Trade Policy Issues in Asian Development

Prema-chandra Athukorala

Routledge Studies in the Growth Economies of Asia

TRADE POLICY ISSUES IN ASIAN DEVELOPMENT

This book examines issues of trade policy in the light of the experience of developing Asian economies. Case studies highlight rapidly unfolding issues in trade and development, with reference to Sri Lanka, Malaysia, India, Indonesia, Pakistan, South Korea, Taiwan and Thailand.

The issues explored include trade liberalisation and industrial adjustment, employment and equity outcomes of export-oriented industrialisation, the impact of structural adjustment reforms on savings and investment, the role of foreign direct investment in export expansion, problems involved in the use of inter-industry linkages as policy criteria under export-oriented industrialisation and the role of world market conditions in determining export success. Prema-chandra Athukorala offers an overview of the evolution of post-war thinking on trade and development, followed by ten self-contained case studies, each of which focuses upon a specific policy issue. The author draws upon current theory and methodology and demonstrates the policy implications of his findings. Two key concerns which guide the empirical analysis throughout are the interconnection between theory and practice and the choice of analytical procedures with a view to getting the maximum out of available data.

Trade Policy Issues in Asian Development places a unique emphasis upon methodology and data handling and offers a comprehensive subject coverage. This will be a valuable reference for professional economists, policy makers and researchers working on trade and development issues in developing countries.

Prema-chandra Athukorala is a Senior Fellow in the Research School of Pacific and Asian Studies, Australian National University. He has been a consultant to the World Bank, the International Labour Organisation, the Economic Commission for Asia and the Pacific, the Asian Development Bank and the government of Sri Lanka.

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IN MEMORY OF MY FATHER

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PREFACE

The purpose of this book is to examine selected issues of trade policy making in developing countries, in the light of the experience of some countries in Asia. It begins with an overview chapter that traces the evolution of post-war thinking on trade policy for development, with emphasis on key paradigm shifts and the challenges that policy makers confront in the presence of contending perspectives. Each of the ten core chapters provides a self-contained case study of a selected policy issue, drawing upon the experience of a single country or a group of countries.

The issues covered include trade liberalisation and industrial adjustment, employment and equity outcomes of export-oriented industrialisation, the impact of structural adjustment reforms on savings and investment, the role of foreign direct investment in export expansion, problems involved in the use of inter-industry linkages as policy criteria under export-oriented industrialisation, the role of demand and supply factors in determining export success and the terms of trade for manufactured exports from developing countries. The countries covered in one or more of the chapters are Sri Lanka, Malaysia, India, Indonesia, Pakistan, South Korea, Taiwan and Thailand.

The chapters follow a common structure, encompassing the state of the debate, relevant theory, methodology and policy implications of the results. The treatment of issues is compact, with extensive referencing to the literature for those desiring to pursue individual topics further. Two key concerns that guide the empirical analysis throughout are the interconnection between theory and practice, and the choice of analytical procedures with a view to getting the maximum out of available (limited) data.

The book is intended for students as well as professional economists. Trade and development has been an increasingly important subject in advanced undergraduate and post-graduate curricula, either in its own right or as an integral part of the broader subjects of development economics and applied international economics. While there are a number of excellent textbooks on the subject, teachers and students often face difficulties in finding suitable case study material on rapidly unfolding issues to supplement the analytical material covered in the chosen text. This book aims to fill this gap. Apart

from its pedagogical value, the book will also serve as a valuable reference source for professional economists, in particular policy makers in developing countries and research economists working on trade and development issues. The readers in both groups will find this book to be unique amongst the few available compendiums of essays in this area, in terms of subject coverage and the emphasis placed on methodology and data handling.

It is a pleasure to thank everyone who helped me in this endeavour. Most important, I am grateful to my co-authors—Jayant Menon (Chapter 3), Kunal Sen (Chapter 4), Bambang Santosa (Chapter 5), Sisira Jayasuriya and Eddy Oczkowski (Chapter 7), James Riedel (Chapter 11)—both for fruitful research collaboration over the years and for permission to make use of material from our joint papers. Several individuals discussed the ideas with me at various stages, and commented on various versions of some chapters. Among them Satish Chand, Hal Hill, W.D.Lashman, Chris Manning, Ross McLeod, Ric Shand and Peter Warr deserve special mention. In the course of my work, I also received very valuable advice and suggestions from Heinz Arndt, Max Corden, Ross Garnaut, David Greenaway, Warwick McKibbin, Sarath Rajapatirana, Tony Thirl wall and David Vines. I am particularly grateful for their willingness to share their insights.

