element of fiscal illusion.

But, to be fair and balanced, it must be noted that fiscal illusion can cut two ways. For example, in the United States, business groups have long argued that some environmental regulation has been passed that has created costs of compliance in excess of benefits generated. In evaluating this regulation, or so it is argued, the government took account of benefits

but ignored costs (in effect, the government analysts would have taken into account movement to the left along the PP curve in Figure 12.1 but ignored the AA curve) in deciding what should be the amount of a particular pollutant allowed to be emitted. If the government actually does behave in this way, then this represents a form of fiscal illusion in the following sense: in making a cost–benefit determination, private costs are ignored and only government budgetary costs are accounted for.

Fiscal illusion therefore does not always necessarily lead to underregulation; it can lead to overregulation as well. If such overregulation does occur as a result of fiscal illusion, then ‘socialization’ of private costs via public compensation of private entities for costs these entities must bear in order to comply with the regulation will, as per Coase’s theorem, lead to better outcomes than will decisions made without such compensation. This is because, in effect, the requirement for compensation implicitly does assign a property right for the public good to private entities that use that good, such that government then must compensate them for what amounts to a taking away of some of the right to use that public good. In determining the optimal level of taking, if the government does face a requirement to compensate, it will balance social benefits achieved by the taking against the (now public) costs of doing so. In principle at least, the outcome should be something akin to attaining u^* in Figure 12.1.

Having noted this last point, however, it does seem to me that, in the current era in the United States, government agencies at all levels are under pressure to avoid budget deficits that might require tax increases (and hence US government agencies, except those whose mission has to do with security, are all under pressure not to do anything that increases public expenditure). Also, in the United States at least, momentum within government is toward deregulation rather than additional regulation of economic activity. Given this, it seems plausible that fiscal illusion that impedes governments from making expenditures that are socially desirable is more likely than fiscal illusion that leads to overregulation. If this is indeed so, the case for granting property rights for public goods to the public rather than to suppliers, and hence not requiring public compensation to suppliers for regulatory actions affecting public goods, would seem more compelling than the case for granting these rights to the suppliers.

CONSIDERATIONS OF MORAL HAZARD

‘Moral hazard’ has become a term with differing usage, even within economics. Originally the term was associated with hidden (and often illegal) contracts that could have adverse economic effects. The classical example is

of the owner of a building who insures it for greater than market value and then hires an arsonist to set it on fire to collect on the insurance. (The hiring of the arsonist is the 'hidden contract', and the adverse outcome is of course the loss of the building combined with the overpayment to the owner.) In contemporary times, the term moral hazard is also used to depict a situation where a government (or supranational agency such as the International Monetary Fund) commits to cover a potential loss, where that commitment conveys some element of subsidy,²¹ and this leads to an adverse outcome, e.g. a taking of an otherwise unacceptable risk by the insured party knowing that, if the outcome is unfavorable, the loss will be covered.

To introduce a consideration of moral hazard into a discussion of treatment of takings, suppose that the property right to a public good is granted to a firm that is about to start making a product under the following circumstances: (1) the firm must decide how much to invest in capacity for this product; (2) the manufacture of the product requires use of the public good which, for the moment, is unrestricted; however, there is some chance that, for public health reasons, this use will in the future be restricted. Under these circumstances, the property right can be claimed to create moral hazard in the following sense: the firm will invest in more capacity than it would if there were to be no compensation for the taking of this right by the government.

To illustrate this via a simple example, suppose the cost of the capacity is given by $T(q)$, where q is the output when the capacity is fully utilized. Let us further assume what in the industrial economics literature is called a 'two-period' model, where in the first period capacity is set and then in the second period the product is produced and sold; there are no subsequent periods. In the second period, the firm sells to a market where total demand is given by $D(q)$ at a price $P(q)$, such that $D(q)$ is simply equal to q (i.e. the firm is able to sell all of its output) but where $P(q)$ diminishes with increasing q (i.e. the firm is not a price taker but, rather, has market power). Finally, we assume that the only cost incurred by the firm is that of creation of capacity $T(q)$, where this cost is linear, i.e. there are constant returns to scale.

Absent the risk that the product will be subject to some form of regulation, the firm then maximizes profits $\pi = P(q) \cdot q - T(q)$ when the first derivative of π with respect to q is set to zero, or

$$\frac{d\pi}{dq} = q \frac{dp(q)}{dq} + p(q) - \frac{dT(q)}{dq} = 0$$

implying, of course, that

$$\frac{dT(q)}{dq} = q \frac{dp(q)}{dq} + p(q),$$

which simply is the standard condition that marginal revenue must be equal to marginal cost (but, in this case, the marginal cost of additional capacity) in order for profits to be maximized. The solution of this equation yields the capacity that would be installed by the firm in order to maximize profits. Given the assumption of constant returns to scale, this last equation can be restated as

$$C = q \cdot \frac{dp}{dq} + p,$$

where C is the unit cost of capacity and the explicit dependence of p on q is dropped.

But, would the firm install the same capacity if there were some chance that, for reasons of health, the output would be regulated in the future? The answer is no: suppose that, if it is determined that the output of the product produced a health risk, this output were to be banned, and that the firm assesses the probability of this happening to be ϕ . (We assume that the regulation is an outright ban.) Given this, the probability is $(1 - \phi)$ that the firm can produce the product profitably but, with probability ϕ , the firm will lose entirely any investment it had made in capacity to produce the product. If the firm has risk-neutral preferences, it is willing to make decisions based on expected value of outcomes. In this case, the expected profit is given by the following:

$$\pi = (1 - \phi) \cdot (pq - T) - \phi \cdot T = (1 - \phi) \cdot pq - T.$$

In other words, the expected revenue falls from $p \cdot q$ to $(1 - \phi) \cdot p \cdot q$, where the latter is less than the former because $0 < \phi < 1$. But the expected costs at any given level of output remain the same (these are incurred whether or not the production of the product is banned). Given that expected revenue at any level of output is now less than before, the expected marginal revenue at any level of output is also less than before. Given that the marginal cost of additional output is constant, to achieve equality of marginal cost to marginal revenue, the firm would now reduce capacity from that which maximizes profits where there is no chance of regulation being imposed. Furthermore, this is a socially optimal decision.

But what if the firm could expect compensation for any expenditure on capacity if the product were to be regulated (in our example, banned)? In this instance, there would be no net cost to the firm if the product were banned. The expected profit would then be

$$\pi = (1 - \phi) \cdot (pq - T) - \phi \cdot 0 = (1 - \phi) \cdot pq - (1 - \phi)T$$

confirm this. In 2001, the average intra-regional sales of the 16 Canadian MNEs in the top 500 is 74.1 per cent. The average intra-regional sales of 169 US MNEs in the top 500 is 77.3 per cent. The Canadian MNEs are indistinguishable from US MNEs: both are regionally based (this is discussed further in the last section).

Safarian was an adviser for Rugman's (1987) study for the C.D. Howe Institute, sponsored by Wendy Dobson. He advised on the theory and methods and fully supported the articulation of the growth of Canadian MNEs, which became an important selling point of the FTA in the Canadian federal elections of 1988. The focus on the increase in Canadian outward FDI into the United States was partly facilitated by a shift in research emphasis from the older economics departments to the emerging business schools in Canada in the 1970s. (It is perhaps significant that Safarian moved to the University of Toronto Faculty of Management Studies in 1989 upon his retirement from the Department of Economics.) While economists still relied on the more aggregate FDI work and a balance of payments approach to FDI, the business schools used firm-level analysis.

Related work on Canada-US trade and FDI appeared in Rugman (1990). It updated Rugman (1987) and confirmed that Canadian FDI in the United States was growing over the 1975-87 period at twice the pace of US FDI in Canada. Back in 1975, the percentage of Canadian FDI in the United States to US FDI in Canada (in stocks) was 18.7 per cent. Already by 1980 it was 33.7 per cent, by 1984 it was 48.0 per cent, and by 1987, at the start of the FTA, it was 57.6 per cent, Rugman (1990, p. 12). (Related data are discussed later, in Table 3.3.)

The theoretical explanation behind this dramatic reversal in the growth of the bilateral stocks of FDI was that Canadian MNEs needed to access the US market through FDI, as there was not free trade. Investing in a US business became a huge commitment for Canadian firms who needed to compete with larger US rival firms. However, access to the US market through FDI allowed Canadian MNEs to develop continental capabilities, following the example of Northern Telecom, Alcan, Bombardier and Seagram. An earlier explanation of this phenomenon of the growth of Canadian multinationals and Canadian outward FDI appears in Rugman (1985).

At the time of the FTA this information about the growth and maturity of Canadian multinationals was a counterpoint to the popular Canadian concern about US ownership of the Canadian economy. Building on Safarian (1966), Rugman (1990) found that US foreign control of Canadian industry decreased from 28.4 per cent in 1970 to 21.9 per cent in 1985. In manufacturing, US control fell from 46 per cent in 1970 to 39.8 per cent in 1985 and, in petroleum, from 77.0 per cent in 1970 to 39.6 per cent in 1985. These two events, the decline of US foreign control of Canadian industry,

In effect, expected marginal cost would be reduced from T to $(1 - \phi) \cdot T$, and the firm would expand capacity over that which it would have set had there been no requirement for compensation.

This is a nonoptimal result because the government is in effect subsidizing the firm to take more risk than it should from the point of view of social optimality. The subsidy arises because the government in effect indemnifies the firm against the costs of future regulation implemented for environmental reasons, and hence relieves the firm of having to take into account the risk of such regulation in making current investment decisions. However, were property rights to environmental goods to be assigned to the public rather than the polluter, this subsidy element would not exist. This would be a reason why public holding of the property right might yield a better outcome than assignment of the property right to the polluter.

CONCLUSIONS

From the point of view of economics, the issue of how to reduce the stress on the environment created by economic activity largely boils down to how to treat external costs, i.e. ones that are borne by society at large rather than by those economic agents involved in the transactions that give rise to these costs. The further issue is how to correct for the market failure that is created by these costs. Coase's theorem is very often invoked in this latter matter: the essence is that the market failure can be corrected by assigning a property right to the relevant public good either to the user of this good (the 'polluter' in the case where the public good is the air) *or* the public at large, such that a market can then operate whereby the polluter can buy rights for use of the public good or the public can buy rights for non-use of it, depending upon who holds the rights initially. The two different assignments have differing implications for who exactly bears the cost of the action necessary to achieve the optimal outcome; but this is a matter of social choice and does not affect an efficient solution of the market failure. However, as is shown in the second and third sections above, under plausible assumptions, Coase's conclusion that optimality can be achieved in either of two ways can be challenged. Introducing either fiscal illusion or moral hazard suggests that inefficiencies are created by the assigning of property rights to the user, such that optimality is more likely to be achieved via assignment of these rights to the public. This is consistent with the legal doctrine of 'the polluter pays' and with contemporary interpretation of law (at least in the United States) that most 'regulatory takings' are not subject to the US Constitutional requirement that a taking of private property by the government must be compensated.²² My understanding is that

contemporary legal doctrine in Canada and Mexico on this issue is generally similar to that in the United States.

Thus domestic law and policy, albeit for different reasons than enumerated here, would seem to be generally compatible with the rationale that property rights for environmentally sensitive public goods (air, water) should reside with the public and that polluters should pay to pollute or, alternatively, be required to bear the costs that must be incurred to keep air and water clean. Who should bear these costs is not the central question of this paper, however, but rather this question is whether NAFTA Chapter 11 investor-to-state dispute cases are likely to create, even if by 'the back door', a different policy. On this issue, as noted, the most relevant and potentially worrisome part of the NAFTA is Section 1110 of Chapter 11 of the Agreement, where the specific issue is, will dispute settlement tribunals see an environmentally sensitive 'regulatory taking' as being a 'measure tantamount to nationalization or expropriation'? On this, it should be noted that in all nine of the 'environmentally sensitive' cases that have been brought as disputes to NAFTA as identified in the introduction to this paper, the petitioner has claimed that the government measure or measures under dispute do in fact amount to *de facto* expropriation. But this should be no surprise: lawyers who prepare those cases for the petitioners can be expected to claim anything on behalf of the client that might stand a chance of acceptance by the Tribunal, however remote this chance might be. Thus the issue is, will Tribunals actually accept such a claim?

Whether this is likely to be the case is difficult to evaluate, because the total number of relevant cases has been small. Indeed, to date, there have been only two such cases where Tribunals have decided in favor of the petitioner. In one of these (*S.D. Meyers versus Canada*), the Tribunal rejected the petitioner's argument that measures taken by the government of Canada to ban the export of certain hazardous wastes (PCBs) was a measure tantamount to expropriation, but ruled that this ban did violate other NAFTA obligations, specifically Chapter 11, Article 1102, on national treatment for foreign investors and their investments and Chapter 11, Article 1105, on treatment in accordance with international law. Even so, Weiler (2001a) argues that there is in fact some potential for a petitioner to use Article 1102 to seek damages where a legitimate environmental measure might apply to a process technology used by the petitioner and where different process technologies employed by competitors to produce 'like' products are not covered by the measure. Article 1102 requires that governments grant NAFTA investors and their investments treatment that is no less favorable than that accorded to domestic investors and their investments under like circumstances, and such a measure as just described could be argued to be discriminatory. Given this possibility, Weiler proposes that an exemption be

created for the Article 1102 'like circumstances' test whereby Tribunal measures taken to implement internationally recognized environmental standards would be exempt from this test. Of course, it could be argued that such an exemption is not needed because two competing producers of 'like' products, if they use different technologies to produce those products, are not producing under 'like circumstances' and that Tribunals will recognize this. In any case, this concern is largely hypothetical and is secondary to the concern created by adverse (from the environmentalist point of view) rulings on claim under Article 1110 that environmentally motivated measures are tantamount to expropriation. And, as noted, the Tribunal rejected such a claim in this case.

The second case, *Metalclad versus Mexico*, is in many ways more complex than the *Meyers* case. In this case (*Metalclad*), a tribunal did find against Mexico, and for the petitioner, in the petitioner's claim that measures taken by the Mexican state government of San Luis Potosi to prevent a hazardous waste treatment facility from entering into operation indeed were tantamount to expropriation in violation of Article 1110.²³ The Tribunal also found that these same measures were in violation of Article 1105. Environmentalists point to these decisions, which were partly reversed on appeal, as evidence that Article 1110 can indeed be used to undermine environmental law. I would argue, however, on the basis of facts publicly known about this case, that the Tribunal's decisions fall into the category of 'rare and acceptable exception' to rulings whereby a diminishment of value of an investment as the result of application of a legitimate environmental measure is generally seen as not being tantamount to expropriation. In the *Metalclad* case, the investment in question (as noted, a waste processing facility) had met Mexican standards at federal level, including environmental standards, for such a facility and federal-level approval of the project had been obtained. Moreover, the company had worked with state and local-level officials to comply with all requirements at those levels, including working with and eventually obtaining the approval of the San Luis Potosi State Coordinator for Ecology. But construction and operating permits had been denied by officials at these levels, with no opportunity given for review or appeal; the Tribunal was to argue that the process by which these permits were issued did not meet international legal standards for transparency and hence was in violation of Article 1105. Furthermore, because as just noted the project had eventually received the approval of the San Luis Potosi State Coordinator for Ecology, objections to the project did not seem to be based on demonstrable ecological harm likely to be done by the facility. Rather, the decision of the Governor of San Luis Potosi to oppose the project was based on a claim that 85 per cent of the citizens living near the project opposed it; but no polling evidence was ever produced to support this claim.

In the end, the Governor issued a decree placing the facility and its surroundings in a permanent ecological preserve, doing so three days before he left office.

The Tribunal found this last measure in particular to be ‘tantamount to an expropriation’, a finding upheld by an appeal judge from Vancouver who was known to be highly sympathetic to environmentalists’ concerns. There had been, after all, no pre-announcement that this ‘preserve’ would be created, no public hearings regarding its proposed creation, and no compensation offered to Metalclad for the investment already sunk in the facility. The decree was thus seen by both the Tribunal and the appeal judge as indeed expropriatory in intent, and not as a legitimate measure taken primarily to protect the environment.

In other cases where environmental measures that have reduced the value of an investment but the measures clearly were warranted, Tribunals have not ruled in favor of the petitioner on Article 1110 claims. The most important of the cases to date is doubtlessly *Methanex versus the United States*, where a tribunal, in a preliminary finding, has ruled that a ban by the State of California on the use of a gasoline additive produced by Methanex, where the additive has been detected in public water supplies of numerous municipalities, is not a measure tantamount to expropriation.

Given all of this, I would conclude that the Tribunals for NAFTA Chapter 11 cases have, with respect to interpretation of Article 1110, got it about right. One would hope that the Tribunals would not, even if inadvertently, revert to a *Lochner*-type doctrine with respect to takings, if for no other reason than that this could be economically inefficient, the point of earlier sections of this paper. But one would also not want ‘bogus’ environmental measures, such as the Tribunal found in the case of Metalclad, to be allowed to slip through the NAFTA Chapter 11 screen. The Chapter was meant, after all, to ensure that foreign investors, or at least those from other NAFTA Parties, be treated equitably in the territory of any NAFTA Party and this was done with the intent of encouraging direct investment among the Parties.

Even if this is so, i.e. that the Tribunals have on balance got these cases right, there might still be room for an amendment to NAFTA along the lines of that of Weiler (2001a), as noted above. I made a similar proposal in Graham (1998), but in fact the Weiler exemption is narrower than mine and more targeted to the specific matter of exempting *bone fide* environmental regulation from NAFTA Chapter 11 obligations. Some sort of an amendment along the lines of that proposed by Weiler is in fact being considered by the three governments that are party to NAFTA and, I would submit, such an amendment would at minimum meet the test ‘do no harm, and possibly do some good’.

NOTES

1. An overview of NAFTA Chapter 11 can be found in Graham and Wilkie (1999).
2. A listing of all cases, along with publicly available legal documents pertaining to these cases, can be found at www.naftalaw.org; this is a privately maintained website that is frequently updated.
3. This article has to do with minimum standard of treatment under international law, which must be granted by each NAFTA Party to investments of investors from other Parties.
4. In contemporary time, this line of reasoning has been developed most forcefully by Epstein (1985).
5. See on this Graham (1998) for a short treatment and McUsic (1996) for a detailed legal analysis of recent cases. A century ago, however, the US Supreme Court did require compensation for regulatory takings under so-called 'Lochner doctrine' (after the landmark Supreme Court case *Lochner versus New York*, 198 US 45 (1905)).
6. Coase (1960).
7. This remark does not apply when the clear intent of the government measure is to expropriate a property but, rather, it applies only to cases where the intent is to achieve a legitimate environmental goal. Admittedly, there could be 'grey' cases, e.g. where the intent of a government is not clear or where expropriatory intent is disguised as a legitimate environmental goal.
8. This section is intended for a reader who is unfamiliar with Coase's theorem regarding externalities and applications of this theorem, e.g. 'cap and trade' schemes. If otherwise, the reader might wish to skip to the next section.
9. For our purposes here, we shall define a public good as one that is available for use by any user such that, in the absence of specific governmental measures to the contrary, its use is free of charge. More precisely, economists note that public goods are characterized by (1) lack of 'rivalry', i.e. the use and enjoyment of the good by one person does not diminish the supply and enjoyment available to any other person and (2) no party can appropriate the good for personal gain, or at least not in the absence of a government measure enabling such an appropriation. For the particular public good used to illustrate much of what follows, the air, these two conditions are only approximately met but this approximation is 'close enough' (the supply of air is finite, but for all practical purposes my use of the air does not diminish the supply of air needed by my neighbor, and I certainly am not able to sell this air for profit).
10. This shape is likely, given the shapes of the *PP* and *AA* curves, but is not inevitable. See note 11.
11. Let total costs, as a function of total amount of pollution u , be given by $T(u) = A(u) + P(u)$, where A and P are the *AA* and *PP* curves described in the text, which we assume to be C_2 functions (continuous and differentiable, with continuous derivatives). A necessary condition for $T(u)$ to be a minimum at some u that is not at either of the endpoints of the domain of values taken on by u is that $dT/du = 0$, which can be true only if $dA/du = -dP/du$. Given that A and P slope in opposite directions and that the magnitude of dA/du increases with increasing u while the magnitude of dP/du diminishes with increasing u , this condition is likely to be met. Even if it is not met, the strict convexity of T (it is strictly convex because the second derivative of T with respect to u , d^2T/du^2 , is strictly positive) guarantees that a local minimum does exist. If the condition $dA/du = -dP/du$ is not met, the minimum will occur at one (but not both) of the end points of the domain of u .
12. Note that in the example given above, if property rights to the air are given to the public, the polluter not only must pay for abatement to bring pollution to level u^* , but also must compensate the public for creating even this amount of pollution. However, as is elaborated upon shortly, if it is the polluter who pays, the cost is in fact likely to be reflected in a higher price of the relevant product if the pollution is created by production of the product. In this instance, at least some of the cost of pollution reduction is passed on to

buyers of the product, who are themselves members of the public. Thus, in this latter instance, the issue of 'who pays' comes down, to some large extent, to 'exactly which members of the public pay'.

13. For example, although a resident of Washington, DC, the author is a native of California. As such, he highly values pristine redwood forests and assesses that the external cost of loss of these forests to timbering far exceeds the value of the picnic tables that would be made from the felled trees. Ronald Reagan, a non-native of California, was some time ago elected governor of that state. It is clear that he held different values, as he allowed vast stands of redwood trees to be cut in order to be made into picnic tables. A proper valuation of the external costs associated with loss of redwood forests must take into account both the preferences of this author and those of former Governor Ronald Reagan (who believed that 'once you have seen one redwood tree, you have seen them all') and, indeed, all others who might be affected by the loss. While this is theoretically possible to do, in practice it is at best very difficult.
14. This assumes that the bargaining process itself is costless, which might not be the case. Rather, bargaining transactions costs could be significant. See paragraph that follows.
15. Cap and trade schemes have been much discussed in the literature on environmental economics. For a recent contribution that discusses the outcome of implementation of such a scheme for emission of sulfur dioxide in the United States, see Ellerman et al. (2000).
16. These costs might be embodied in the *AA* curve, but we will now consider them more explicitly.
17. As is standard in this type of analysis, this cost includes components to give sellers a competitive rate of return on any capital they have invested in the selling of this product and to compensate them for their own, as well as their employee's, labor.
18. Such a tax was in fact proposed by noted British economist Arthur C. Pigou early in the twentieth century and hence is now commonly known as a 'Pigovian tax'.
19. If quantity were to fall below Q^B , there would be a net loss of benefit due to lost consumer surplus, exactly as in the case described previously (see Figure 12.4).
20. The first possibility creates a condition of excess demand; that is, some consumers would be willing to buy the produce at the price *C*, but would be unable to obtain it. Under these circumstances, the product would have to be rationed. For this reason, economists would prefer the second possibility.
21. Including government-provided insurance where the price of the insurance is below what the market would charge in like circumstances.
22. The 5th Amendment of the US Constitution states 'No person shall be . . . deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.'
23. A more comprehensive analysis of this case is Weiler (2001b).

REFERENCES

- Coase, Ronald (1960), 'The problem of social cost', *Journal of Law and Economics*, 3: 1–44.
- Ellerman, A.D., P.L. Joskow, R. Schmalensee, J.P. Montero and E.M. Bailey (2000), *Market for Clean Air: the U.S. Acid Rain Program*, Cambridge, UK, and New York: Cambridge University Press.
- Epstein, Richard A. (1985), *Takings: Private Property and the Power of Eminent Domain*, Cambridge, MA: Harvard University Press.
- Graham, Edward M. (1998), 'Regulatory takings, supranational treatment, and the multilateral agreement on investment: issues raised by nongovernmental organizations', *Cornell International Law Journal*, 31(3) 600–614.
- Graham, Edward M. and Christopher Wilkie (1999), 'Multinationals and the invest-

- ment provisions of the NAFTA', in Hafiz Mirza (ed.), *Beyond Protectionism*, Cheltenham, UK: Edward Elgar.
- Hufbauer, Gary C. and Jeffrey J. Schott (2004), *NAFTA: A Ten Year Appraisal*, Washington, DC: The Institute for International Economics.
- Mann, Howard and Konrad von Moltke (2002), 'Protecting investor rights and the public good: assessing NAFTA's Chapter 11', paper prepared for Conferences on NAFTA Chapter 11 held at the Institute for International Economics, Washington, DC, April 11.
- McUsic, Mollie S. (1996), 'The Ghost of Lochner: modern takings doctrine and its impact on economic legislation', *Boston University Law Review*, **76**: 605–77.
- Weiler, Todd (2001a), 'A first look at the interim merits award in S.D. Meyers Inc. and Canada: is it possible to balance legitimate environmental concerns with investor protection?', *Hastings International and Comparative Law Review*, **24**(2): 173–88.
- Weiler, Todd (2001b), 'Metalclad and the government of Mexico', *Journal of World Investment*, **2**(4): 685–711.

13. Location incentives and inter-state competition for FDI: bidding wars in the automotive industry¹

Maureen Appel Molot

Georgia lures Chrysler with \$320 million: Windsor was dropped from consideration last month. (Bynum, 2002: F2)

Ford warns: subsidize or lose jobs. (Keenan, 2002: B1, B4)

States' bidding war over Mercedes plant made for costly chase. (Browning and Cooper, 1993: A6)

Buying auto jobs by the thousands: should government spend \$160 000 for a spot on the line? (Brent, 2003b: FP1)

INTRODUCTION

These headlines capture the essence of the question addressed in this chapter – the intensity of inter-jurisdictional bidding wars for auto assembly plant investment. As Safarian (1993) notes, investment incentives have long been used by governments to attract investment and, in many instances, incentives can comprise a substantial portion of the total investment (p. 438). Although these headlines speak to North America, competitive bidding for auto plant investment has occurred elsewhere – in Brazil,² India³ and East Asia⁴ in the 1990s and in Europe in the 1980s (Mytelka, 2000, pp. 286–90 and Charlton, 2003). Whether called ‘the location incentives game’, ‘bidding wars’ or a ‘locational tournament’, the point is the same – the inter-jurisdictional competition to attract foreign direct investment (FDI).

The growth in the supply of investment worldwide has stimulated competition among governments desirous of attracting ‘their share’ of those funds (Oman, 2000, p. 15). Locational tournaments are not unique to the auto assembly industry – they have unfolded in Europe in the electronics industry (Mytelka, 2000, pp. 290–93) and among the Association of South East Asian Nations (ASEAN) for investments in high tech sectors

(Charlton, 2003, p. 18). But it is in autos that bidding wars have arguably been fiercest and the most costly (Oman, 2000, p. 10). This is a function of many factors: the auto industry is the among the most globalized of industries; it is composed of a declining number of players in the assembly sector, the result of takeovers and joint ventures; in the 1980s in the US, incentives offered to foreign multinational enterprises (MNEs) were the subject of more attention and criticism than incentives given to domestically owned companies (Davies, 2002, p. 5), which were for plant expansions; the proposed investments are large and bring with them the expectation of jobs – direct (in the assembly plant) and indirect (through the attraction of parts suppliers and other industry spin-offs); and the sector is seen by competing jurisdictions as a catalyst for development and economic diversification. That incentives have become the norm in the auto industry can be illustrated by a quote from the CEO of Nissan: ‘Incentives [are] part of the game everywhere When we built in Canton [Mississippi] we received incentives from the state when we expanded our plants in Mexico, we received incentives This is part of the global game to lure investment’ (Vander Doelen and Brieger, 2004: FP1, FP4). The location incentives game in autos can be played only by large economies, or by sub-jurisdictions within large economies. The government players in the game since the 1990s are predominantly members of preferential trading arrangements.

Oman (2000) notes that ‘global “bidding wars” to attract FDI may be producing an uncontrolled upward spiral in costly “investment incentives” that weaken public finances while introducing market distortions in the allocation of real investment’ (p. 9). Bidding wars constitute a classic political economy problem: if there is a consensus among economists that bidding wars involve a misuse of resources, why are they so prevalent? The answer is the one exemplified by the prisoner’s dilemma – a government that refuses to play the game in an environment in which others are active stands to lose out on investment. If competitive pressures drive governments to offer incentives to attract what they consider to be critical investments by MNEs, in the case of this chapter, auto assemblers, what does this tell us about the relative bargaining strength of the players and what are the implications for public policy? The chapter argues that both the auto MNEs and governments, including the sub-national level in federations, have become quite sophisticated at playing the locations incentives game, but that the firms clearly have the upper hand. Despite the costs of the game and the difficulty of determining whether the incentives generate the anticipated benefits, the incentives game, at least in North America, is likely to end only when the firms decide to stop playing.

Corporate–government negotiations over incentives for greenfield automotive investment in North America or the expansion of assembly

capacity go back to the 1960s.⁵ The issue was news again when the Asian assemblers began to invest in the US and Canada in the early 1980s and garnered support of various kinds from the jurisdictions in which they indicated an interest in establishing new assembly plants. Investments in assembly facilities to serve the North American market have continued, with European as well as Asian auto MNEs creating or augmenting assembly capacity in the 1990s and early years of the twenty-first century. Canada and the province of Ontario (the sub-national jurisdiction in which all auto assembly plants in Canada are located), which were not active in the 1990s competition for assembly plant investment, have now entered the game,⁶ as they endeavor to lure new investment and ensure plant expansions and upgrading.

This chapter adopts the definition of investment incentives used by Charlton in his recent study on investment incentives done for the OECD (Charlton, 2003). Investment incentives are 'government financial benefits, primarily offered to foreign investors rather than less mobile domestic investors, for the purpose of influencing the size, nature or location of an investment project' (*ibid.*, p. 9). Among the commonly employed incentives are 'cash grants, corporate tax reductions, property tax abatements, sales tax exemptions, loans, loan guarantees, assistance with firm-specific job training funds and infrastructure subsidies' (*ibid.*, p. 10).

The chapter analyses location incentives as they relate to transplant automotive assembly investment in the US⁷ and Canada to demonstrate the evolving character of the incentives game and its implications for public policy. To do so it proposes a number of propositions about locational tournaments, which are then examined using information gathered from 18 instances of Asian and European auto MNE investment in both countries. The chapter utilizes a case study approach (Eisenhardt, 1989; Yin, 2003), with multiple cases of MNE greenfield investment in assembly capacity over two time frames in the US and Canada. All instances of new MNE transplant investment in auto assembly are included. The methodology is qualitative rather than quantitative. The data on investments, incentives and jobs have been gathered from secondary sources, among them industry publications, journal articles and newspapers.

The chapter is organized as follows. The next section reviews the relevant literature and generates a number of propositions. The third briefly outlines the industry environment in which the incentives game is embedded. The fourth examines three sets of state experiences with location incentives over the years from the early 1980s to 2000. The conclusion reviews the findings and addresses the feasibility of public policy initiatives to control the incentives game and the implication of an unfettered game for the US and Canada.

LITERATURE OVERVIEW

The literature on location incentives and/or state efforts to attract FDI is vast (for example Hanson, 2001). Much of it is critical, suggesting that incentives are market distorting, a misuse of scarce state resources, and that governments do not have the capacity to assess whether they are getting value for money (Burstein and Rolnick, 1995; Vernon, 1998; Morisset, 2003; Enrich, 2002). Some of the literature analyzes the role that location incentives play in firms' location decisions and suggests either that their value might be outweighed by other costs such as labor (Fisher and Peters, 1998, p. 13), or that incentives are important in the final, but not the preliminary, selection of a site, in other words that incentives play a role between regions of an economy once the initial investment decision has been made (Oman, 2000, pp. 10–11).⁸ A third segment of the literature examines the consequences of bidding wars and why so many states utilize incentives to attract investment (Charlton, 2003; Oman, 2000; McHone, 1987; Head et al., 1999). Implicit in the concept of a bidding war or a locational tournament is a bargaining relationship between the parties, or as Guisinger (1985, pp. 11–14) phrases it, a 'market' for investment in which governments compete for, and firms furnish, investment dollars. It is the competitive character of the incentives game which explains the selection of the MNE–state bargaining approach for part of this analysis.

The subject of MNE–state bargaining has a substantial intellectual pedigree. Much of the literature has examined relations between MNEs and national governments rather than between firms and sub-national units, though recognition of the importance of sub-national governments in locational tournaments is growing as a result of the incentives offered to Asian and European transplant vehicle assemblers by US states and other sub-national jurisdictions.⁹ The bargaining model assumes that both parties have something to gain, though how much each side wins is a function of its relative bargaining power (Eden and Molot, 2002, p. 361).

The first work on MNE–state bargaining looked at MNE–host country (HC) bargaining in the context of a firm bargaining with a developing country over new FDI in resource extraction (Vernon, 1971). Vernon's obsolescing bargain (OB) model argued that the original bargain favored the MNE, but that the position of the firm would weaken over time, in part because the firm's assets could be held hostage or nationalized by an HC government. Moran (1973) and Kobrin (1987) among others¹⁰ applied the OB model to manufacturing. In their view, MNE–HC bargains in manufacturing are less likely to obsolesce because the technology assets of the firm are harder for the HC to acquire and the MNE will augment its original investment if circumstances warrant it. In oligopolistic industries

such as autos, Bennett and Sharpe (1979) suggest that the HC's bargaining position was strongest at time of entry because what was at stake was market access; once the firm had established itself in the market, its linkages to other industry stakeholders and its technological assets – to say nothing of jobs – enhanced its bargaining power.

Each party brings assets to the bargaining table. For the HC, these are country specific advantages (CSAs), which include access to the local market, labor, input costs to production such as energy and other raw materials, currency values and so on (Eden and Molot, 2002, p. 361). The MNE's most valuable assets lie in its intellectual property or knowledge about the production process, its links with other industry players, its name and reputation.

HC bargaining power is stronger when it has rare, location-bound CSAs that are desired by the MNE. MNE bargaining power is stronger when the HC wants firm specific advantages (FSAs) that are inimitable and in scarce supply. Thus it is the relative resources of the MNE *vis-à-vis* the HC that are the underlying determinant of potential bargaining power in each negotiation. (Ibid., p. 365)

MNE bargaining power has been increased by the mobility of capital.

As noted, much of the analysis of MNE–HC bargaining has focused on national governments. International and regional trade agreements as well as bilateral investment treaties constrain a range of signatory behavior, including prohibitions on performance requirements and some kinds of subsidies to industry. However, neither various World Trade Organization agreements nor the North American Free Trade Agreement (NAFTA) contain provisions that restrict or limit their members from offering investment incentives. Chapter 11 of NAFTA does not address investment incentives. Although the NAFTA partners agreed to consult with a view to reforming their subsidy practices, there was no commitment to restrict subsidies of any sort, including those relating to investment (Hufbauer and Schott, 1993, p. 82; Brewer and Young, 1997, p. 192).

Auto industry experience (as well as that of other sectors, such as electronics and banking) in the last two decades demonstrates that the competition for investment has expanded to include the sub-national and municipal levels of government. In the North American auto industry, the bidding wars have been and continue to be between MNEs and US state governments and municipalities (and between these jurisdictions and their Canadian counterparts), not between MNEs and national governments (although the national level may play a subsidiary role in some industry–government negotiations and may commit funds to secure an investment). Oman (2000) suggests that bidding wars tend to be intense in particular industries (autos is the example cited) and that 'most incentives-based competition

is effectively intra-regional', pointing to the competition between economies or between jurisdictions within an economy, which is indicative of an MNE's decision to locate in a particular region (p. 10).

Bidding across states within an economy increases the bargaining power of the firm as well as the collective action problem for the country, most notably the United States, when there are no restrictions on this kind of activity (Thomas, 1997, p. 18).¹¹ Firms will purposively seek bids from several jurisdictions (even if the firm has already determined its location of preference) to enhance their bargaining power and the value of the final incentives package. With the passage of time and the recognition of the attractiveness of auto assembly plants to bring direct and indirect jobs (the latter through the potential proximate or co-location of suppliers as well as spin-off jobs resulting from new and better paying employment in the community), the value of location incentives for the most part has increased from decade to decade (though there are instances of greenfield investment where this is not the case).

The OB model envisioned the MNE–HC relationship as essentially adversarial. While this remains the case because bargaining over potential investment locations remains intense and there are losers – jurisdictions not successful in attracting the FDI – a new perspective suggests MNE–HC relations can also be seen as cooperative: each party has something to offer the other. Although bargaining will continue over conditions of FDI entry, the cooperative view takes a longer-term perspective on the relationship and suggests that cooperation is necessary for each party to derive maximum benefits from the investment. The government recognizes the longer-term value of the MNE's investment in the local economy, jobs, local sourcing and research and development. The MNE appreciates its dependency on infrastructure (educational, transportation, as well as labor selection services and so on) provided by government. The cooperative view also acknowledges the importance of a good MNE relationship with government officials and of the MNE's search for legitimacy in its new location (Luo, 2001, pp. 401–19). Offshore investors are anxious to diminish the liability of foreignness (Hymer, 1960/1976) or being an outsider in a market where insider status is valued (Eden and Molot, 1993, pp. 31–64). That the MNE–HC relationship may be conceptualized as cooperative, however, does not mean that one party to the bargaining does not have the upper hand, since the MNE may well have alternative locations within a national economy.

The OB model also envisioned the MNE–HC relationship as a one-off one. However, auto industry experience suggests that MNE–HC bargaining often recurs, either over HC policy choices or when a firm bargains either with the same jurisdiction over the establishment of a second facility

or with a neighboring/competing one over a new plant. Based on their study of MNE–state bargaining in the Canadian auto industry, Eden and Molot (2002, pp. 359–88) suggest that previous bargains can constrain future ones and that early movers may have an advantage. This was largely borne out in the context of tariff policy and negotiations over auto provisions in the Canada–US Free Trade Agreement and NAFTA. The situation might be somewhat different in bargaining over location incentives. In examining Chrysler’s bargaining with the state of Illinois in 1963 and then in 1985, Thomas suggests Chrysler ‘learned to take advantage of the mobility’ it had with respect to location sites (1997, p. 102). In the first case, Chrysler received incentives that came to about US\$244 per job and a ratio of incentive to investment of 2.2 per cent; in the second the comparable figures were US\$71 004 per job and 35.5 per cent of the cost of the US\$500 million investment (*ibid.*, pp. 100–101). Other examples of iterative bargaining in North America include Honda, which has opened assembly facilities in Marysville, Ohio (announced 1980), East Liberty, Ohio (announced 1987), and Lincoln, Alabama (1999), in addition to its plant in Alliston, Ontario (announced 1984), and Toyota, which has done the same in Georgetown, Kentucky (1985), Princeton, Indiana (1995), Cambridge, Ontario (1985), and has announced plans to establish a truck assembly plant in San Antonio, Texas (2003).

Trade regimes can be an important incentive in the MNE–state bargaining game. Trade barriers have historically promoted FDI to get in behind the tariff or other trade regime wall. Voluntary export restraints (VERs) imposed on imports of Japanese vehicles in the early 1980s spurred initial transplant investment in the US and Canada. The NAFTA rules of origin and the 25 per cent US tariff on trucks are critical to understanding the third locational tournament. Under NAFTA rules of origin, cars, light trucks, engines and transmissions must have 62.5 per cent North American content to move duty free among the signatory markets; for other vehicles and parts the figure is 60 per cent. Assemblers such as Mercedes or BMW, which import major components such as engines,¹² will locate in the largest and most affluent market to avoid rules of origin (ROO) problems, or in the case of trucks (for example Toyota), now an attractive product to all assemblers, the tariff on imports.

The discussion thus far has addressed the HC–MNE bargain largely from the perspective of the former. There are two parties to the bargain, however. What does a host country (using the term generically to encompass sub-national jurisdictions) hope to gain from the negotiation and how realistic are these expectations? The HC’s interests lie in jobs, those created directly in vehicle assembly by the MNE, and indirectly as a result of the attraction of supplier firms to the locality as a result of the presence of assembly

capacity. Some states, like Alabama, see the attraction of an auto assembly plant as an opportunity to alter its development strategy and to move into an industry with potential for spin-offs in related sectors (Gardner et al., 2001, pp. 80–93; Charlton, 2003, p. 10). HC politicians, most notably governors but also state legislators, see attracting a significant greenfield investment like a vehicle assembly as election insurance.

The HC also sees gains in potential tax revenue from new industry and new workers as well as the added benefits of a larger and more skilled workforce. How accurately are those playing the incentives game able to anticipate employment gains to the area and therefore other spin-offs? Connaughton and Madsen (2001), who examined the premises of impact studies done to estimate job creation as a result of the location of BMW in South Carolina and Mercedes-Benz in Alabama, suggest that the studies were overly optimistic in their predictions of jobs that would follow from the establishment of the assembly facilities. Both studies double-counted the number of indirect jobs that would result from supplier migration to the area of the new assembly plants and then included these as direct jobs (*ibid.*, pp. 393–40). Vernon (1998) also noted that the measurement of the costs and benefits ‘to a subnational region associated with a given investment is subject to wide margins of error’ (p. 147). On the other hand, most of the transplant or New North American Assemblers (NNAA) have announced expansion plans prior to or just after the opening of their new assembly plants and a longer lead time might be required before an assessment of the value of location incentives can be undertaken.