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The bulk of work relating to this volume was completed at the Department of Economics, La Trobe University during 1988–94 and at the Department of Economics in the Research School of Pacific Asian Studies, the Australian National University, over the past two years. I have also benefitted from a sabbatical in 1989–90 at the Paul H.Nitze School of Advanced International Studies of The Johns Hopkins University, and short visits to the World Bank, Institute of Southeast Asian Studies in Singapore, University of Malaya and the Institute of Policy Studies in Sri Lanka. I wish to express my gratitude to these institutions for excellent research facilities and the congenial work environment.

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Chandra Athukorala
ANU
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INTRODUCTION

1

TRADE POLICY AND ECONOMIC DEVELOPMENT: BACKGROUND AND OVERVIEW

'Trade policy' encompasses various policies that governments adopt towards international trade.[1] Through its influence on the level and composition of imports and exports, trade policy impacts on the structure of production and pattern of development of the economy. While government influence on foreign trade is important to all countries, the emphasis placed on trade policy is usually very high in developing countries for reasons associated with their shared economic backwardness. The typical developing country adopts its development strategy from an initial position characterised by limited capacity to produce manufactures and dependence of domestic firms on imported inputs and technology for their ability to produce output. Therefore the precise nature of the trade regime, in particular the mechanism used to repress import demand, could have important implications for resource allocation, efficiency and income distribution in the economy. Trade policy has therefore remained at the centre of the debate on economic policy making in developing countries.

State of the debate

In the 1950s and 1960s there was a broad consensus in the economics profession that the basic strategy for development should be based on 'import substitution' (IS)—the promotion of industries oriented towards the domestic market by using import restrictions, or even import prohibition, to encourage the replacement of imported manufactures by domestic products. It was widely believed that the primary commodity-dependent status enforced by the ex-colonial powers was the main cause of economic backwardness of developing countries, and the gap in living standards between developed and developing countries would continue to widen because of an inexorable deterioration in the terms of trade against primary commodities.[2] Industrialisation was therefore considered the key to economic development.

Industrialisation through greater integration with the world economy was however not considered as a viable option. The consensus view was that given the 'weakness' of domestic economic activities and their inability to compete with established industries abroad, industrialisation could not be undertaken without insulating domestic economy from competition from established foreign industries.[3] The theoretical underpinning for this view was provided by the infant industry argument for temporary protection of the manufacturing sector against import competition. Moreover, since most manufactured goods were imported, it seemed to follow logically that domestic production of manufactured goods by taking over the ready-made markets of imports was the main avenue for industrialisation. Consequently, controls over foreign trade became the main policy instrument of planning for industrialisation. Trade protection was often reinforced by domestic market policy interventions in the form of selective credit policy, industrial licensing, price controls and the establishment of state-owned enterprises (SOEs) to undertake manufacturing activities in 'key' sectors.[4]

The case for import-substitution industrialisation was so widely accepted at the time that 'developing-country exemptions' were even incorporated into the General Agreement on Tariff and Trade (GATT). The Article XVIII(B) of GATT explicitly exempted the developing countries from the 'obligations' of industrial countries, explicitly permitting them to adopt tariffs and quantitative restrictions as policy tools (Krueger 1995b: 38). This exemption enabled developing countries to pursue protectionist policies at a time when developed countries were removing their tariffs to increase the openness of their economies. Moreover, the Bretton Woods institutions (the International Monetary Fund (IMF) and the World Bank) and other international organisations with commitment to economic development in developing countries generally supported the basic thrust of the import-substitution policy. For instance IMF-World Bank stabilisation and structural adjustment programmes at the time seldom intended that the underlying trade policies related to import substitution be changed. The emphasis rather was on finding some ways, through fine-tuning the existing structure of protection, to induce more foreign exchange earnings to finance the capital goods that would be imported to undertake additional import substitution investments (Krueger 1997:7).