There are employment issues beyond jobs created that come into play in the location incentives game. The first is the link between local unemployment and bidding for FDI. Thomas (1997) argues that there is a weak relationship between incentives and local unemployment, though a concern about unemployment may be a consideration in bidding for FDI (p. 137). Research suggests that the NNAAAs, whether Asian or European, are attracted by locales where there is a large potential workforce without previous experience in the auto industry. The second is the presence or absence of unionized plants in the bidding jurisdictions, an issue that addresses employment from the MNEs’ perspective. Except where transplant MNEs are either significantly owned by a member of the Big Three or are participating in a joint venture with one of the Big Three (the Toyota–GM investment in NUMMI, for example), their preference is for locations where there is a limited history of union activity, if not the existence of right-to-work laws. Ulgado’s research on the significance foreign investors in the US attach to different categories of incentives – more specifically the priority Japanese firms place on what is termed ‘employee training’¹³ and

site selection – reinforces the link between location and labor (Ulgado, 1997, p. 284). Third is the relative weight of labor costs in comparison to tax breaks in bidding wars; Fisher and Peters (1998) suggest that ‘small differences in labor costs can outweigh quite large differences in tax costs’ because of the importance of labor costs in total production (p. 13).

Bidding wars are expensive and governments have multiple calls on their available funds. Can all jurisdictions afford bidding wars? Is the expenditure on incentives warranted by returns on the investment, or do jurisdictions feel they have no option but to play as the game heats up, regardless of how attractive on other grounds a locale may be to assemblers? The number of US states bidding for greenfield auto MNE investment over the 1990s suggests that states feel compelled to play the game. Whether or not sub-national administrations can reasonably evaluate the costs and benefits of bidding wars, from the perspective of these governments, participation in bidding wars is rational. The cost of not offering subsidies when others are doing so is potential lost investment. Thus the likelihood of offering incentives increases if neighboring states use incentives to bid on investment (McHone, 1987, pp. 24, 28). The bidding wars over auto FDI are a classic example of the prisoner’s dilemma or a collective action problem. The incentives game has become increasingly political and few are prepared to examine its value. Enrich (2002) suggests the game is zero-sum, is responsible for a decline in effective state and local tax rates and the shifting of the tax burden to less mobile tax payers, and may be based on faulty projections (as was the case in Alabama). Although some accountability measures have been attached to tax breaks, the efficacy of the measures is open to question (*ibid.*, pp. 415–28). Many US states offering location incentives are among those with the lowest expenditures per capita on education, for example.

The literature review suggests a number of propositions with respect to the iterative incentives game that can be explored in the US and Canadian contexts:

1. Experience has increased the capacity of auto MNEs to play the incentives game, although it does not always result in an incentives package of greater value either in terms of the value of the incentives package as a proportion of the total investment or the size of the incentive per job created.
2. The number of jurisdictions bidding for an investment enhances the capacity of the MNE to play off one bidder against another to its own advantage.
3. Other factors (market, transportation access, labor) may substitute for cash in some circumstances.

4. The availability of untrained labor and an absence of a union environment are important in auto MNEs' location decisions.
5. The bidding game has generated a significant collective action problem in the United States, which, as a result of market integration, has ensnared the Canadian province of Ontario (the only location in Canada where autos are assembled).
6. Market size and market affluence predispose MNEs concerned about meeting the NAFTA rules of origin to locate in the largest market.

ENVIRONMENT OF THE INCENTIVES GAME

Some attention to the environment in which the incentives game for automotive investment has been played as well as some of its unintended consequences deserve attention prior to an examination of the three North American locational tournaments.

First, the incentives game has had some noteworthy 'unintended consequences' (Charlton, 2003, p. 11), namely a substantial contribution to the transformation of the North American auto industry, the most dramatic characteristic of which is the declining competitive position of the traditional US-based auto assemblers, Ford, General Motors (GM) and Chrysler (now Daimler-Chrysler)¹⁴ in their home market. Over the last two decades the Asian and European transplant assemblers have built 18 new assembly facilities, many in the US South (Maynard, 2003, p. 18), with others (for example the Toyota truck plant in Texas) in the planning stages.

Data on auto sales in the US in the years 2001–2003 reveal the Big Three sold only slightly more cars than did the Asian and European vehicle assemblers (*Wards' Automotive Yearbook*, various years).¹⁵ Another indicator of the changing position of the US-based automotive assemblers is that in 2003 Toyota became the second largest seller of cars in global terms, slightly ahead of Ford and about a million cars behind GM (Maich, 2004: FP3). The Big Three continue to dominate the light truck market, a now critical component of overall vehicles sales. As the transplants develop capacity to assemble trucks, however, the hegemony of the Big Three will likely be challenged in this vehicle segment as well.

Second, there is considerable excess assembly capacity in the North American and global auto markets, the latter estimated to be as high as 20 million units (GM presentation to Ontario industry consultation, May 2002). DesRosiers (2004) notes that the 85 North American automotive assembly plants have the capacity to produce 21 to 23 million vehicles annually. Although some 20 million vehicles were purchased in the three NAFTA countries in 2000 and 2001, vehicle sales over the last decade have

averaged about 17 to 18 million units a year (with projections for the next few years in the same range). Thus there is overcapacity of more than 4 to 5 million vehicles, the equivalent of ten or more assembly plants depending on individual plant capacity. Announced increases in assembly capacity will raise total capacity by an additional 4 million plus units annually. A number of assembly plant closures have been announced, including three in Canada – Ste Therese, which closed in September 2002, the Daimler Chrysler Pillette Road minivan plant, which closed after the 2003 model year, and the Ford truck plant at Oakville, which closed at the end of June 2004 – and a number of US plants which had previously assembled cars are now assembling trucks. But plant closures do not necessarily mean a decrease in the supply of vehicles. With capital investments the assemblers have been able to augment production without increasing the number of plants.

Third is production as a ratio of market share, which demonstrates the relative imbalance between production and sales in Canada as compared to the US. Canadians purchase between 8 and 9 per cent of the vehicles sold in North America annually and assemble close to twice that number. Between 1990 and 2003, Canada produced between 15.5 and 17.4 per cent of all vehicles (cars and light and heavy trucks) in North America. Americans buy approximately 85 per cent, but manufacture just over 70 per cent of vehicles.

Finally there is the amount of MNE investment in assembly capacity, greenfield and plant upgrading. In 2002 Canada ranked third, behind China and the United States, in automotive investment (Brent, 2003a: FP7). Investments to upgrade and retool assembly plants raised Canada's ranking in assembly FDI in 2002 from its recent sixth or seventh place to third. DesRosiers (2002) suggests that Canada has received over 20 per cent of FDI in assembly in Canada and the US since the mid-1980s (p. 5). Although Canada has received substantial FDI in plant expansion, including for the assembly of new models in Canada (for example the Lexus at Toyota's Cambridge facility), Ontario has not attracted a greenfield investment since 1989. Over the 1990s, the new assembly plants have been built (with more planned) in the US South.

EXPERIENCE FROM LOCATIONAL TOURNAMENTS OVER TWO DECADES

Information has been gathered from three sets of locational tournaments involving Asian and European transplants over two decades, the 1980s when the initial wave of Asian FDI in assembly occurred in North America,

and then a second wave of assembly FDI by the NNAAs in the US in the 1990s.¹⁶ This wave is continuing into the early years of the current decade – the February 2003 decision by Toyota to build a truck assembly plant in San Antonio and a March 2003 announcement by Mitsubishi that it will expand its plant in Normal, Illinois (Ohnsman, 2003: FP 12) – but the data collected end with the 2000 Hyundai announcement of its decision to build an assembly plant outside Montgomery, Alabama.

US Locational Tournaments of the 1980s

As Tables 13.1 and 13.2 demonstrate, there were eight assembly plants established in the US during the 1980s by the Asian auto MNEs. Three – NUMMI in Fremont, California, Mazda at Flat Rock, Michigan, and Diamond Star in Normal, Illinois – were joint ventures with the Big Three, with GM, Ford and Chrysler, respectively.¹⁷ Of these, only the NUMMI plant received no investment incentives because it utilized an existing facility (which GM had closed). Five assembly facilities were established by Japanese transplants anxious to improve their competitive position in the

Table 13.1 1980s US locational tournament – low incentive values

MNE	Jobs	Plant capacity	Plant value (US\$ mil.)	Incentives (US\$ mil.)	Incentives as % of value	Incentives per job (\$)	Incentives per vehicle (\$)
Honda – Marysville	2000	120 000	242.7	24.30	10	12 135	202
Nissan – Smyrna	2200	180 000	550.1	31.90	5.8	14 500	177
NUMMI – Fremont	3000	200 000	301.2	0	0	0	0
Mazda – Flat Rock	3500	250 000	433.1	104	24	29 740	416
Diamond Star – Normal	2500	240 000	547.4	78.50	14.3	31 390	326
Toyota – Georgetown	2000	200 000	557.6	111.50	20	55 760	557
SIA – Lafayette	1700	120 000	443.5	78.50	17.7	46 160	653
Honda – E. Liberty	1800	150 000	334.5	0	0	0	0

Table 13.2 1980s US locational tournament – high incentive values

MNE	Employ	Plant capacity	Plant value (US\$ mil.)	Incentives (US\$ mil.)	Incentives as % of value	Incentives per job (\$)	Incentives per vehicle (\$)
Honda – Marysville	2000	120 000	242.7	26.70	11	13 350	223
Nissan – Smyrna	2200	180 000	550.1	42.90	7.8	19 500	238
NUMMI – Fremont	3000	200 000	301.2	0	0	0	0
Mazda – Flat Rock	3500	250 000	433.1	111.5	25.8	31 860	446
Diamond Star – Normal	2500	240 000	547.4	251.8	46	100 730	1050
Toyota – Georgetown	2000	200 000	557.6	346.70	62.2	173 300	1735
SIA – Lafayette	1700	120 000	443.5	78.50	17.7	46 160	653
Honda – E. Liberty	1800	150 000	334.5	0	0	0	0

US, but constrained from doing so by a combination of an appreciating currency and by US protectionism.¹⁸ Of these five greenfield investments, the Honda plant in Liberty, Ohio, (announced in 1987) can be considered an extension of the first Honda investment (announced in 1980), since it is located in a county adjacent to the original Marysville plant. It received no location incentives.

Honda's decision to become the first to invest in the US was a desire to attain first mover advantage relative to its Japanese rivals. Decisions by the other Japanese auto MNEs to invest in production capacity in the US and then Canada were a direct result of VERs and the inability, because of the quotas, to meet consumer demand for vehicles.

The first round of locational tournaments brought initial investments to the seven sites of US\$3.41 billion. This FDI created 18 700 jobs (the original number of announced assembly jobs), with initial announced capacity of 1.46 million vehicles annually. Because reports on incentives vary considerably, the total value of incentives, some of which included the provision of infrastructure in locations (for example for the Toyota plant in Kentucky) where the necessary highway, sewers and electrical infrastructure was

Table 13.3 1980s US locational tournament – competition, labor and capacity

MNE	Location	Date announced	No of other bids	Duty remissions	Union	Capacity increase	Govt partic. in incentives
Honda	Ohio	1980	4	Yes	No	Yes	F, S, L*
Nissan	Tennessee	1980	7	Yes	No		S, L
NUMMI	Calif.	1983	5	Yes	Yes		
Mazda	Michigan	1984	9	Yes	Yes		F, S
Diamond Star	Illinois	1985	4	Yes	Yes	Yes	S
Toyota	Kentucky	1985	2	Until 1996	No	Yes	S
Subaru – Isuzu SIA	Indiana	1986	6	Yes	No	No	F, S, L
Honda	Ohio	1987	3	Yes	No	See above	

Note:

*F = federal government.

S = state government.

L = local government.

not available, is given twice, first in terms of the lowest value of incentives (Table 13.1) and then from the perspective of the highest cited (Table 13.2). The total value of incentives in the first round of US locational tournaments ranged between US\$428.8 million and US\$858.1 million. The Smyrna Tennessee Nissan plant was the mostly southerly location in the first locational tournament.

Table 13.3 provides additional information on the first wave of transplants in the US. It demonstrates, among other things, the number of known other bidders for the assembly plant investment, the non-union environment of all new plants save for those that were joint ventures with the Big Three, and the importance of infrastructure investment since the stand-alone investments were in states that previously did not have manufacturing plants of the size contemplated by the auto MNEs. The table also indicates the value of foreign trade zones.¹⁹

A number of lessons can be drawn from US bidding wars of the 1980s, omitting NUMMI and Honda's expansion plant at East Liberty:

- (a) In all but the case of the Toyota plant in Georgetown Kentucky, there was more than one location bidding for the facilities. In three cases – Mazda, Diamond Star and Toyota – there was active competitive bidding, with MNEs clearly indicating that the size of the incentives

package would be a determining factor in site selection; Indiana felt it had no choice but to compete with location incentives; its bidding to get the Subaru–Isuzu plant was the first time it had used location incentives to attract investment. Mazda compared the incentives package of the three finalists. According to Chrysler and Mitsubishi, the incentive package offered by Illinois was a determining factor in the MNEs' decision to locate their joint venture there. Michigan dropped out of the race in 1985 because Mitsubishi was asking for more money than Mazda had received (as a proportion of jobs and total investment). Missouri was reportedly willing to offer Toyota US\$260 million to locate in that state.

- (b) Mazda received the largest proportion of incentives to the announced value of the plant – 24 per cent; the value of other incentives to plant value range from 5.8 per cent (Nissan) to 20.0 per cent (Toyota). The average was about 15 per cent.
- (c) States were the largest contributors to incentive packages.
- (d) Labor issues were important in location decisions, but they were framed more in terms of an effort to avoid unionization than labor supply. As noted, the only unionized plants were those that were joint ventures with the Big Three. The quality of labor was a factor in Toyota's subsequent expansion of its Georgetown plant.

Canadian Locational Tournaments in the 1980s

Tables 13.4, 13.5 and 13.6 present information on the entry of the Asian transplants into Canada and the factors that played a role in these investment decisions. The Canadian locational tournament was smaller than either of those that unfolded in the US. The total value of the four transplant facilities was \$1.4 billion (constant 1983 US dollars), with initial assembly capacity of 430 000 vehicles annually and 4900 new jobs. The announced value of incentives ranged from US\$243 to US\$273 million, a much narrower range than in either of the US tournaments. Honda's decision to build an assembly plant in Canada four years after it committed itself to a US plant was based on market considerations and pressures that resulted from the VERs as well as an interest in determining the profitability of a small plant (announced capacity was only 80 000, although Honda started increasing capacity within months of the original announcement). Honda also hoped to enjoy the same first mover advantage in Canada that it experienced in the US. Honda did not request incentives but did receive funds from two counties for infrastructure improvements, which the province of Ontario subsequently repaid. Honda selected its Alliston location to avoid locations in the auto industry heartland of the province.

Toyota announced its Canadian investment decision simultaneously with its US announcement and indicated that it was open to competitive bidding. Five other provinces and 37 Ontario municipalities competed for the Toyota plant. Quebec and BC competed for the CAMI plant, as did four other Ontario locations. Protectionism was also a factor in the CAMI location decision. GM was active in negotiating the entry of the joint venture. CAMI's capacity to obtain Auto Pact status as a result of its joint venture with GM was an important factor in its investment decision. Proximity to the US and to large numbers of suppliers were important considerations in the location decisions of Honda, Toyota and CAMI.

Hyundai's decision to establish assembly capacity in Canada and its selection of Bromont, Quebec, as well as its failure to survive economically, make it the outlier among transplant auto MNEs, in both Canada and the US. Hyundai is also the only NNAM to locate in Canada prior to doing so in the US and the only wholly owned transplant to be unionized. The main reason for a Quebec location was that Hyundai was proportionately more successful in Quebec than in other Canadian provinces (40 per cent of its sales at the time were in Quebec), although 18 sites in Ontario and four in BC expressed interest in the plant. A Quebec site made the firm eligible for generous incentives from the federal and provincial governments. Both levels of government were prepared to invest further to save the plant, but it closed in 1993.

Important to all four of these investments were the provisions that would allow them to export vehicles to the US duty free. CAMI, through its joint venture with GM, obtained Auto Pact status (the last company to do so), even though it began production after the Canada-US Free Trade

Table 13.4 Canadian locational tournament – low incentive values

MNE	Jobs	Plant capacity	Plant value (US\$ mil.)	Incentives (US\$ mil.)	Incentives as % of value	Incentives per job (\$)	Incentives per vehicle (\$)
Honda (Alliston)	700	80 000	253.8	14.0	5.5	19 941.22	174.49
Toyota Cambridge	1000	50 000	272.3	46.3	17.5	46 283.61	925.67
Hyundai Bromont	1200	100 000	245.3	74.9	30.5	62 392.12	748.71
CAMI Ingersoll	2000	200 000	633.9	107.8	17.0	53 880.38	538.50

Table 13.5 Canadian locational tournament – high incentive values

MNE	Jobs	Plant capacity	Plant value (US\$ mil.)	Incentives (US\$ mil.)	Incentives as % of value	Incentives per job (\$)	Incentives per vehicle (\$)
Honda (Alliston)	700	80 000	253.8	14.0	5.5	19 941.22	174.49
Toyota Cambridge	1000	50 000	272.3	55.1	20.3	55 131.94	1102.64
Hyundai Bromont	1200	100 000	245.3	74.9	30.5	62 392.12	748.71
CAMI Ingersoll	2000	200 000	633.9	129.3	20.4	64 656.46	646.56

Table 13.6 Canadian locational tournament – competition, labor and capacity

MNE	Location	Date announced	No. of other bids	Duty remissions	Union	Capacity increase	Govt partic. in incentives*
Honda	Ontario	1984	3	Until 1996	No	Yes	L
Toyota	Ontario	1985	42	Until 1996	No	Yes	P
Hyundai	Quebec	1985	22	Until 1996	Yes (in 1993)	No – plant closed in 1993	F, P
CAMI	Ontario	1986	6	Auto Pact status	Yes	Yes	F, P, L

Note:

*F = federal government.

P = provincial government.

L = local government.

Agreement had been negotiated. The Canadian government signed Memoranda of Understanding with the other three assemblers, which gave them the equivalent of Auto Pact status, allowing them to import components and vehicles duty free.

What are the lessons of the Canadian locational tournaments?

- (a) The most intense bidding was for the Toyota plant and Toyota actively solicited bids. Most of the bidding for the Toyota investment was between different locations in Ontario.

- (b) Hyundai received incentives that amounted to a significantly larger percentage of the value of the total investment than its competitors; part of this was a function of a Quebec location and desire of the national and Quebec governments to attract industry to the province.
- (c) Labor considerations were important in the location decisions of Honda and Toyota; in the case of Toyota, the Cambridge area had 14 per cent unemployment in 1985, which assured Toyota a large potential pool of job applicants.
- (d) Although Honda and Toyota initially announced plants with very low assembly capacity, they quickly increased output capacity.
- (e) Despite active bidding for the plants, the presence of the bulk of Canadian assembly capacity and parts production in southern Ontario and this region's proximity to the main transportation link to the US influenced Honda, Toyota and CAMI to southern Ontario location choices.

US Locational Tournaments in the 1990s

Locational tournaments intensified with the second wave of auto MNE investment in the US. As Table 13.7 indicates, this tournament involved investments in six new vehicle assembly facilities, five of which were in the

Table 13.7 1990s US locational tournament – low incentive values

MNE	Jobs	Plant capacity	Plant value (US\$ mil.)	Incentives (US\$ mil.)	Incentives as % of value	Incentives per job (\$)	Incentives per vehicle (\$)
BMW – Spartanburg	2000	78 000	306.5	103.4	33.7	51 676	1325
Mercedes – Vance	1500	60 000	207.6	175.1	84.3	116 725	2920
Toyota – Princeton	2000	150 000	787.4	58.9	7.5	29 460	390
Honda – Lincoln	2300	150 000	384.2	94.8	24.7	41 235	630
Nissan – Canton	4600	400 000	822.4	209.7	25.5	45 590	525
Hyundai – Hope Hull	2000	300 000	564.7	142.7	25.3	71 370	475

US South. The 1990s incentives game expanded to include two European assemblers, Mercedes and BMW, and Hyundai, which had decided to build a US assembly facility. There were no joint ventures in this round. The total value of the plants in the second US locational tournament was US\$3.072 billion, which would create 14 400 direct jobs, and announced assembly capacity of 1.138 million vehicles annually. The total value of announced incentives was between US\$784.6 million and US\$1.104 billion (all figures in constant 1983 US dollars). Comparing the low value of incentives (Table 13.7), with the exception of Toyota's FDI in Indiana (to assemble trucks), the incentives offered were valued at a minimum of 25 per cent of the announced value of the plant and a maximum of 84 per cent (the Mercedes plant in Alabama). Again, with the exception of Toyota, all the new assembly facilities are in the US South and mark the movement of assembly capacity southward in a dramatic fashion, what some analysts are calling 'Detroit South'. Table 13.8 provides figures on the high value of incentives (relevant for three of the new plants).

Tariffs and a threatened luxury tax on vehicles (those over US\$30 000) mooted in the early 1990s were considerations in the decisions of Toyota, BMW and Mercedes to establish assembly capacity in this second wave of transplant investment. BMW and Mercedes saw a US location as the only way to compete with luxury vehicles manufactured by the Japanese auto MNEs. For BMW and Mercedes, high labor costs and inflexible working conditions in Germany were also a major reason to establish assembly

Table 13.8 1990s US locational tournament – high incentive values

MNE	Jobs	Plant capacity	Plant value (US\$ mil.)	Incentives (US\$ mil.)	Incentives as % of value	Incentives per job (\$)	Incentives per vehicle (\$)
BMW – Spartanburg	2000	78 000	306.5	143.3	46.7	57 632	1835
Mercedes – Vance	1500	60 000	207.6	334.3	161	222 840	5570
Toyota – Princeton	2000	150 000	787.4	58.9	7.5	29 460	390
Honda – Lincoln	2300	150 000	384.2	94.8	24.7	41 235	630
Nissan – Canton	4600	400 000	822.4	270.7	32.9	58 840	677
Hyundai – Hope Hull	2000	300 000	564.7	142.7	25.3	71 370	475

Table 13.9 1990s US locational tournament – competition, labor and capacity

MNE	Location	Date announced	No. of other bids	Duty remissions	Union	Capacity increase	Govt partic. in incentives*
BMW	SC	1992	3	Yes	No	Yes	F, S, L
Mercedes Benz	AL	1993	5	Yes	No	Yes	F, S, L
Toyota	Indiana	1995	6	Yes	No	Yes	S, L
Honda	AL	1999	10	Yes	No	Yes	F, S, L
Nissan	Miss	2000	2	Yes	No	Yes	S
Hyundai	AL	2000	7	?	No	No	S, L

Note:

*F = federal government.

S = state government.

L = local government.

capacity in the US. Assembly in the largest NAFTA market would obviate concerns about North American content. Honda's difficulties in 1990 with rules of origin under the Canada–US Free Trade Agreement were a consideration in its choice of a US location.

All of the MNEs were attracted by the lack of unions in the US South and by large numbers of potential job applicants, since most of them were considering locations where unemployment was higher than the national average. Since in various ways all the auto MNEs participating in the second wave of bidding wars had clear positions with respect to unions, what was of greater import than unemployment levels was what might be termed 'a good work ethic'. In addition, the MNEs sought and received state assistance in job applicant screening, a strategy to ensure they did not become the subject of suits around hiring. As Table 13.9 demonstrates there was considerable competition among states for these greenfield assembly plants. Mercedes, for example, was aware of the incentives BMW had received and believed it was a better company than its competitor. A Mercedes consultation prior to site selection indicated that incentives would be an issue in the location decision. North and South Carolina, Nebraska and Georgia all bid for the plant. Interestingly, Alabama was not one of the sites originally identified by the firm's site selection aides. Of all the states playing the incentives game, Alabama was the most successful, attracting three of the six greenfield plants of the second incentives game.²⁰ Honda had selected Alabama from the outset, before incentives entered the picture.

The lessons derived from the second US locational tournament do not vary much from those of a decade earlier. However, this was arguably a more important set of bidding wars because of the size of some of the incentive packages and the much more open inter-state competition for assembly FDI.

- (a) The level of incentives offered was a major consideration in a number of location choices, among them those of BMW, Mercedes, Honda (which, though defensive, was attentive to incentives for the first time) and Nissan.
- (b) MNEs clearly competed for incentives and played alternative sites off against each other, with the result that, with one exception, incentives were much richer than they were in the 1980s.
- (c) Of the three Japanese auto MNEs that participated in the US bidding wars over location in the 1980s, only Toyota received less in incentives (measured in terms of incentives as a proportion of plant value, incentives per job created, and incentives per unit of capacity) than in the first wave of transplant investment.
- (d) Mercedes received the largest proportion of incentives to the announced value of the plant – over 84 per cent using the low value of incentives; the value of others ranged from 7.5 per cent (Toyota truck plant in Princeton, Indiana) to 33.7 per cent for BMW. The average, which is distorted by the Mercedes subvention, was 33.5 per cent.
- (e) A US location was a major consideration for those MNEs concerned about meeting the NAFTA rules of origin.
- (f) Labor considerations, including number of potential job applicants, flexibility with respect to labor, and a new factor, state willingness to assist in applicant selection, were significant to all MNEs.

CONCLUSIONS

This paper examines successive bidding wars among jurisdictions for auto industry MNE investment, primarily for greenfield investment. Although most of the MNE–HC bargaining literature focuses on MNE bargaining with national governments, in the auto industry sub-national governments are the main bargainers and providers of incentives, with some support from local and national governments.

Comparing the two US locational tournaments, it is clear that MNEs became more aggressive in their demands for location incentives and are quite up front about their intention to play one jurisdiction off against another. Experience has increased the capacity of MNEs to play the

iterative incentives game. This is particularly evident in the 1990s bidding wars in the US and has continued into the early years of the twenty-first century. Because the value of competing incentives offered by losing bidders is rarely made public, it is impossible to say definitively that there is a relationship between the number of bidders and the level of incentives offered. However, the withdrawal of some bidders from a competition, for example Michigan in 1985 from the bidding over the Mitsubishi plant and other states over the Mercedes facility, suggest that a number of bids allows the MNE, all other considerations being equal, to locate where it will receive the largest sum of incentives as a proportion of the value of the plant as well as per employee and unit of capacity.

Not all HCs, using the term generically to mean sub-national governments, have the same CSAs: proximity to major transportation systems – highways as well as ports – is important, as is the availability of a large potential applicant pool and a right-to-work environment. Also important in the second US tournament was proximity to suppliers. In the US, in the bidding wars of the 1990s, the presence of other assemblers in a region, most notably the south central part of the country, and the attraction of suppliers as a result, made Alabama in particular an investment location of choice for Hyundai.

Although a flexible labor environment, meaning non-union, was an issue in those transplant investments that were not joint ventures with the Big Three, by the second round of locational tournaments this was surpassed from the MNEs' perspectives by the availability of a large supply of potential employees and state willingness to assist in the hiring process. In other words, when possible, MNEs opted for locations where unemployment was higher than the national average at the time of site selection. Of the 14 US investment sites for which information is available, ten were located in states with higher levels of unemployment at the time of site selection (Ohio, Tennessee, Michigan, Illinois, Kentucky, Alabama and Mississippi). South Carolina (one plant) and Indiana (two plants) had lower unemployment than the national average when the location was chosen, though Toyota's choice in Indiana was a county where unemployment was higher than the state and national averages at the time.

Market size and concern about tariffs were factors in many location decisions. Save for Hyundai, all Asian transplants located first in the US before moving into Canada. Following the implementation of NAFTA, MNEs concerned about their capacity to meet NAFTA rules of origin chose US locations. The US tariff on trucks was a key consideration for those NNAA intent on competing with the Big Three in the truck segment of the vehicle market.

This chapter cannot address the arguments of critics of the bidding game who oppose the use of incentives to attract investment. Some suggest that HCs have only limited capacity to anticipate the potential employment effects of MNE investment and therefore may offer location incentives that are neither necessary nor warranted. The examples cited by Connaughton and Madsen are those of BMW and Mercedes. Other critics argue that public funds could be used more productively in other ways (Oman, 2000, pp. 95–6; Thomas, 2000, p. 11). States have different motives for playing the incentives game, for example the desire of Alabama to alter the direction of its economy, but most share the interest in attracting jobs, both direct and indirect. Part of the difficulty is determining appropriate measures and time frames. At what point or points in time, for example, should job creation be measured? Do the kinds of jobs matter? One expected benefit is a reduction in unemployment at the country level. In this regard the big winners where county unemployment had declined substantially five years after the announcement of a plant were the three Toyota plants, Honda in East Liberty, Ohio, and the Mercedes plant in Alabama. In Alabama over the 1990s there has been a growth in suppliers locating in the state and close to the Mississippi border, and this has both boosted employment and contributed to making the region attractive to new greenfield investment, for example that of Hyundai in Hope Hill, Alabama (just outside Montgomery). The focus on growth in employment in one location does not consider job loss in another, however. In an industry with overcapacity, other assembly plants – those operated by the Big Three – closed (Thomas, 2000, p. 10).

Finally, the chapter illustrates the collective action problem that locational tournaments pose for US states and the US economy, and by extension for Canada. Several of the OCED publications cited in the introduction to this chapter express concern about bidding wars and the challenges of reducing their negative effects without making it impossible for governments ‘to pursue legitimate industrial policy goals’ (Charlton, 2003, p. 27). Is it reasonable to anticipate the adoption of policies to limit locational tournaments?

As Thomas (2000) outlines, the EU has taken some steps to restrict or regulate the use of location incentives. Responsibility for developing rules on regional aid and state aid to firms and the enforcement of the regulations rests with the European Commission.²¹ Despite conflicts with EU members, the Commission has gradually expanded its jurisdiction over state aid, increased the transparency of the aid process, and reduced the capacity of governments to offer location incentives (Thomas, 2000, ch. 4). However, the EU experience may be the exception. Investment incentives did not last long on the agenda of the failed Multilateral Agreement on Investment negotiations because governments were reluctant to surrender

what they consider useful industrial policy tools (Graham and Sauv , 1996, p. 128). Despite calls for Congress to ‘end the economic war among the states’ (Burstein and Rolnick, 1995), there is little interest in doing so.²² The US Treasury Department acknowledged the negative effects of the incentives game, but noted ‘Under our federalist system . . . the states are within their rights to reject our advice on incentives’ (cited in Crystal, 2003, p. 185). US state governors admit that bidding wars cause a problem, but are not prepared to surrender what is a very powerful re-election tool nor to cede any authority to a higher level of government (Thomas, 2000, p. 254). As a result, the bidding war for automotive investment is likely to continue until one of two things occurs: governments are able to achieve a cooperative and enforceable agreement that extends to their sub-national governments and that prohibits bidding wars, or the MNEs determine that there is so much assembly overcapacity that they voluntarily cease seeking competitive bids for new assembly facilities. Neither is likely to happen quickly.

NOTES

1. AUTO 21, a National Centres of Excellence initiative, funded research for this chapter. Leigh Wolfrom assembled the history of, and data on, the 18 MNE assembly investments in Canada and the United States. Patrick Wray and Ilka Guttler located a number of recent articles on transplant investments in the US and Ilka prepared the tables and charts on North American car and truck sales and carefully read the manuscript. The chapter has benefited from the questions and comments of the participants of the Safarian Festschrift in Toronto, 23–25 April 2004, as well as from the very helpful suggestions made by Lorraine Eden and Christopher Maule.
2. When Ford, which had decided to construct an assembly facility in Rio Grande do Sul, lost promised subsidies it considered proposals from two other states before choosing the state of Bahia for the plant (Hanson, 2001, p. 20). Hanson (2001), Charlton (2003) and United Nations (2004) all discuss competitive bidding in Brazil.
3. Between the states of Maharashtra and Tamil Nadu for a Ford–Mahindra assembly plant (Oman, 2000, p. 46).
4. Charlton (2003) notes bidding in 1996 between Association of South East Asian Nations (ASEAN) members, Thailand and the Philippines, for a GM assembly plant.
5. See discussion in Thomas (1997, pp. 113–20) with respect to bidding for Ford and GM assembly and engine plants after the implementation of the Auto Pact between Canada and the US. In 1978 Pennsylvania provided a range of incentives (job training, low-interest loans, rail and highway improvements; and local tax abatements) with a value of over US\$80 million to attract a Volkswagen (VW) assembly plant (Davies, 2002, p. 25), the only one in North America at the time, which, when fully operational, was to employ 20 000 workers. The facility never employed more than 6000 and closed in 1986 when VW decided to concentrate all its North American assembly at its Puebla, Mexico facility.
6. A range of statements by Ford executives makes clear the expectation that government financial support is key to any corporate investment to make its Oakville assembly plant into a flexible manufacturing facility. See Brent (2004: DO15). GM has adopted a similar stance (Tuck et al., 2004: B1). In April 2004 the Ontario government established its Automotive Investment Strategy. The federal government announced a similar policy in June 2004.

7. The paper does not consider incentives to attract parts suppliers, although some of this has occurred.
8. In his analysis of Canadian Department of Regional Economic Expansion grants, Springate (1973, ch. 3) found location incentives had little impact on the location decisions of firms.
9. Safarian notes that 'regional' governments in Canada and Germany offer incentives and that in the US they play the 'major role' (1993, p. 438). See also Connaughton and Madsen (2001); Gardner et al. (2001); Vernon (1998).
10. See also Bennett and Sharpe (1979).
11. See discussion in the conclusion of the chapter about efforts to limit bidding wars in the US and the European Union (EU).
12. Connaughton and Madsen (2001) suggest that the North American content of the two BMW models assembled at the BMW's Spartanburg plant was 35 per cent (p. 301).
13. Perhaps a euphemism for what, as we will see below, has become more important to the transplant investors, which is state involvement in employee selection.
14. Although Chrysler was purchased by Daimler-Benz some years ago and is technically therefore not a US company, it will be treated as part of the Big Three in this paper.
15. In Canada since 2001 the Big Three have controlled less than 50 per cent of the car market.
16. All dollar amounts are in constant 1983 US dollars. Every effort at accuracy has been made in determining the initial value of an assembly plant investment at the time when the first vehicles are ready to be produced. Plant investment includes the cost basis of fixed assets and other real property and does not include assembler investments at supplier locations, which occurred in some cases. The figures do not include subsequent investments to augment capacity, which occurred in many cases. This is simply noted in Tables 13.3, 13.6 and 13.9 as 'capacity increase'.
17. When Chrysler faced financial troubles in the early 1990s, Mitsubishi took over the plant.
18. The VERs noted previously.
19. These zones permit manufacturers to delay the payments of duties on imported components until they are incorporated into a finished product. These zones grew dramatically in the 1980s and were used by the Big Three as well as the NNAM. Firms have to apply to the Commerce Department's Free Trade Zone Board to get subzone status. As transplant competition grew the Big Three opposed transplant applications for expanded subzone status (though with no success) (Crystal, 2003, pp. 87–90).
20. Mississippi, Ohio, Alabama and Kentucky all bid for the Hyundai plant. The first two states were eliminated from the list. The deciding factor, beyond the incentives (which continued to be sweetened) was the easy availability of land in Alabama, important because Hyundai was anxious to start construction immediately (Maynard, 2003, p. 216).
21. Thomas (2000) suggests that it was bidding wars for investment that prompted the EU (then the European Economic Community (EEC)) to first consider a policy on regional aid (p. 89). The policy evolved over more than two decades.
22. David Minge, a member of the US House of Representatives from Minnesota from 1993 to 2001, twice introduced legislation to reduce the incentives game by making subsidies or incentives taxable. The bills got no further than the House Ways and Means Committee.

REFERENCES

- Bennett, D.C. and K.E. Sharpe (1979), 'Agenda setting and bargaining power: the Mexican state versus transnational automobile corporations', *World Politics*, **32**(1): 57–89.
- Brent, Paul (2003a), 'Canada no. 3 in automotive investment', *National Post*, February 11: FP7.

- Brent, Paul (2003b), 'Buying auto jobs by the thousands', *National Post*, March 3: FP1.
- Brent, Paul (2004), 'Government cash key to Ford investment', *National Post*, February 13: DO 15.
- Brewer, Thomas L. and Stephen Young (1997), 'Investment incentives and the international agenda', *World Economy*, **20**(2): 175–98.
- Browning, E.S. and H. Cooper (1993), 'States' bidding war over Mercedes plant made for costly chase', *Wall Street Journal*, November 24: A6.
- Burstein, Melvin L. and Arthur J. Rolnick (1995), 'Congress should end the economic war among the states', *The Region*, 1994 Annual Report Essay, Federal Reserve Bank of Minneapolis, March. Available at: www.minneapolisfed.org/pubs/ar/ar1994.cfm.
- Bynum, Russ (2002), 'Georgia lures Chrysler with \$320 million', *The Ottawa Citizen*, October 18: F2.
- Charlton, Andrew (2003), 'Incentive bidding for mobile investment: economic consequences and potential responses', Organization of Economic Cooperation and Development, January. Available at: www.oecd.org/document37/0,2340,en_2649_34833_11082405_119684_11_37463,00.html.
- Connaughton, John E. and Ronald A. Madsen (2001), 'Assessment of economic impact studies: the cases of BMW and Mercedes-Benz', *The Review of Regional Studies*, **31**(3): 293–303.
- Crystal, Jonathan (2003), *Unwanted Company: Foreign Investment in American Industries*, Ithaca: Columbia University Press.
- Davies, Ronald B. (2002), *State Tax Competition for Foreign Direct Investment: A Winnable War?*, Working Paper Series No. 228, University of Oregon, July.
- DesRosiers, Dennis (2002), 'To offer finance incentives or not . . . that is the question!', *Observations*, DesRosiers Reports **16**(21), November 15.
- DesRosiers, Dennis (2004), 'Outlook for the North American auto sector', *Observations*, DesRosiers Reports **18**(3), February 15.
- Eden, Lorraine and Maureen Appel Molot (1993), 'Insiders, outsiders: defining "who is us" in the North American automobile industry', *International Corporations*, **2**(3): 31–64.
- Eden, Lorraine and Maureen Appel Molot (2002), 'Insiders and outsiders, and host country bargains', *Journal of International Management*, **8**: 359–88.
- Eisenhardt, Kathleen M. (1989), 'Building theories from case study research', *The Academy of Management Review*, **14**(4): 532–50.
- Enrich, Peter D. (2002), 'Business tax incentives: a status report', *The Urban Lawyer*, **34**(2): 415–28.
- Fisher, Peter S. and Alan H. Peters (1998), *Industrial Incentives: Competition Among American States and Cities*, Kalamazoo, MI: W.E. Upjohn Institute.
- Gardner, Edwin I. Jr, Robert S. Montjoy and Douglas J. Watson (2001), 'Moving into global competition: a case study of Alabama's recruitment of Mercedes-Benz', *Policy Studies Review*, **18**(3): 80–93.
- General Motors (GM) (2000), 'Presentation to Government of Ontario Consultation on the Auto Industry', Toronto (May).
- Graham, Edward M. and Pierre Sauvé (1996), 'Towards a rules-based regime for investment: issues and challenges', in Pierre Sauvé and Daniel Schwanen (eds), *Investment Rules for the Global Economy: Enhancing Access to Markets*, Toronto: C.D. Howe Institute, pp. 100–146.

- Guisinger, Stephen E. (1985), 'A comparative study of country policies', in Stephen E. Guisinger and Associates, *Investment Incentives and Performance Requirements*, New York: Praeger, pp. 1–55.
- Hanson, Gordon H. (2001), *Should Countries Promote Foreign Direct Investment?*, G-24 Discussion Paper Series No. 9, New York and Geneva: United Nations Conference on Trade and Development, February.
- Head, C. Keith, John C. Ries and Deborah L. Swenson (1999), 'Attracting foreign manufacturing: investment promotion and agglomeration', *Regional Science and Urban Economics*, **29**: 197–218.
- Hufbauer, Gary C. and Jeffrey J. Schott (1993), *NAFTA: An Assessment*, Washington, DC: Institute for International Economics.
- Hymer, S. (1960/1976), *The International Operations of National Firms: A Study of Direct Foreign Investment*, Cambridge, MA: MIT Press.
- Keenan, Greg (2002), 'Ford warns: subsidize or lose jobs', *Globe and Mail*, November 9: B1, B4.
- Kobrin, Stephen (1987), 'Testing the bargaining hypothesis: the manufacturing sector in developing countries', *International Organization*, **41**(4): 609–38.
- Luo, Yadong (2001), 'Towards a cooperative view of MNC-host government relations: building blocks and performance implications', *Journal of International Business Studies*, **32**(3): 401–19.
- Maich, Steve (2004), 'Toyota Motor's quiet revolution', *Financial Post*, January 28: FP3.
- Maynard, Micheline (2003), *The End of Detroit: How the Big Three Lost Their Grip on the American Car Market*, New York: Currency Doubleday.
- McHone, Warren W. (1987), 'Factors in the adoption of industrial development incentives by states', *Applied Economics*, **19**: 17–29.
- Moran, Theodore (1973), 'Transnational strategies of protection and defence by multinational corporations: spreading the risk and raising the cost for nationalization of natural resources', *International Organization*, **27**(2): 273–87.
- Morisset, Jacques (2003), 'Tax incentives', The World Bank Group (Private Sector and Infrastructure Network), Note Number 25x, January.
- Mytelka, Lynn K. (2000), 'Location tournaments for FDI: inward investment into Europe in a global world', in Neil Hood and Stephen Young (eds), *The Globalization of Multinational Enterprise Activity and Economic Development*, New York: St Martin's Press, pp. 278–302.
- Ohnsman, Alan (2003), 'Mitsubishi to expand US plant', *Financial Post*, March 18, p. FP 12.
- Oman, Charles (2000), *Policy Competition for Foreign Direct Investment: A Study of Competition among Governments to Attract FDI*, Paris: OECD Development Centre Studies.
- Safarian, A. Edward (1993), *Multinational Enterprises and Public Policy: A Study of the Industrial Countries*, Aldershot, UK and Brookfield, USA: Edward Elgar.
- Springate, David (1973), *Regional Incentives and Private Investment*, Montreal, Canada: C.D. Howe Research Institute.
- Thomas, Kenneth P. (1997), *Capital Beyond Borders: States and Firms in the Auto Industry 1960–94*, New York: St Martin's Press.
- Thomas, Kenneth P. (2000), *Competing for Capital: Europe and North America in a Global Era*, Washington, DC: Georgetown University Press.
- Tuck, Simon, Greg Keenan and Murray Campbell (2004), 'GM eyes \$2-billion investment in plant revamps', *Globe and Mail*, May 6: B1, B26.

- Ulgado, Francis M. (1997), 'Location decision-making characteristics of foreign direct investment in the United States', *International Business Review*, **6**(3): 271–93.
- United Nations (2004), *Foreign Investment in Latin America and the Caribbean*, New York: Economic Commission for Latin America and the Caribbean Unit on Investment and Corporate Strategies.
- Vander Doelen, Chris and Peter Brieger (2004), 'Auto industry will get “whatever is necessary”', *Financial Post*, March 13: FP1, FP4.
- Vernon, Raymond (1971), *Sovereignty at Bay: The Multinational Spread of US Enterprises*, New York: Basic Books.
- Vernon, Raymond (1998), *In the Hurricane's Eye: The Troubled Prospects of Multinational Enterprises*, Cambridge, MA: Harvard University Press.
- Wards' Automotive Yearbook*, various years.
- Yin, Robert K. (2003), *Case Study Research: Design and Methods*, 3rd edn, Thousand Oaks, CA: Sage Publications.

14. Policy roundtable: life as neighbor to an economic giant – issues and options

**Wendy Dobson, Grant L. Reuber and
Andrei Sulzenko**

This chapter consists of three papers presented at a roundtable on Canada's priorities. While they deal with Canada, at the same time they illustrate some of the issues that other neighbors to the world's large emerging economies can expect to face in future.

The challenge that smaller neighbors face is to identify and pursue their own economic objectives in a turbulent and uncertain economic environment. The papers bring out three general objectives: (1) management of the bilateral trade and investment relationship to ensure market access for the smaller partner; (2) diversification of trade and investment relationships globally to reduce bilateral economic dependence; and (3) domestic economic policy frameworks to take advantage of opportunities in the changing world economy.

Canada has successfully achieved the first objective. Management of what is still the world's largest bilateral trade relationship has been successful overall, despite periodic trade disputes and emerging tensions over tighter US security restrictions. But Canadians have become increasingly dependent on the US market despite historical attempts to overcome this magnetic effect. The emergence of other economic giants may provide some offset, but this remains to be seen. Underpinning success in both objectives will be progress on the third: achieving a better productivity performance and greater flexibility in the domestic economy. While Canada has established a prudent macroeconomic policy framework, the same cannot be said of microeconomic policies where, as the papers point out, much remains to be done to establish the basis for innovation and long-term growth.

INTERNATIONAL ECONOMIC PRIORITIES IN A SMALL OPEN ECONOMY (OR LIVING WITH THE GROUP OF ONE)

Wendy Dobson

The theme of these remarks reflects the reality of location: a medium-sized open economy situated next door to the United States. The obvious priority is to manage the deeply integrated economic relationship in the light of vulnerabilities revealed by the September 11 tragedy, but there are other focused possibilities as well.

The Group of One metaphor is shaped by the reality that the United States has outstripped all other economies in size and military power. The current US administration is willing to listen to and debate with other governments but, in the end, it makes up its mind about what it will do based on its own view of US interests. In this sense, it is the Group of One. There is a growing internal debate in the United States among proponents of views across a spectrum from aggressive unilateralism to isolationism. It is useful to bear in mind the counsel of those, such as Professor Joseph Nye of Harvard's Kennedy School, who assert that the US national interest does not diverge from the global interest because the national interest will be undermined if American leaders fail to respect the views of others and enlist their support and participation in managing global interdependence and conflict.

There are profound implications for smaller next-door neighbors of both the US debate and positions like Joe Nye's. Whatever we may think about its policies and its elected representatives, the United States is our closest neighbor. We cannot tow the country to some more distant location or live in the distant isolation of Australia. Indeed, many Australians envy Canada's proximity to the world's wealthiest most dynamic economy.

Managing the bilateral relationship

Thus my basic assumption is that immediate neighbors must manage the relationship with the Group of One in ways that serve mutual interests. Canadians, however, need to update their views of mutual interests in a new era, which is one with significant *economic* opportunities, and also significant new *security* threats; in which the proliferation and use of weapons of mass destruction by rogue actors – state or non-governmental – is a growing danger that could also endanger access to the US market, on which Canadians rely for over 85 percent of their trade.

The new era also has an economic dimension that has little to do with the threat of terrorism. The North American economy has changed in

radical ways in the past ten years since bilateral (Canada–US) and regional trade agreements (NAFTA) were implemented. It is increasingly based on services and knowledge; it is increasingly tied together by networks of economic actors within cities and clusters that work best in a common economic space. People, goods, services and ideas need to flow freely and safely within that space. Thus governments need to work together to produce a number of what economists call ‘public goods’ – goods whose production benefits all, but that only governments can produce and which can only be produced by working together. These public goods include a secure economic area (no disease, no bad people, no weapons of mass destruction, less pollution) achieved by governments cooperating to produce continental security and defence, disaster response, secure energy supplies, disease control, etc. on a North American scale. Another public good is an efficient economic area (no unnecessary barriers to bilateral flows of services, people, capital, technology and goods) achieved by freeing up market forces, but also by government cooperation.

How should governments go about the production of such public goods? There are several steps. The first step is the formulation of a credible Canadian response to heightened North American security risks. The second is deeper jointly administered North American defense and a unique Canadian ‘niche’ defense contribution. The third is the development of a high level of mutual confidence in each other’s immigration and refugee policies and cargo handling at ports and airports.

These approaches can be facilitated by the creation in Canada of a political oversight body whose mandate is to renew and advance the bilateral relationship in a world in which a common threat is the proliferation and use of weapons of mass destruction. In addition, to provide the necessary momentum and accountability to leaders, a high level commission on North America should be created. It should include independent experts from both countries; it should be disbanded at the end of five years. Its mandate is to assess all dimensions of the relationship, the challenges that need to be addressed, and recommend how governments working together can address those challenges. The commission should report directly to the prime minister and president within six months; again two years later, and at the end of five years.

In short, the top international economic policy priority is to manage successfully the bilateral relationship. This does not mean ‘getting along by going along’. Rather it means getting ahead of the issues in managing the relationship in ways that serve common interests. The public goods discussed here can be produced through governmental cooperation without undermining the independence or distinctiveness of the smaller partner.

There are three other issues of long-term significance on which economic policy should also focus.

Diversifying economic relationships

One of the defining features of the next few decades – or even sooner – is the shifting economic center of gravity in the world economy towards Asia, specifically to India and China. China has made dramatic gains since economic liberalization commenced in 1978; and India since its balance of payments crisis in 1991. Both face daunting challenges. India is forgiven many sins because it is seen to be a democracy and therefore rather ‘like us’. China’s challenge is to make both economic and political transitions in the face of growing internal stresses and strains. At the same time, China is negotiating a series of hub-and-spoke trade agreements with its East Asian neighbors and is more and more the leader of an emerging East Asian community. Should China escape major accidents and setbacks, it will increasingly be seen as a challenger to the Group of One. Canada has unique historical ties with both China and India – we should diversify our economic relationships by building on these ties in three ways. The first is bilateral: to foster closer economic relationships through both private sector and government-to-government linkages. The second is multilateral: to promote the involvement of the leaders of these economies in more inclusive economic management forums, either by expanding the G-7 to include them or by constituting the G-20 into a leaders’ forum. Increasingly these economies will generate international economic spillovers, both positive and negative, that will have to be managed. The third is to promote forums that include the United States and these economies in order to build mutual understanding and shared international perspectives on their roles in the future world economy. Canada cannot be a broker among such large players, but it can ‘set tables’ and promote forums such as APEC in which the large economies and smaller neighbors participate.

Reducing peripheralization of the poorest

The second issue is peripheralization of the poorest developing countries. If there is one critique of the anti-globalizationists that has authenticity, it is the marginalization of the poorest economies. These economies do not attract FDI and are shut out of world markets by barriers in both the North and the South to their main exports – commodities and agricultural products. The World Bank has reported that the share of world trade accounted for by sub-Saharan Africa has actually been shrinking. How, then, to get millions of people onto the bottom rungs of the development ladder? There are no simple answers or we would not have to ask the question. But the obvious priorities, which should continue to attract Canadian policy attention, are

assistance for basic education and health care, beginning with assistance to purchase the drugs necessary to treat HIV/AIDs, malaria and TB; and market access for agricultural exports, footwear and textiles and apparel. Business schools should also address in their strategy courses the challenge of workable strategies for doing business in marginalized poor economies.

Upgrading our human capital on the international side

The third and final issue is the need for upgrading the stock of human capital that is expert in international economics and international relations. I believe it should be re-focused and significantly increased to enable Canadians to invest in building deeper international relationships and expertise. Our international aid program has become the major source of continued funding for international centers and universities, forcing them into narrow and shifting criteria and making unrealistically onerous administrative requirements upon them. Beyond that, *ad hoc* public investments are fired like grapeshot into a variety of institutions and foundations to serve passing political fancies. Do any of these existing institutions stand out as a resource of leading international caliber, producing clear strategic analysis or advice that is influential within Canada and beyond?

The Department of Foreign Affairs, possibly in concert with other departments, should reconsider our strategy for building and maintaining Canada's intellectual capital in international studies. Serious consideration should be given to a total restructuring of existing financing to create instead a competitive approach to funding university departments of area studies and interdisciplinary centers on the basis of periodic competitions in which proposals are evaluated in terms of the excellence and relevance of output and the efficiency with which it is produced. The centers of excellence funding programs of the federal government provide excellent examples of how to proceed with this strategy.

The Association of Universities and Colleges of Canada has expressed concern about the lack of a coordinated national strategy for international studies. Such a strategy is quite feasible. For example, the Australians obtain much better mileage, quality and policy relevance out of their government-academic connections than we do. In the United States, Title VI of the US National Defense Act of 1958 has been the lifeline of international education in that country for the past 45 years. It finances 115 centers; its grants are matched by non-federal government funds and by foundations and corporations, providing invaluable leverage to the best institutions. Thanks to Title VI, thousands of knowledgeable Americans have international expertise and contacts that they would otherwise lack.

The extent of Canada's resource constraints on the international side has struck me repeatedly. The most obvious relates to the leavening value

contributed to public debates by the objective analysis of scholars and think tanks. This is particularly true right now in the debate about the future of the Canada–US relationship, not to mention the future of Canada’s relationships with the Asian economies. On both issues, there is a supply constraint. The list of balanced commentaries from qualified academics on the Canada–US relationship is a surprisingly short one. On the Asian side, the issue is both supply and demand. Despite Canada’s increasingly Asian demographics, public interest in the available research on Asia is remarkably thin.

Conclusion

In conclusion, returning to my main theme, many Canadians, like many Americans, are very critical of recent unilateralist tendencies of the Group of One. We should recognize, however, that whatever we and others might think, Americans *will* lead. This means getting more involved in envisaging and proposing *how* American leadership can be channeled constructively into the provision of collective goods. No one disputes the unparalleled US leadership that gave us a legal international framework in the United Nations, security during the cold war, and a peaceful transition at its end. In these turbulent and violent times US leaders *will* manage interdependence and reduce their own vulnerability. Canadians should get involved at all levels in encouraging US leadership to coordinate, if not provide, appropriate collective goods.

In short, we have a choice. We can sidestep this choice and let our foreign and economic policies continue to slide into irrelevance, or we can make strategic investments that focus our priorities – priorities that extend beyond political partisanship to reflect an internationalist view of the world’s future, not for the next year, or even the next political mandate, but for the next 25 years. That view should recognize the basic contradiction of this new era: the openness of democracy and economic liberalization that has made hundreds of millions better off is also now a great source of vulnerability.

CANADA’S FOREIGN ECONOMIC POLICIES: PRIORITIES FOR THE FUTURE

Grant L. Reuber

In a broad sense, our foreign economic policy priorities remain the same as they have always been: to make the most of our opportunities within the international economic and political circumstances in which we find ourselves. This has meant that as international circumstances have changed

over time the practical interpretation of our priorities has also had to change in order to realize the general principle of making the best of our situation.

In my view several major shifts have occurred in our priorities during the past 50 years. One was after 1945, in a world dominated by post-war reconstruction and recovery and the cold war along with a steady and substantial liberalization of international trade and investment on a multilateral basis. A second significant shift was in response to the emergence of major regional trading blocs within the general framework of the multilateral system that had emerged after World War II. The first of these blocs was the European Union and the second, and by far the more important to Canada, was the FTA, and subsequently NAFTA, in North America in the 1980s.

As a result of both the multilateral and, later, the regional push for trade liberalization Canada today enjoys free or almost free trade for most of its products in most of its major markets. There are some exceptions, of course, such as agricultural products, and disputes continue to arise from time to time. Much the same is true for foreign investment. I think it would be difficult to claim that the Canadian economy has recently been significantly impaired by trade and investment barriers in our major markets. The primary challenge has been to make the most of the opportunities in those markets.

Today, I suspect we may be undergoing a third major shift in our foreign trade and investment relationships arising primarily from the rapid and huge shift among different parts of the world in their relative size and growth and in their international trade and investment importance in the world. Without making specific forecasts, we can speculate that during the next two decades the economies of China and India, combined with some other parts of south-east Asia, are likely to become at least as important as the North American economy – possibly even more important. At the same time the economies of Western Europe are likely to become much less important relatively; and Japan also is likely to become somewhat less important. Less-developed countries in Africa and South America are likely to keep struggling along economically as in the past, some more successfully than others but few having spectacular success. Much the same is also likely to be true for the Middle East and countries of the former Soviet Union.

The major economic shift I foresee will, I suspect, be reinforced by political attitudes. The US is likely to remain the only superpower for years to come. Even if US relations with Western Europe improve, the US–European relationship and European influence on US policies is likely to weaken relative to the influence of the Far East and its two burgeoning

economies – China and India. Canada's trade and investment relationships with these markets at present, while growing, remain limited, as is our knowledge about these markets. Moreover, these markets are less open to our goods and services than our traditional markets.

If this general prospect is even roughly correct, what are some of the implications for Canadian international economic policy and changes in our policies priorities?

Consider first our short-term priorities as reflected in our current trade negotiations under WTO.

Although I wish them every success, current trade negotiations appear to be stalled and I question whether much will be achieved. Partly this is because the political climate for negotiations among the leading parties is unfriendly, partly because of the strong opposition to concessions on agricultural and other primary products, partly because of concerns about unemployment, partly because of terrorists in some developing countries, and so on. The time, in other words, does not seem propitious for significant progress. This doesn't mean we shouldn't try, of course. But from Canada's standpoint I suggest particular emphasis be given to several fairly specific and limited objectives, including the following:

1. do whatever can be done to prevent any backsliding from the current level of liberalization – a standstill approach;
2. make whatever routine improvements may be possible to improve the functioning of current dispute settlement arrangements;
3. try to keep open the channels for future low-key technical discussions on liberalizing trade in services, government subsidies for exports and import-competing industries, including agricultural subsidies.

None of this provides a very exciting outlook, but it may reduce the prospect of a dramatic failure and what might follow.

Another question that keeps re-emerging is whether policy should be developed to encourage Canadian firms to become international leaders. The contrast with the Netherlands, for example, is fairly striking. It has developed leading international firms in banking, insurance, petroleum and electronics, for example. There is always the possibility of subsidizing firms to become more prominent internationally – Bombardier, for example. But a more interesting question is whether by removing barriers to mergers, nationally and internationally, stronger Canadian firms might emerge that would benefit Canada. The question today arises particularly in the financial sector for banks and insurance companies. My own preference would be greatly to reduce the restrictions and let market forces decide the issue. I find it interesting that this question now commands as much or more

attention than the earlier issue of allowing foreign direct investment into Canada – an issue that seems to have largely disappeared from the political radar screen, no doubt reflecting the declining share of international capital coming to Canada.

In a broader context, a significant step to encourage the flow of foreign investment into Canada would be to reduce substantially the barriers to such inflows in the form of restrictions on ownership and control, directorships and regulations of various kinds. At present such regulatory and other controls in Canada remain high relative to other developed countries. In addition, the inflow of investment could be encouraged by harmonizing more closely various security and other regulations with the US.

What about Canada's longer-term priorities, particularly if the patterns of trade and investment shift as substantially over the next two decades as I suggest?

In my view, our interests in the newly emerging world I envisage will best be secured by aligning ourselves even more closely to the US than we now are. This does not mean joining the US in all but name, but it does mean working closely with the US to have our interests reflected and doing what we can to improve our bargaining position in the world by working with them. Greater isolation from the US means, I believe, that we will be of less and less consequence and influence not only in the US but everywhere else in the world as well.

Foremost among the steps we should take, in my view, to improve our relations with the US is to clean up the variety of cross-border issues that remain outstanding between the two countries. Various proposals have been advanced to increase the prospects of deeper North American integration. As recently summarized by Danielle Goldfarb at the C.D. Howe Institute, some proposals call for a 'big deal'; others are more limited and incremental in approach. Most of the ideas relate to trade, labour mobility, investment, harmonization of standards and regulations, and measures to deal with drugs, guns, security and smuggling. Most oppose monetary union.

In addition to dealing with the policy aspects of cross-border issues, serious and immediate attention should also be given to improving greatly the infrastructure required for cross-border trade – roads, bridges, tunnels – particularly in the Windsor–Oshawa corridor. Inadequate physical infrastructure at present represents an expensive trade impediment.

A second major long-term priority to be emphasized, in my view, if we wish to improve our prospects in a highly competitive world of shifting trade patterns, is to give more active attention to improving our productivity and hence our ability to compete internationally. Being more competitive requires more investment in physical and human capital. It also requires that resource be applied in areas where the rate of return is highest. In recent years

Canada's share of international investment has been shrinking. At the same time, industrial subsidies to support weak and uneconomic public and private enterprises continue to grow. Concurrently, as Jack Mintz has so ably demonstrated in C.D. Howe publications, Canadian federal and provincial taxes on capital are highly uncompetitive relative to the US and undermine not only investment inflows but also all the productivity improving factors that accompany such investments – innovation, technology, entrepreneurship, job creation and so forth. Reducing industrial subsidies and taxes on capital I suggest is a major priority if we are to make the most of our situation in the world that I think is emerging.

A third major priority for improving our competitive position in the world is, I believe, to greatly increase the level of investment in education at every level. The case for this has often been made and I shall not repeat it here. But our performance remains weak. It shows only minor signs of improvement as we allow expenditure on health care and a variety of other social programs to squeeze out investment in education and our future prosperity.

I conclude by emphasizing that in the future, more than in the past, Canada's foreign trade and investment success will depend less on our international negotiations and diplomatic skills and more on how well we conduct our domestic policies to take advantage of opportunities in a reshaped world. The central issue is to improve our productivity. *Inter alia*, this means reducing taxes on capital, weeding out more inefficient industries and other activities, and investing much more heavily than at present in training and education. All of these policies are almost entirely within our powers. How successful we will be is largely within our own hands.

LIVING NEXT TO G-1: ECONOMIC POLICY PRIORITIES FOR CANADA

Andrei Sulzenko

Canada's real economic growth averaged about 5 percent in the 1960s, 4 percent in the 1970s, 3 percent in the 1980s, and 2 percent in the first half of the 1990s. In the last ten years, growth has rebounded to 1980s levels. The key question as we move forward over the balance of the decade is whether this turnaround is self-sustaining or at risk of faltering. The available evidence suggests that the latter is the most likely course, absent policy change.

On the plus side, much of the improvement in performance was related to disciplined monetary policy since the early 1990s and fiscal probity since the mid-1990s. It is reasonable to assume that this macro-policy stance will continue.

On the minus side, the principal sources of growth over the past ten years are heading into diminishing returns. A main source was the dramatic rise in trade with the US, to the point where it accounts for 85 percent of our total exports. In many sectors, this was not achieved by any real competitive advantage, but by an undervalued Canadian currency and the corollary of an overvalued US currency that created a huge import appetite – Canada's share of the US import market did not increase during the last half of the 1990s. In the period ahead, discounting for the cyclical surge in commodity terms of trade, it will be very difficult at the margin to improve trade performance in the US or overseas markets. Therefore, 40 percent of Canada's GDP faces challenges as a source of growth.

The other major factor in Canada's recent growth performance was employment. Canada has led G-7 job creation for most of the last 30 years, fuelled by its high rate of labour force growth. In the recent past, in particular, Canada has been a job creation machine, with increased employment contributing to more than a third of its growth. But this is rapidly decreasing as a source of growth, as demographic change slows increases in the labour force to zero (absent immigration) in less than a decade.

This means that sustaining our growth performance will depend on the hard slogging of productivity improvement, an area where Canada's record is mixed at best. Although productivity performance has improved since the mid-1990s compared to the previous several decades, much of that was inspired by significant post-free-trade restructuring of Canadian industry, particularly manufacturing, and by the rapid adoption of ICTs in a growing range of goods and services production.

As we go forward, there is one obvious source of relatively straightforward productivity improvement, and that is increased investment in machinery and equipment, much of it now imported under more favourable terms, relative to more expensive/scarce labour as the growth in the workforce slows dramatically. However, after that, sustained productivity improvement lies in the infinite complexity of innovation: developing new products and processes in an increasingly competitive global marketplace. This is an area where Canada has a longstanding track record of mediocrity by international standards.

Canada's challenge of sustaining growth relates not only to improving the efficiency and effectiveness of the existing stock of the factors of production – capital, labour and knowledge – but also to making Canada an attractive location for increased investment in these factors of production. Here the track record is at best mixed in the past and clearly problematic for the future.

Over the last ten years, Canada has not held its own in the competition for investment in the North American economic space. Canada's share of

FDI in North America has fallen precipitously, and Canadian investors increasingly see investment abroad as the best route to growth, to the point that it has been a net exporter of capital for almost a decade. The chief beneficiary of this increased investment in North America has been the US, notwithstanding an overvalued currency during this period. Simply put, Canada is not the location of choice in North America.

Canada's prospects for improving its share of future investment in North America are not favourable. For an investor to locate in the small market to serve principally the ten to 12 times larger market, the return must be higher to offset 'border risk'. In most cases (locked-in resources aside), this calculus does not work in Canada's favour, and the risk premium will rise as it becomes institutionalized by legitimate concerns about security-related disruptions, and as US trade and investment policy more blatantly favours bilateral agreements that ensure a US investment 'hub' to a network of radiating 'spokes'.

This suggests that the public policy conditions favourable to sustained growth must actually be accentuated in Canada relative to the US in order to deal with its perennial competitive challenge of being contiguous to the world's largest and richest country, a country that reinforces its natural market advantage by acting unabashedly in its own self-interest.

The question then is, for the balance of the decade, is the current public policy environment appropriate for the economic growth objective (3 percent real per annum) Canada has implicitly set for itself? Assuming that the hard-fought macro-gains will not be forsaken, the answer on the micro-side is clearly no.

Notwithstanding the massive changes in the world economy over the last 20 years, Canada has not had a serious review of its micro-policy stance since the early 1980s. That decade was marked by an agenda devoted to reducing impediments to growth: privatization, deregulation, tax reform, free trade and investment liberalization.

The continuation of that agenda has been largely shelved for the last decade in favour of a micro-policy focused on investment in R&D and human capital, critical and necessary public investments in the knowledge economy but insufficient without a framework policy follow-through to ensure that business actually takes advantage in Canada of those public investments. In fact, during the last ten years, the non-spending part of the agenda has been largely relegated to housekeeping status – telecom deregulation being a significant exception.

The irony of this neglect is that the policies of the 1980s served to open up Canada to international competition, without the attendant follow-through on key issues that would enhance the ability of companies to take advantage of the opportunities afforded by globalization from a Canadian

base. For example, failure to move forward aggressively on intellectual property law reform, to liberalize antiquated foreign investment restrictions in key sectors like telecom, airlines and financial services, and to take seriously corporate tax reform, has no doubt hugely hampered investment in Canada – although such foregone opportunities are virtually impossible to measure. As a result, in many sectors of activity Canada is now ill prepared to take on not only its traditional competitors, but also new ones like China and India.

These are for the most part politically difficult issues because win–win solutions are hard to come by. They are also hampered by an ongoing Canadian ambivalence to G-1. In the regulatory area, for example, there are numerous opportunities to rid ourselves of the costs of small differences, and some good, low-key work is proceeding apace. More prominent issues, however, run up quickly against the sovereignty bogeyman where there is virtue in difference for the sake thereof, rather than basing policy on a clear calculation of the national interest. In fact, policy-makers could best impose a reverse onus test: to justify why in a North American context it is in Canada's interest for its regulatory regimes to be different, rather than substantially the same as the US. In some cases, in fact, Canada may want to position itself as strategically 'better' than the US.

Perhaps the most important micro-policy issue of all, which has been characterized by a muddling-through approach, is that of ensuring secure access to the US market – Canada's trade lifeblood for the present and the prerequisite for a fighting chance at future investment. Much good work has been done, but it is insufficient in scope and in mutual commitment to withstand the fallout of another security crisis, which, experts advise, is a matter of when not whether. The investment chill of a serious and sustained border tightening may well render all the aforementioned improved micro-policies irrelevant to favourable business investment decision-making for Canada.

With respect to the investment/spending part of the micro-policy agenda, billions of dollars have been committed to research, to technology and to human capital, but there is a significant unfinished agenda in terms of translating these investments into economic returns by improved private sector commercialization of new goods and services.

A much more underdeveloped agenda awaits governments in Canada when it comes to human capital. The existing labour market policy and program mix was developed decades ago in response to chronic high unemployment because the labour market was growing faster than the economy could accommodate. Canada is now entering a period when this is being reversed: growth in the labour market is grinding to a halt, and economic opportunities will be foregone because of inadequate supply in the right place at the right time.

Yet many of Canada's policies hinder labour mobility, whether EI or pensions or accreditation; and most of its programs still have a social policy focus, targeted at the unemployed or underemployed rather than an economic focus on skills development of the existing workforce or the incoming cohort.

In terms of micro-policy, human capital issues are among the most important in the period ahead. All advanced economies are going through a similar demographic shift, and future investment decisions will turn increasingly on the availability of skilled labour, the least mobile internationally of the factors of production. In a North American context, the further north one goes on the continent, the grayer the profile, suggesting that over the medium term, labour mobility within NAFTA will be critically important for Canada, even with a continuing aggressive immigration policy.

Not surprisingly, all OECD countries have identified the same set of issues as critical for sustained growth. In fact, an avowed purpose of the OECD is to promote policy convergence. What then distinguishes Canada from its advanced economy competitors? The biggest difference, of course, is that it is contiguous to and economically integrated with G-1. Most other countries are envious of our position. A large and influential part of the Canadian populace does not share this view, and it is therefore difficult to obtain leadership on the obvious policy priority for Canada – 'It's the US, stupid.' The true exercise of Canadian sovereignty will take place only when it stakes out and pursues its real interests in this regard.

Jack Granatstein put it well in his 2003 C.D. Howe Institute Benefactors' Lecture:

The fundamental truth is that . . . values or principles are for individuals, while nations have *interests* above all. Canadians need to know what their government considers to be Canada's national interests. They must be spelled out, and policy must be based on a clear conception of what truly matters, not on perpetually calling for multilateral processes . . . or on some vague and shifting sense of what Canada and Canadians might be or stand for.

PART V

Conclusions

15. Issues on governance, multinationals and growth: thoughts on method, policy and research suggested by the Festschrift papers

Richard G. Lipsey

This paper arose out of my original task to be rapporteur for the conference in honour of Ed Safarian. At the suggestion of the organizers, I have not provided the usual summary report, which job I have left for them. Instead, I have elaborated on the comments I made at the conference. These are a set of more or less original observations that were suggested by the papers. I have grouped these into four distinct groups: issues of method and interpretation, issues for further research, general issues of policy, and specifically Canadian issues of policy. Although I touch on all the papers at some point in my comments, the amount of space I give to each is not a function of my assessment of their importance, but of what they suggested to me about the above four topics. Some of the papers provided much-needed factual information of a descriptive or statistical sort. Although these added significantly to our knowledge, they did not raise many issues related to the topics I have chosen.

ISSUES OF METHOD AND INTERPRETATION

Ed Safarian was never a builder of models for their own sake. He was interested in finding out how the world worked, always with an eye to shedding light on current policy issues, particularly as they arose in a small open economy such as Canada's. If he was starting out today, he would no doubt couch some of his theorizing in more formal terms than he did, but that would affect few, if any, of his conclusions. It is a shame if the language he used, that was typical of his generation of applied economists, prevents

modern students from reading the many still relevant things that he had to say – and is still saying.

Language as a Barrier to Continuity

Each generation of economists seems to invent a new mathematical language in which to couch their work and, although this sometimes permits a useful increase in rigor, it all too often is used to define an in-group from which older economists are gleefully excluded. This may not worry the older generation, as they go on doing what they were doing, but it is a shame if it cuts the younger economists off from the accumulated knowledge and wisdom incorporated in the work of previous generations in what is, after all, supposed to be a cumulative science. A well known US economist recently said that we do not need to read the history of economic thought because much of what earlier economists said was wrong and what they did say that was right, we moderns have said much better (and I think by earlier he meant anyone writing more than 20 years ago!). This misguided view is, sadly, held by all too many modern economists. The resulting combination of arrogance and ignorance inhibits many of the subject's practitioners from building cumulatively on past knowledge by advancing it incrementally, as happens in virtually all other successful sciences.

The Great Depression

An illustration of the neglect of the useful work of earlier scholars because it is not couched in the current modern language of discourse concerns Ed's work on the Great Depression. Indeed, it is so neglected today that it is the only strand of his work that was not taken up at this conference.

The Great Depression has been reinterpreted many times by subsequent researchers. Some have genuinely sought to find answers; others have sought to support preconceived positions by showing that the Depression was, if not an illusion, at least much less severe than the literature suggests. Anyone of my age, or older, who experienced the Depression first hand can have little doubt that it was of an order of magnitude greater in its effects than any recession of the post Second World War period. I am appalled when I read the efforts of many researchers to tell me that the effects were really quite modest. According to some extreme treatments, the people who used to knock on our door, desperately seeking gardening work for which their engineering degrees or other qualifications did not suit them, were 'voluntarily unemployed'. Recalling these experiences, I cannot doubt that this was a human catastrophe on a scale seldom induced by economic forces in modern times.

I also went through university with the mass of veterans who came back from the war. Many of them were forced by economic circumstances to leave school in the 1930s. They would never have had the chance to develop their abilities were it not for the government's post-war financing of university education for all veterans. The waste of potential human capital caused by the Depression was clear when one saw what these late arrivals accomplished when they did get the chance for further education. Ed's and my generation had no doubt that the Great Depression really was a great and terrible event. Ed was not alone in being influenced by that trauma and asking why it happened and how we could prevent it from happening again.

Reflecting on this experience and on its reinterpretation by those who were too young to have experienced it directly prompts me to reflect on historical reconstruction. I recommend to every reader that they take a major historical event that they lived through and then read what is made of it by young historians who came later. It is a chastening experience that will make you take all historical writings with a little larger grain of salt. Ed's explanation of the Great Depression is what in Schumpeter's days would have been called the real rather than the monetary approach. But it bears no relation to real business cycle theory as it has been developed over the last few decades. No one who has even a modicum of knowledge of how technology develops in a path dependent, cumulative manner can take seriously the modern real business cycle theory in which variations in technology are a set of random disturbances with a mean of zero. This extension of the Arrow–Debreu general equilibrium theory is devoid of any contact with the real events of technological history.

Ed stressed the overcapacity in a large number of industries that contributed to the Depression. The market for the first generation of US automobile owners had been saturated by the end of the 1920s and replacement demand was bound to be less than the demand provided by first-time owners. His explanation is in the same ball park as the more recent work of Rick Szostak (1995), who stresses similar forces. My own work on technological change leads me to believe that these real, as opposed to monetary, explanations account for much, even if not all, of what happened in the 1930s.

What Do Theoretical Models Tell Us?

The two examples of formal theorizing in this volume are near the opposite ends of the spectrum of formality. Harris (Chapter 8) provides an example of a simple but powerful model while Horstmann and Vincent (Chapter 7)

develop a model that is much more typical of modern theorizing with an array of formal 'Propositions', 'Theorems', 'Lemmas' and 'Results'. I will consider their implications for policy and their implied suggestions for further research in later sections; here I am only concerned with the question I have asked in the heading.

Harris tells us that his purpose is to illustrate how sensitive locational decisions 'might be' to uncertainty regarding market access. This might take the form, for example, of worries about contingent protection when firms locate outside the US but with the intention of exporting a significant part of their output to that country. As long as one understands that it is possibilities, not actualities, that are being investigated, this is a very useful piece of work. It shows us that locational decisions might be quite sensitive to the threat of contingent protection under some apparently reasonable assumptions about the behaviour of firms and the structure of their costs.

It is worth emphasizing that, as Mark Blaug is fond of reminding us, economists tend to believe their own simple models. For example, when the Harrod–Domar model was the latest thing in growth theory, economists mused (as did my teachers) about the possible knife edge instability of a capitalist economy. Then, when Solow's growth model was in vogue, economists mused about the irrelevance of saving behaviour to growth rates. For a more modern example, some time ago the bulletin of the Federal Reserve Bank of San Francisco (1994) informed its readers that 'Grossman and Helpman show that when economies are of different sizes, the opening of trade between these economies lowers innovation in the smaller economy by causing workers to move from research and development into manufacturing.' The Bulletin reported this without a glimmer of recognition that no profound insight is involved because G&H were working with a model in which all resources were fully employed and were allocated between only two sectors, manufacturing and R&D! I am reminded of a criticism of another paper made by another famous economist: 'Distance between assumptions and conclusions of order zero!'

What can such simple models as Harris's tell us? First, they can open our eyes to unsuspected possibilities. Second, they can reveal what is implied by simple assumptions. Third, they can check on our intuition in the sense that if some result that seems intuitively plausible cannot be produced by any standard model, we need to rethink our intuitions.

But unless they are carefully tested, and unless alternative models are investigated, these models cannot give us any insight into what will happen, or what we should expect to happen. For one reason, it is usually possible to produce another plausible, simple model that will have different predictions.

The Horstmann and Vincent paper is an addition to the literature on outsourcing. Its novelty lies in introducing continuous variability, in contrast to earlier models in which changes were discrete and the models had to be simulated. Although Ken Carlaw and I (forthcoming) have argued that many modelling problems in growth require formulations that are incapable of analytical solutions and so require numerical simulation, there is no question that if *similar assumptions about similar problems* can be handled with both of these techniques, the transparency of analytical over simulation techniques makes it the preferred method. One needs to be sure, however, when going from simulation to analytical solutions, that important assumptions that can be handled in the former, but not in the latter, are not overlooked.

Internally and Externally Driven Research Programs

Another thing to be watched for in ongoing development of the literature, such as the one we are seeing here, is that we are not setting up what I call an internally driven research program, an IDRP. In another publication, I put the matter this way:

By this I mean a research program that is driven by its own internal logic. Investigators seek to understand problems created by the models that they are using, rather than deriving their problems from observations. . . . An IDRP is to be contrasted with an 'externally driven research program' (EDRP), which is one that is driven by, and constrained by, observed facts. A classic example from astronomy is the search over two millennia for an explanation of the observed behaviour of the planets in which 'awkward facts,' such as small perturbations in the orbit of Mercury, defeated many beautiful theories until the truth was finally brought to light. (Lipsey, 2001: 177–8)

Many of the fads and fashions that sweep economics are aspects of internally driven research programs.

Early growth theory was typical of an IDRP in that at least one of the originators, Domar, had empirical concerns – concerns about the possibility of maintaining full employment in a capitalist economy that were raised by the experiences of the Great Depression and the Second World War. Solow (1956) asked a purely theoretical but relevant question of the Domar model: does the absence of factor substitutability drive its results? Others followed, asking if some of Solow's simplifying assumptions were critical for his results. In this progression, the original empirical question was soon forgotten as each new investigator dealt with purely formal problems that were raised by the contribution of the previous contributor. This produced

over a decade of increasingly esoteric theorizing that ended when people got tired of it and drifted off to newer fads, leaving behind little new understanding about the behaviour of growth in the real world.¹ Writing in 1970, Amartya Sen had this to say at the conclusion of his survey of post-war growth theory:

The policy issues related to economic growth are numerous and intricate. . . . While the logical aspects involved in these exercises are much better understood now than they used to be, perhaps the weakest link in the chain is the set of empirical theories of growth that underlie the logical exercises. Possible improvement of policies towards growth that could be achieved through a better understanding of the actual process of growth remains substantially unexplored.[!] It is partly a measure of the complexity of economic growth that the phenomenon of growth should remain, after three decades of intensive intellectual study, such an enigma. It is, however, also a reflection of our sense of values, particularly of the preoccupation with brain-twisters. Part of the difficulty arises undoubtedly from the fact that the selection of topics for work in growth economics is guided much more by logical curiosity than by a taste for relevance. The character of the subject owes much to that. (Sen, 1970: 33)

As I see it, the round of neoclassical growth theorizing produced little of relevance because it started without a clear set of facts to be explained and to constrain theorizing. Internally generated questions produce internally directed answers – precisely what the growth theorizing of the 1950s and 1960s produced. After nearly 20 years of intense activity by some of the world's finest economists, not one word of advice could be given to policy makers that was not available 20 years earlier – except the potentially misleading advice that a society's long term growth rate was unrelated to its willingness to save.²

Horstmann and Vincent ask a reasonable question: can we develop a model of outsourcing that involves continuous variations and is capable of analytical solutions? They answer 'yes'. They use this model to show that the outsourcing we observe between similar countries to exploit differences in factor prices can be rationalized. This is another important use of a formal model: are the observations that are being made consistent with rational behaviour on the part of the agents involved? They answer that they are, as long as we are willing to contemplate trade models in which factor prices are not equalized across countries – and indeed the empirical evidence suggests that whenever factor prices are going to play a key part in some explanation, we should always prefer such models over models in which factor prices are fully equalized internationally.

But that is only the first part of a potentially valuable research program. The model's predictions need to be tested, or if there are no testable predictions, then the model needs to be elaborated until such predictions are

developed. (See the discussion in a later section below.) If these things are not done, there is a distinct possibility that further work will turn into an IDRPs as each theorist seeks to deal with theoretical problems raised by the previous theorist's model.

Dealing with Awkward Facts

At one point in their interesting paper, Rao and Tang (Chapter 6) write: 'After deleting the outliers, our sample contains 2469 observations over the period 1988–2001.' This raises questions such as: 'How many outliers were there?' 'On what grounds were they eliminated?'

Economists who use very high powered tests on data often have a rather casual attitude to the data themselves. Of course, economics cannot be exactly like the natural sciences, but cautionary tales can nevertheless be learned by comparing procedures across sciences. Respect for awkward facts is one of the hallmarks of all natural sciences. It is the awkward fact that often makes the difference between the acceptance and rejection of theories. Such facts should not, therefore, be dismissed lightly. If Kepler had dismissed the small deviations of the orbit of the planet Mercury from that predicted by his model in which the five perfect solids fitted exactly between the planetary orbits, he might never have got beyond that mystical theory and brought the truth to light. Finally, these almost 'insignificant' awkward facts were explained by his three great laws of planetary motion – laws on which Newton built his vastly more powerful generalizations of the laws governing the motion of all bodies, celestial and terrestrial. Kepler's respect for the awkward facts that upset his lifetime work stands in stark contrast to economists' often cavalier attitude to outliers that do not agree with their theorizing.³ We do not know if Rao and Tang are doing something quite reasonable or something analogous to Kepler in refusing to consider the awkward fact of the only slightly deviant behaviour of Mercury when everything else fitted his theory. So my points are, first, that awkward facts are the life-blood of testability in the natural sciences and, second, that when economists dismiss awkward facts and deal only with those they find acceptable, it should be incumbent on them to justify their procedure in some detail in each case.

Another example of the neglect of awkward facts with consequent loss of the opportunity to subject a theoretical explanation to a tough empirical test is seen when many American economists neglect the existence of what is close to a controlled experiment to be found right across their northern border. Canada and the US have very similar economies that are closely interlinked, so the explanation of many US events should also apply,

with only minor necessary corrections, to Canada as well. For example, the main alternative to the real explanation of the Great Depression offered by scholars such as Safarian are those based on monetary forces. Milton Friedman and many other monetarists never used the natural experiment of applying their explanations of the US experience to Canada. Although these two countries' Depression experiences were similar with respect to real variables, their monetary experiences were about as different as they could be. In Canada, the branch banking system had the consequences that no really important bank failed and that the money supply did not fall significantly. So Friedman's explanation of the monetary roots of the Great Depression should have been, but never was, set against the counter-example of Canadian experience. Indeed, it is sad that the parochialism of so many US economists prevents them from taking advantage of the series of natural experiments that continually take place when in two very similar economies similar shocks produce dissimilar responses or dissimilar policy shocks produce similar responses.

What Do We Learn from Single Equation Regressions?

At the other end of the spectrum of theoretical papers in this volume are the empirical papers that use single equation estimations to investigate interesting questions. The papers by Globerman and Shapiro (Chapter 5) and Rao and Tang (Chapter 6) fall within this camp. The problems of using single, reduced-form equations to estimate relations when the underlying structural equations are not specified are well known. So I need not go into them here, except to remind readers that they are formidable and results from such statistical exercises need to be interpreted with great caution. As Albert Einstein once said: 'Everything should be made as simple as possible, but not simpler.'

One of the many problems with single equation models lies in determining causation when a causal link may run not only from one of the 'independent variables' to the 'dependent variable' but in the other direction as well, or even exclusively in that other direction. Before interpretations are suggested and policy conclusions drawn, it would be an excellent check if the authors were to ask if alternative explanations of the correlations that they find could be easily suggested. If so, and in the absence of any testing between the alternatives, conclusions should not be drawn from the regressions in anything more than very tentative language.

For example, Rao and Tang find that foreign-controlled MNEs tend to have higher productivity performances than domestically controlled ones. They suggest that this is a real performance difference. But other interpretations are possible. For example, foreign firms may cherry-pick when

engaging in mergers and acquisitions. If so, the direction of causation may run from higher productivity to foreign control, not from foreign control to higher productivity. Our understanding of the effects of FDI would clearly be different if the latter interpretation of the data is correct rather than the former.

The authors introduce a one-year lag in 'an attempt to overcome the endogeneity problem that high productivity industries attract inward FDI and promote outward FDI'. This raises another interesting methodological issue. We do not know from reading the paper how effective this lag is in eliminating the reverse causation problem. It would be revealing if the equations were fitted with and without the lag. If there is no significant difference in the regressions, then the introduction of the lag is not removing the effects of anything. If there is a difference, the two results need to be compared to see if the differences are consistent with the existence of a reverse causation that was caught in the unlagged formulation and eliminated in the lagged formulation.

My concern is not to criticize Rao and Tang, who have done what many investigators do. I am concerned instead to make two general points about such single equation investigations. First, it should be incumbent on authors to suggest at least one plausible alternative explanation of the statistical results that they report, or to say that they can think of no such alternatives. If the former, then readers will know that the authors' conclusions and policy recommendations need to be taken cautiously until the alternatives are investigated. If the latter, then this is a challenge to others to come up with plausible alternatives. If no one does, then confidence in the results would be strengthened. Second, when some alteration is made in the specification of the equation to deal with some specific problem, the equation should always be fitted with and without the alteration and the results compared to see if there is evidence that the problem actually exists and that it is being dealt with by the re-specification.

Another similar case in point is provided by Gliberman and Shapiro. They find that FDI is much more important than mergers and acquisitions in fast growing economies, compared with those that are growing more slowly. But there are many possible explanations that need to be enumerated before any conclusions are drawn from this interesting observation. For example, fast growing countries tend to have catch-up economies where there may be less to take over than in more advanced economies. Or maybe, compared with slow growing ones, faster growing markets do not lead to as many obvious inefficiencies that encourage at least some takeovers, and so on. Until such obvious alternative explanations are enunciated and investigated, no strong conclusions should be drawn from the observation.

It Matters how Quantitative Measures are Reported

It is common in many investigations to use measures of the national shares of the variable to be explained. Of course, there is nothing wrong *per se* with using either absolute or relative figures. One problem with the latter, however, is that the exclusive reporting of share data is all too likely to create the erroneous impression that the process being measured is a zero-sum game. For example, one country's share in world trade can only rise if some other country's share declines. But if those changes take place in the context of a rapidly rising total volume of trade, it is possible that those who gain shares and those who lose them both are benefiting from the rising overall volume of trade.

This issue is illustrated by the interesting paper by Hejazi and Pauly (Chapter 9), who use percentage shares to study both the inward and the outward bound FDI of Canada and the US. They attempt to guard against the kind of misinterpretation of percentage shares that I have referred to above by pointing out that the world's stock of FDI has jumped about tenfold over the previous two decades. This is such a dramatic figure that, in spite of their caveat, even quite large percentage changes in shares can be easily misinterpreted. For instance, a country whose stock of FDI fell from 10 to 2 percent of the world's stock would still have encountered a doubling of its own stock!

This leads me to suggest that it would be desirable to guard against misinterpretations of figures for shares by giving the percentage increases in each individual series in parentheses. In the above illustration, the authors would write: 'Country X's *share* of total FDI fell dramatically from 10 to 2 percent (while its own *absolute* stock of FDI doubled).'

As I have just illustrated, figures for shares can be particularly misleading when the totals are changing dramatically. For another example, with the entry of a growing number of developing nations as significant actors in international trade, it is almost inevitable that the share of trade of many established countries will fall, even when they encounter considerable increases in their own volumes of trade. Hejazi and Pauly write: 'In 2001, developing countries received about 32 per cent of world inward FDI stocks, much below its value in the early 1980s of almost 40 per cent.' But since the total stock has risen so much, it would guard against misunderstanding if to this statement were added: 'while their total stocks rose by 800 percent'.

Even if most economists are sophisticated enough to avoid reading a mistaken message into figures for percentage shares, we cannot always assume that the consumers of our research will be so well informed and so careful. Thus, I would be much happier in this and many other papers

that I read using country shares if, as a matter of routine, the percentage increase in each country's own figures were routinely given as well.

ISSUES FOR FURTHER RESEARCH

I can only single out a few of the many research topics that were suggested by the papers, either explicitly or implicitly. In doing so, I have chosen those that seem to raise issues of general interest.

Theoretical Modelling versus Other Approaches to Issues in Industrial Organization

The university discipline of Industrial Organization underwent a revolution the early 1980 – a revolution that was not in every aspect an improvement over existing practices. As I put it elsewhere:

In the 1960s and 70s I.O. students got a fair bit of institutional knowledge about such 'practical' matters as competition policy. They were also exposed to considerable empirical information about scale effects and entry barriers, following the work of Jo Bain. Today, many I.O. students know little more than game theory – a useful tool, but not all there is to know. It is not uncommon to find graduate students with I.O. as a field who have no idea of such things as: how industrial concentration has varied over time and place; how many industries fit the models of perfect competition, monopolistic competition (very few), oligopoly, and monopoly; the extent and source of scale economies; how the location of economic activity has shifted over time; the dramatic changes in the proportions of total costs made up of such things as direct labour and machine costs, design costs, and marketing costs; current competition and industrial policies. Of course, this is not the case in all universities, but my own questioning of I.O. students educated at many universities supports these generalisations.

We heard at the conference from a number of economists who have resisted being swept up by this formalization of the subject. (My complaint is not against all formal treatments, which are the best way to treat many problems; it is against the exclusive use of formal techniques in all too many I.O. courses of study.) Here are a few examples of some of the research issues that were raised and that avoid the formalization of I.O.

Baldwin, Caves and Gu (Chapter 10) provide us with an excellent empirical study of the changes in product diversification in foreign and domestically controlled plants. They document the changes as being what we would expect from the theory of diversification: trade liberalization has led to a decline in diversification. They point out that their data do not provide all the answers. As they put it: 'Tracing changes in tariff rates through to

changes in industrial structure and trade patterns and the ultimate impact on productivity growth is required if we are to obtain a more complete picture of the complex interaction between trade liberalization, industrialization structure and productivity growth.’ Clearly, they state an important research agenda.

Rugman (Chapter 3) raises an interesting issue, which is to explain the causes of the different behaviour of FDI between the EU and Asia on the one hand and North America on the other. In the former, intraregional trade and FDI are both increasing while in North America intraregional trade is increasing but FDI is decreasing. EU tariffs came down a lot earlier than did those in North America. Did interregional FDI slow when EU tariffs fell? Are different languages and tastes that call for more FDI rather than exports from one centralized production centre, stronger in Europe than in North America? There are some very interesting issues here that need further investigation.

At least the reasons for the decline in FDI flowing from the US to Canada are understandable qualitatively. But the increase in US outward bound FDI to non-NAFTA countries documented by Hejazi and Pauly is more of an enigma requiring further research if it is to be satisfactorily explained.

Issues in Outsourcing

A very different line of research is suggested by the Horstmann–Vincent paper on outsourcing. In an earlier section, I expressed the worry that we may here be seeing the beginnings of an IDRP, rather than an EDRP. The questions they ask are reasonable and interesting ones but it is important that there now be empirical testing, or at least that new theoretical extensions be guided by empirical evidence not just by assumed problems with existing models. If instead, work goes along the lines of ‘I wonder what would happen if I altered their model to make it more realistic/more interesting/more complicated/or more anything else?’ and this produces a succession of models that build on the previous ones altering each with no contact with evidence, then we will be well on the way to yet another unproductive IDRP. I repeat that I am not criticizing the current authors. They asked relevant question but we now stand on the cusp where the research program of which they are a part can go either way – and past experience is not encouraging on this matter. Empirically constrained research now seems to be needed. How can their model be made operational in the sense that it will generate testable predictions?

For example, the authors’ interesting result where outsourcing occurs at either end of the factor spectrum looks like it may be a testable result, although it is only a possibility, not a predicted necessity. Clearly, more

thought is needed as to how that theoretical proposition could be made into a testable proposition. Among other things calling for empirical investigation is the question: can the concept of a continuum of specialized factors be made operational?

The authors raise the particular issue of factor price equalization that we know does not occur in the real world. There remains, however, the unanswered question: is non-equalization what completely free international markets would produce or is non-equalization due to the many remaining barriers to free trade, both explicit and implicit? The authors state: 'Applying any theory will force us to aggregate factors and goods in some manner and, as an empirical question, the relevant issue is whether goods or factors aggregate to a smaller dimension. With no reason to know *a priori* which will occur, it is important to have models that allow for either scenario.' But as they show, it really matters if the dimensionalities of these two are the same or are unequal and, if unequal, in which way. Surely those who care about empirical relevance should be investigating this issue intensively on both theoretical and empirical grounds.

What Can We Learn from Total Factor Productivity Measurements?

Rao and Tang use TFP figures as measures of a country's competitiveness. This raises issues related to another ongoing research program into the meaning of total or multi-factor productivity and how to measure technological change. Ken Carlaw and I (Lipsey and Carlaw, 2004) have argued at length that TFP emphatically does not measure technological change but instead measures only a limited subset of the supernormal profits and spillovers associated with new technologies. This work of ours goes a little way toward answering Prescott's (1998) call for a theory of TFP. It also suggests two lines of further development. First, if TFP does not measure technological change, how can measures of this important activity be developed? Ken Carlaw and several of his associates are currently engaged in this activity. Second, just what does TFP measure and of what use is it in guiding policy? Carlaw and Lipsey (2002) and Lipsey and Carlaw (2004) begin this task but there is a vast amount of work still needed on it.

Some further issues of the interpretation of TFP are raised in Rao and Tang. They assert: 'Only by improving productivity relative to other countries can a country compete successfully in global markets on a sustained basis with rising real incomes for its citizens' (p. 102). Later they say 'Only by raising TFP relative to its competitors can an industry or a country compete effectively in global markets while raising real rewards to labour and capital. Hence, in this paper we equate improvements in competitiveness with TFP growth' (p. 104). This makes it sound as if international

competition is a zero-sum game since if one country's TFP has risen relative to that of its competitors, some other country's must have fallen. Surely we, as heirs of Adam Smith and David Ricardo, do not accept this zero-sum view of competition, competitiveness and trade!

More generally, until we really know what TFP does measure, it is hard to tell what we can learn from the kind of cross-section comparisons made by Rao and Tang. For example, one of the key points in Jorgenson and Griliches (1967), and elaborated in Lipsey and Carlaw (2004), is that much of technological change gets measured as an increase in the quantity of capital. If Canadian firms were doing more of the kind of technological change that gets incorporated into increases in the measured quantity of capital, and hence not as increases in TFP, while foreign firms were doing more of the kind of R&D that did show up as increases in TFP, the figures that the authors find would reflect different types of R&D and technological advance, not different efficiencies in using actual inputs of labour and capital. I do not suggest this as a serious possibility but use it only to show that, until we know what TFP is really measuring, we cannot be confident in how to interpret the interesting differences that these authors find.

GENERAL ISSUES OF POLICY

Ed's own paper in this symposium (Chapter 2) shows him as an economist who is greatly concerned with policy-relevant research. He wanted to know how the world worked but almost always in relation to a policy issue, whether it be understanding the causes of the Great Depression, so as to prevent a similar occurrence, or the effects of FDI, so as to guide government policy with respect to the alleged 'enemy in our midst'. Many of the papers in this volume are in that tradition and, as the various authors attest, most of them owe a debt to Ed for his pioneering work that guided their own early efforts. Here I can only touch on some of the most interesting of the many policy issues that were raised in the papers, concentrating on those on which I have something to offer in addition to what was said.

John Dunning (Chapter 11) raised a host of interesting policy issues in his valuable paper. Among other things he asked: how can we upgrade institutional structures to best participate in the benefits of the globalized economy? This is one of the big questions that will occupy thinkers over the next decade or so. Closely related to this is another question concerning what Dunning calls the end of the honeymoon period on MNEs: how can we best manage the new forces that are impinging on MNEs without destabilizing things?

The Place of NGOs

An important issue alluded to by Dunning is the place of NGOs and MNEs in the civil society. The classic liberal position is that governments set the rules and leave firms to maximize profits within the constraints set by those rules. This is not a position to be lightly dismissed. It argues that firms are not the best judges of the public interest. Deciding how in the broader social interest firm behaviour should be moved away from simple profit maximization is a job for the government acting on behalf of the people. Such judgements should be left in the hands of public policy makers and not entrusted to private firms. In a perfectly functioning world of price-taking competition and a government whose sole interest is the public good, all the public needs to do is to act through its government to create laws, rules and regulations that constrain firm behaviour in desired ways, while firms continue to maximize in the presence of whatever constraints they face.

NGOs have taken a different line and have put a lot of pressure on firms, particularly MNEs, to act in the 'public interest' as they see it, rather than in their own private (profit-maximizing) interest. Many firms have responded. In assessing this new development, two types of influences need to be distinguished: market pressure and moral pressure. An example of the former is a boycott of a firm's product because many members of the public disapprove of some action taken by the firm. Such boycotts have been made dramatically more effective by the ability to reach a mass audience through the Internet. Such pressure is similar to a government policy constraint in that the firm is forced to alter its behaviour in an effort to maintain its profits. This is consistent with the liberal position. It is consumer choice providing an incentive for firms to alter their profit-seeking actions. An example of the second type of behaviour occurs when a firm alters the nature of its production process in response to some plea from environmentalists in ways that raise its costs with no corresponding increase in its revenues. Now the firm is making environmental policy under the influence of NGO pressure in ways that conflict with the liberal position.

Does such behaviour have any justification that could reconcile it with the liberal position? It seems to me that the justification is provided by even a weak version of public choice theory. Assume that politicians do care somewhat about the public good but also care about being re-elected and providing benefits for themselves. Now if the public has some goal, say with respect to environmental protection, it does not follow that they should rely exclusively on the government to advance that objective. In the face of this agency problem, they may seek to exert influence through other legitimate means. One of the most effective of these is the institution of the NGO.

Faced with the same agency problem, the NGOs in turn try to influence firm behaviour not only indirectly by pressuring governments to enact relevant measures but also directly by persuading firms to alter their behaviour in a 'socially responsible' but profit-reducing manner. In the real world of oligopolies and partially selfish governments, there is no way in which it can be shown to be welfare reducing to operate through these other channels in addition to those provided by governments and approved of by the liberal position. So, given the facts of the real, messy world in which we do live, the liberal position is untenable.

This then raises at least two practical concerns. First, what channels are most effective in altering firm behaviour? Second, what channels are most likely to push for welfare-increasing rather than counterproductive alterations in behaviour? The answer to the second question will depend on many factors, such as how much NGOs and firms know about what is in the public good and how much they really care about it – as opposed, for example, to pressing for actions that appeal to prejudice, or are based on misinformation, or a misunderstanding of how a market economy works. Notice that the answers to these two questions need not be the same.

Competitive Bidding for Plants

Maureen Molot (Chapter 13) gives a valuable analysis of the growing propensity of local authorities to engage in competitive bidding for plant location. She deals with both theory and case studies. Although she does cover a great deal, several questions occur, at least to this outsider – questions that need investigation before the policy conclusion is accepted that these bidding wars are undesirable.

Any analysis of bidding wars needs to distinguish incompetence from inefficiencies that result from well informed rational decision making. So I assume at first that firms and citizens know what is in their own best interests, governments are only concerned with the public good, and all actors can make the relevant calculations. Now let there be one plant to be located and several jurisdictions in which it might locate and earn some profits (π). The costs and hence the total profit associated with each location are different. The plant confers an externality on the citizens of the local jurisdiction in which it locates and the local governments bid various amounts (ε) to obtain its location in their own jurisdiction. Given that everyone is fully informed, the jurisdiction that obtains the most externalities will offer the highest 'bribe'. The plant will go to the location that maximizes its return, which is profits plus bribe ($\pi + \varepsilon$). The agreed bribe will be somewhere between the maximum bribes that can be offered by the second- and first-best locations (i.e. those with the top two ($\pi + \varepsilon$)), not necessarily

the two top ϵ s). Notice that the chosen location may not be the location with the highest private profits nor with the highest offered bribe as long as the externalities, and hence the bribes, are not fully correlated with the private profits. In other words, the bidding war internalizes the externality and ensures that the plant goes to the location where the net social benefit is greatest, not necessarily where the net private profit is greatest or where the offered bribe is highest.⁴

Now divide the above example into two sub-cases. First, let the most efficient private location also be the location with the most externalities.⁵ The bidding will then produce the location that would have occurred in its absence and all that the bidding war does is to make a transfer from the citizens who would have received an unpaid-for benefit to the owners of the firm who confer the benefit. Depending on the gap between what the second- and first-best location can offer, there is some unpaid-for gain that can accrue to the citizens, depending on the relative bargaining power of their governments and the firm. The bidding leads to the efficient allocation of resources but redistributes income from those who gain what would have been an externality to the owners of the plant who create it.

Second, assume that the most efficient private location is not the one with the highest externalities. Let the highest social benefit be a location that does not have the highest private return.⁶ Now the efficient location is again chosen and those who get the externality pay while those who confer it gain a payment in excess of their private profits from operating the plant. But since the citizens would not have gained the externality if the plant had gone elsewhere, they cannot be said to lose. The real transfer is from those who would have gained the externality had there been no bidding war, so that the plant went to the location that produced the highest private profit, to those who confer the benefit. This is a rather subtle point. The receivers of the externality pay for it, but with no bidding war, they would have not have had the externality so they cannot be said to lose (either in relation to what did happen or to what would have happened if there had been no bidding war). Those who would have obtained the externality in the forgone location with the highest private profit for the firm are the real losers.⁷

Unlike most textbook treatments of investment, the plant has so far been assumed to be an atom of a given size so that the amount of investment is unaffected by the size of the bribe. This is probably the most common case in reality. But now assume that the amount of investment is a continuous variable and that the government negotiates not only over the location of the plant but also its size. The plant goes again to the most socially beneficial location but the investment is also more than it would have been if

no bidding war had ensued. Now even if the bidding war does not affect location, it affects the amount of investment in that location, making it larger than it would have been in the absence of bribery because of the internalizing of the externality.

So if everyone is well informed, it seems to me that the bidding war internalizes the externality and produces the socially correct location for the plant and, if the amount of investment is a variable, also gets that amount right – more than it would have been without the bidding war.

This is a rosy story. But things can go wrong for several distinct reasons. First, there may be an agency problem between the citizens and their government. The government may see obtaining the plant as an election benefit and bid more than the economic externality in order to achieve some of the political externality. Second, various agents may be seriously misinformed as to their interests. In particular, the government may over-assess the benefits to its citizens and pay more than the externalities, thus reducing local welfare. In both of these cases, if all jurisdictions are similar in their assessment of the political externalities or if their over-assessment of the externalities to be enjoyed by their citizens is the same, the plant still goes to the socially optimal location but the citizens pay too much.

Third, if there are many bidders who make different errors in their assessment of the externalities, and only one plant is to be located in each war, a classic case of the winner's curse arises. I suspect this is the most relevant case. For the simplest situation, let *the externalities be the same in all locations*. But let there be uncertainty about the amount. Assume rational expectations in that the mean of the individual governments' assessments is the correct assessment. But, as in any auction, the price paid is not the correct mean expectation of the value but the amount that the most optimistic bidder assesses the gain to be. So now we are sure that the successful bidder pays too much and there is no guarantee that the socially optimal location will be selected. Instead the plant goes to the location with the government that makes the largest error in estimating the externalities that it will confer. (Note that if the private benefits differ among locations, the location chosen is not necessarily the one whose government makes the largest overestimate because that may be countered by a smaller private benefit for the firm in that location.)

So it seems to me that in a fully informed world of rational agents and no agency problems, the bidding war internalizes the externalities associated with the plant, ensuring that the plant goes to the socially optimal location and is of the socially optimal size. This result is upset, however, by either of two important sets of cases: first, when the governments are willing to bid more than the value of the externalities either through

ignorance or other motives; second, when there is uncertainty as to the value of the externalities and the bidding war results not in a payment equal to the mean value of the assessments but one that is biased towards the value placed on the externalities by the extreme outliers whose assessments are on the high side. In this case, too much is paid and the plant goes to the socially optimal location only by accident.

So policy issues concern how much governments really do lose, if any, in these bidding wars and how much merely represents a wealth transfer related to paying for what would otherwise have been genuine externalities. Who would gain from some state control over such wars and how much and how would plant location be biased towards non-socially optimal locations by removing the internalization of important externalities that is accomplished by these wars?⁸

Competition Policy

Another important issue that was raised by several authors is the place of competition policy in the globalized world. Is there a place for more than just national policies and, if so, what is it? The EU has taken competition policy to a supranational level. In contrast, the NAFTA allows each country to set its own competition policy, which includes those directed at foreign firms, such as countervail and anti-dumping, and then sets up a dispute settlement mechanism to judge the fairness with which these policies are administered. When deeper integration was in vogue, it was thought desirable to have an EU type competition policy for the whole of the NAFTA. But sober second thought suggests that such a policy in a trading agreement between one dominant country and one or more lesser ones would inevitably be set by the dominant country. Still, it is an open question whether or not adopting what was in effect US competition policy, administered over the whole of NAFTA and enforced by US courts, would be any worse than the present situation in which the US sets policy with respect to foreign competition, and all that the dispute settlement panels can do is to judge the fairness with which the US administers that policy. Also, when dispute panels judge the administration to be unfair, there are available nothing like the sanctions that can be used against firms who run afoul of their home country's competition policy.

Dealing with Human Capital

All of the policy commentators agreed that dealing with and upgrading our human capital was an important policy issue related to technological change and international trade, even if the issue is not specific to MNEs.

Upgrading is easy to call for but hard to accomplish. What kinds of upgrading are needed? What can be done with the bottom third of the human capital distribution?

The social consequences of not dealing with this issue may in the long run be more important than those associated with neglecting any other important policy issue. For the first seven decades of the twentieth century, the distribution of income became more compact. All income classes gained from economic growth, but the poor gained more than the rich as inequalities narrowed. Then, starting sometime in the 1970s, this trend was reversed. Since then, there has been a progressive widening in income inequalities. The rich are now vastly richer relative to the poor than they were 50 years ago. There is debate about the causes of this change in trend but I have no doubt that one of the main driving forces is technology. The mass production factory system has given way to lean and automated production that has greatly reduced the well-paying jobs that used to be available for the relatively unskilled. Another technological contribution was the globalization that followed on the great reduction in transport costs associated with such things as containerization and the ability to coordinate activities worldwide that the ICT revolution accomplished. This globalized the market for unskilled labour, just as the market for many service activities is now being globalized. The great beneficiaries were those in developing nations, while the losers were the unskilled in the high wage developed nations.

A really urgent policy need is to decide what can and should be done in response to these changes. The most obvious reaction is to try, through enhanced education, to reduce the number of unskilled in advanced countries. But this is easier said than done and the drop-out rate among young males is worrying. Two 'nations' within one national border, one well off and one in growing relative poverty, is not something that should be welcomed. Governments may or may not have a place in encouraging technological innovation, but they surely have a place in education and related activities. We need a sense of urgency and a determined attempt to decide what can be done about the emergence of the two-nation split that is so apparent in the US and becoming more so in Canada and Europe.

SPECIFICALLY CANADIAN ISSUES OF POLICY

Because he spent his professional life in Canada, the specific policy issues that concerned Ed were concentrated on those that arose in the Canadian context, although by no means exclusively so. The conference's section on policy echoed these Safarian concerns in many ways.

Small Country Problems

Underlying much of this Canada-specific research is a more general problem that is of concern to others than just Canadians: 'How can a relatively small country thrive and pursue its objectives while being part of an international economy?' Neither is Canada the only country for which an addition is needed to the above statement: 'while living next to a very large and dynamic neighbour'.

Grant Reuber (Chapter 14) pointed out that with the new government in Ottawa, there is an opportunity to manage bilateral relations with the US better than in the recent past. Although it will be difficult to get much movement out of the US administration in an election year, priority should be given to pressuring the US at the highest possible diplomatic levels (prime minister and president?) to live up to its obligations with relation to softwood lumber, obligations recently reiterated by the WTO and the NAFTA.

Although major attempts to find a 'third way' are no doubt doomed to failure by Canada's proximity to the US, Wendy Dobson (Chapter 14) pointed out that the growing economic importance of both China and India present opportunities for some diversification that are probably not being fully exploited by Canadians. The Canadian government could do well to study the export promotion policies that were so successful in the three Asian Tigers during the early days of their growth spurt. Many of these policies are now ruled out by international trade agreements and many others were only appropriate to the very early stages of development when the firms in those emerging countries had little experience with the requirements of the tough world of international competition. But the analogy may not be altogether wide of the mark. Most Canadian exporters concentrate exclusively on the North American market, often just the US. Most have little idea of the requirements of the Chinese and Indian markets and learning about them entails a high fixed cost that many firms may not regard as a profitable undertaking. One of the lessons of the success of the Asian Tigers, and the disappointing performance of nations which have thought that the adoption of liberal market oriented policies was sufficient for inducing growth, is that the magic of the market often works much better when the magician's hand is assisting it. The governments of the NICs provided strong incentives for their firms to learn about, and enter into, foreign markets.⁹

Of course, it is asking a lot, probably too much, of Canadian politicians and mandarins to be as sophisticated as were the South Koreans, the Taiwanese and the Singaporeans in operating their export oriented policies. But a survey of export promotion policies worldwide could suggest some ideas for government to nudge the private sector into these growing markets

at a rate that would not happen if Canadian firms were left unaided. Canadians could learn, and could assist diversification, even if only to some small extent. But in the non-linear world of endogenous technological change in which we live, small nudges occasionally yield disproportionately large results.¹⁰

I am not suggesting state subsidies for exporting firms or massive state interventions of any sort, only the kinds of modest assistance to learn about foreign markets that is analogous to the successful assistance that IRAP gives to Canadian firms to learn about, adopt and adapt technologies that already exist.¹¹ This is the kind of motherhood advice that economists are fond of offering to reluctant governments, which welcome their submissions and then ignore them. How can we create a situation in which really radical rethinking can at least be considered? I think the answer probably is that federalist countries such as Canada cannot do this; only unitary countries such as Singapore and Taiwan can do it. But is that not a sad conclusion?

Do the Changes in the Pattern of Canada's Inward Bound FDI Matter?

Dunning, and several of the other authors, including Hejazi and Pauly, document the changes in the patterns of FDI that have followed the formation, first of the Canada–US FTA, and then of the NAFTA. Is there any cause for concern about these changes? In particular, should Canadian policy makers worry about the decline in the proportion of US FDI that is coming to Canada? Clearly, much of the decline is to be welcomed as signalling the disappearance of the tariff factories that were established in Canada just to avoid the Canadian tariff. What no contributor to this volume answered, however, is the key question: *how much* of the decline in FDI is due to this cause and how much to other causes and, in the latter case, is this amount of the decline a matter of concern because it is efficiency enhancing investment that is being lost?

The Relative Efficiencies of Foreign and Domestically Controlled Managements

Baldwin, Caves and Gu found that foreign controlled plants tended to respond to tariff and other changes more than do those that are domestically controlled. Several of the other studies presented at the conference suggested that foreign controlled plants have higher productivity than Canadian controlled ones and respond more fully to changes in the economic environment. Are these observations due to some failure of domestic managers or to other differences between these two sets of firms not related to variations in management efficiency?

The evidence presented by Morck, Tian and Yeung (Chapter 4) concerning the increasing importance of family controlled pyramidal groups in Canada while the importance of such groupings has been falling in the US, is further data suggesting systematic differences, and possibly inefficiencies, when Canadian management is compared with managements in other countries. They explain Canada's rise in family controlled pyramids as a result of nationalist investment policies. I see at least two problems with their explanation, First, this development seems to have occurred elsewhere where there is a lot of FDI, as in the EU. Second, it seems to have gone on after the Trudeau years, when Investment Canada became a welcoming agency to, not an inhibitor of, FDI.

Their work makes an excellent early pass at revealing the existence of, and suggesting explanations for, family compacts. Two steps are needed next. First, a lot more international comparison is needed to see if these developments were strengthened or weakened elsewhere, thus providing the kind of variability in the observations that increases the potential to discriminate among different explanations. Second, a more precise correlation is required between the policy changes that are assumed to be driving these changes in family compacts and the changes in family control itself. The impressionistic material given is appropriate to a first pass but, to go further, we need more precise measures and more international comparisons.

Another interesting bit of evidence about Canadian management efficiency is the spectacular failures of several Canadian retail and financial firms when they tried to go international. The Royal Bank and the CIBC have both found their operations in the US to be money losers. Canadian Tire, Future Shop and Molson (when they tried to manage their takeover of Brazil's Kaiser brewery) have all failed in their attempts. The financial journalist Eric Reguly, writing in the Canadian edition of *Time Magazine*, argues that many Canadian companies 'lack the necessary competitive spirit and competitive training. Canadian industry in general is coddled and protected by government policy, legislation and mind-set.'¹² This is an old accusation, but the cases to which Reguly points, and some of the data presented in Baldwin, Caves and Gu, and in Rao and Tang, raise this issue again. Surely a concerted effort is needed, an effort aimed directly at the question: 'Do Canadian managers perform poorly relative to foreign managers in similar situations and, if so, why?' There is, as I have said, much anecdotal evidence and many more systematic straws in the wind but a direct attack on this issue, marshalling all the evidence pro and con, would be of great service to all of us who seek to propose new policies and evaluate existing ones. We need someone to do for this question what Ed Safarian did for the question of FDI in Canada.

Ontario's Dependence on Autos

Alan Rugman, Maureen Molot, and several others at the conference expressed concern about the heavy dependence of the Ontario economy on the automobile industry. This is not a healthy industry worldwide. It suffers from overcapacity and the US firms are struggling to keep up competitively with the Japanese. There is pressure on Canadian parts manufacturers to transfer operations abroad to lower-cost jurisdictions, particularly Mexico. Given the reallocation of the world's resources associated with globalization, it seems inevitable that this shift to lower-cost countries will continue and that China will become increasingly prominent in the group of receiving countries.

How much should policy makers worry about this shift? Although the adjustment may be painful, it may also be inevitable and not necessarily welfare decreasing in the very long run (when, of course, many of us will be dead). After all, the UK de-industrialized very rapidly in the early 1980s and successfully made the transfer to a much more service-based economy.¹³

Is there anything that the government can and should do? Trying to resist the inevitable decline of a 'sunset industry' with government support has been shown in all too many past cases merely to delay the adjustment. The cost to taxpayers is substantial and difficulties are compounded when the delayed adjustment happens much faster, even if later, than it would have done without the support. Also, in the automobile case, much of the transfer resulting from support of the industry would be from Canadian taxpayers to foreign shareholders.

Having said all that, I do not want to minimize what will be a very unpleasant adjustment period for those in the industry in particular, and for Ontario in general, if the Canadian automobile industry has to downsize seriously over the next decade.

The Need to Rethink Micro Policy

Finally, I come to the need to rethink the whole set of microeconomic policies as new competition appears in world markets. This is probably the most important policy imperative in the first decade of the twenty-first century for Canada and, indeed, for all established economies.

In his contribution to the policy discussion, Andrei Sulzenko (Chapter 14), supported by comments for the other two participants in the session, gives a resounding call for reassessing all aspects of Canadian micro policy. While pointing out that recent macro policy has been successful in terms of price stability and the removal of budget deficits, he goes on to argue that

'billions of dollars have been committed to research, to technology and to human capital, but there is a significant unfinished agenda in terms of translating these investments into economic return by improved private sector commercialization of new goods and services'. Sulzenko's critique emphasizes that domestic economic affairs need to be managed with an eye to increasing productivity and international competitiveness. Serious effort is needed to rectify Canada's 'failure to move forward on intellectual property reform, to liberalize antiquated foreign investment restrictions in key sectors like telecom, airlines and financial services, and to take seriously corporate tax reform . . .'. Not only does Sulzenko emphasize the need for change in domestic micro policy; he also advances a benchmark against which to evaluate such changes when he says 'Canadian policy makers should be required to justify why in a North American context it is in Canada's interest for our regulatory regimes to be different, rather than substantially the same as the US. In some cases, in fact, we may want to position ourselves as strategically "better" than the US.' Sound advice that applies to all aspects of micro policy, not just to regulation.

NOTES

1. Solow's seminal article (1956) also gave rise to the EDRP of growth accounting.
2. I have discussed this and other similar examples of IDRPs in Lipsey (2001).
3. I have discussed this issue at more length in Lipsey (2001), where I note that 'economists commonly use the word "anecdote" pejoratively when seeking to dismiss what would otherwise be worrying anomalies'. The story of Kepler's wrestling with his awkward facts is well told in Koestler (1959).
4. An example in which there are only two bidding locations 1 and 2 may help. The firm has a private profit from choosing either location of π_1 and π_2 . Citizens in each location benefit by ε_1 and ε_2 . The firm will chose the largest $\pi + \varepsilon$. Let this be location 1. This implies only that $\pi_1 + \varepsilon_1 > \pi_2 + \varepsilon_2$ but it tells us nothing about the relation between π_1 and π_2 or between ε_1 and ε_2 .
5. $\pi_1 > \pi_2$ and $\varepsilon_1 > \varepsilon_2$.
6. $\pi_1 + \varepsilon_1 > \pi_2 + \varepsilon_2$; $\pi_1 < \pi_2$ and $\varepsilon_1 > \varepsilon_2$.
7. The real transfer is from the citizens in location 2 who would have achieved the externality if there had been no bidding war and the firm which gains the monetary value of what would have been an external benefit to some citizens. The citizens in location 1 now get a value that they would not have got in the absence of the bidding war, but they pay up to the full amount of that value to the firm that confers it.
8. There are, of course, many further considerations that would be needed in a full treatment. One concerns experience. If the set of possible locations is different each time that a company decides to locate one plant, the company may learn how best to play the game while the other actors remain neophytes. But I suspect, although only research can settle the issue, that more or less the same set of potentially profitable places is found in each game, so that there are fewer major differences between knowledge of firms and governments than would be suggested by at least the extreme case just mentioned.
9. They also built industries from scratch as with Korean electronics, thus giving the lie to the slogans so many economists are fond of repeating that governments cannot pick winners. As my colleagues and I have pointed out in several places (see especially Lipsey

and Carlaw, 1996), governments can and have picked many winners, as well as many spectacular failures, so the operative question is not 'can they?' but 'what are the conditions that make success more or less likely?'

10. In the neoclassical world in which there is one set of policies that is applicable to all times and all places, 'remove market imperfections', the failure of some policy in some specific set of circumstances is often taken as proof that it is a bad policy without qualification. But in a world in which the success of policies is seen as context dependent, no policy is applicable to all times and places and its failure in one situation tells us little about its potential for success in other situations. For example, Lawrence and Weinstein (2001) use statistical analysis of the relation between TFP growth and trade data to argue that during the period 1964–85 neither import restrictions nor export promotion contributed positively to Japan's TFP growth. True to the neoclassical tradition that one policy fits all and, therefore, can be judged to be either effective or ineffective in general, they conclude with the unqualified statement: 'Our results call into question the views of both the World Bank and the revisionists and provide support for those who advocate more liberal trade policies' (p. 404). Even if we take these results at face value with respect to Japan, they tell us little about the argument that export promotion helped the three Asian NICs to get off the ground when they were attempting to turn from producing unsophisticated products for the home market to becoming players in the globalized marketplace. The context was one of very backward economies whose business persons had little experience of export markets and where capital and entrepreneurship were limited. In contrast, the context for Japan in 1964 was of a sophisticated economy with much higher living standards and much more experience in international markets. Its experience with import protection and export promotion during that period is just not relevant to the issue of how much such policies helped the Tigers in their initial phase when they turned away from the old inward-looking development model to embrace the new one.
11. Ken Carlaw and I have discussed elsewhere the necessary context specificity of policy judgements and the good design of IRAP in among other places Lipsey and Carlaw (1998a and 1998b).
12. *Time Magazine*, Canadian Edition, August 2, 2004, p. 25.
13. This was to a great extent a case of the Dutch Disease, with the external value of sterling being driven upwards as North Sea oil came on line.

REFERENCES

- Carlaw, Kenneth I. and Richard G. Lipsey (2002), 'Externalities, technological complementarities and sustained economic growth', *Research Policy*, Special Issue Honouring Nelson and Winter, **31**: 1305–15.
- Carlaw, Kenneth I. and Richard G. Lipsey (forthcoming), 'A model of GPT-driven sustained growth', *Economic Journal*.
- Federal Reserve Bank of San Francisco (1994), *Weekly Letter*, **94**, July 1.
- Jorgenson, Dale and Z. Griliches (1967), 'The explanation of productivity change', *Review of Economic Studies*, **34**: 249–83.
- Koestler, Arthur (1959), *The Sleepwalkers*, London: Hutchison.
- Lawrence, Robert Z. and David E. Weinstein (2001), 'Trade and growth: import-led or export-led? Evidence from Japan and Korea', in Joseph E. Stiglitz and Shahid Yusuf (eds), *Rethinking the East Asian Miracle*, New York: Oxford University Press and the World Bank.
- Lipsey, Richard G. (2001), 'Successes and failures in the transformation of economics', *The Journal of Economic Methodology*, **8**: 169–201.

- Lipsey, Richard G. and Kenneth I. Carlaw (1996), 'A structuralist view of innovation policy', in Peter Howitt (ed.), *The Implications of Knowledge Based Growth*, Calgary: University of Calgary Press.
- Lipsey, Richard G. and Kenneth I. Carlaw (1998a), 'Technology policies in neo-classical and structuralist–evolutionary models', *OECD Science, Technology and Industry Review*, No. 22, Special Issue: 31–73.
- Lipsey, Richard G. and Kenneth I. Carlaw (1998b), *Structural Assessment of Technology Policies: Taking Schumpeter Seriously on Policy*, Ottawa: Industry Canada, October.
- Lipsey, Richard G. and Kenneth I. Carlaw (2004), 'Total factor productivity and the measurement of technological change', *Canadian Journal of Economics*, **37**: 1118–50.
- Prescott, E.C. (1998), 'Needed: a theory of total factor productivity', *International Economic Review*, **39**: 525–51.
- Sen, Amartya (ed.) (1970), *Growth Economics*, Harmondsworth: Penguin.
- Solow, R. (1956), 'A contribution to the theory of economic growth', *Quarterly Journal of Economics*, **70**: 65–94.
- Szostak, Rick (1995), *Technological Innovation and the Great Depression*, Boulder, CO: Westview Press.

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