The period from about the late 1960s has witnessed a decisive shift in development thinking and policy away from the entrenched import-substituting views and in favour of outward-oriented (export-oriented) trade strategy.[5] This policy shift was brought about by a combination and interaction of two factors; the contrasting experiences of those developing countries which rigidly followed import-substituting policies and a few of them which took the advantages of trade opportunities, and a 'substantial neo-classical revival in the applied trade and development literature' (Diaz-Alejandro 1975:94) triggered largely by these contrasting experiences.

Many developing countries experienced rapid growth at the early stage of substituting domestic production for imports of consumer goods and other light manufactures. But, as these 'easy' import-substitution opportunities dried up, further growth was naturally limited to the rate of growth of domestic demand, and that was not generally high in most developing countries. Almost in every country, and particularly in small countries, import-substitution policies encouraged high-cost, inefficient activities which showed little productivity gains over time, partly due to their sheltered position in the domestic market. Consequently, the original expectation of catching up with the advanced countries never materialised. Further, in terms of equity considerations, such policies were often associated with regressive shifts in the distribution of income and disappointing performance in terms of employment generation.

Perhaps the single most important factor that discredited import-substituting industrialisation strategy was its dismal balance of payments outcome. Import-substitution, which was rationalised as a means of reducing dependence on the international economy, in fact increased import dependence. Most of the newly established industries were highly import intensive in the use of import of intermediate goods (Diaz-Alejandro 1965, Bruton 1970). To make matters worse, the protectionist policies pulled resources into high-cost import competing industries and discouraged export production. As a result, periodic foreign exchange shortages and 'stop-go macroeconomic cycles' usually emerged with deleterious effects on output and employment. For these reasons, even Raul Prebisch, one of the original architects of IS strategy, had to admit that import-substitution would not serve as a long-term vehicle for growth (Prebisch 1964).

Against the dismal overall performance of import-substitution addicted developing countries, Hong Kong—a prototype free economy—and three other East-Asian countries—Singapore, South Korea and Taiwan—that shifted early to export-oriented industrialisation moved dramatically upward on the income scale, with substantial improvement in their overall economic performance.[6] More importantly, rapid and sustained growth in these countries was accompanied by a remarkable equity outcome—more equal distribution of income and rapid reduction in poverty. Thus the East-Asian experience convincingly demonstrated that trade is 'a friend of economic development and growth, not an enemy, as many policy makers and economists had feared in the immediate postwar period' (Rodrik 1995b: 101). The experiences of these countries also pointed to the fact that export orientation reduces (rather than increases) economic dependence in the sense that as foreign exchange earnings grow rapidly, markets become increasingly diversified and the economy become increasingly flexible. After the worldwide recession of 1980–82 and subsequent 'debt crisis', the importance of this flexibility gained through greater outward orientation for sustained economic growth became unarguable. The export-oriented East-Asian countries showed remarkable

resilience to these crises, whereas other inward-oriented and heavily indebted countries were hard hit (Sachs 1985, Sachs and Warner 1995).

From the mid-1960s, a number of multi-country research projects around the world probed these export-orientation successes, and equally the failures of the import-substituting countries.[7] Systematic empirical evidence of these studies created greater awareness of economic wastefulness and irrationality of import-substitution regimes and the inherent growth-conducive traits of export-oriented regimes. The accumulated evidence also began to bring home the message that growth acceleration through export orientation was not due simply to static gains from improved resource allocation and there were dynamic factors at work along an export-oriented growth path (Krueger 1980).

Hand in hand with these multi-country studies, there were two other developments in the trade and development literature which paved the way for a decisive paradigm shift. First, there were considerable advances in the theoretical literature which scrutinised various aspects of the way in which protection actually works and the economic costs involved.[8] These theoretical advances not only provided more powerful tools for the anatomy of the consequences of controlled trade regimes but also gave credibility to the emerging empirical evidence on economic costs of such regimes. Second, a number of authors undertook in-depth analyses of the validity of the reasoning underlying export pessimism, in light of the export experience of developing countries during the post-war era (e.g. Kravis 1970a and 1970b, Riedel 1984). It was evident from these studies that a strong direct relationship between external conditions and export expansion (which suggested the exclusive dominance of world demand in determining trade performance) simply cannot be extracted from the export experience of developing countries. Indeed, the export performance of these (and other) countries must be explained by domestic incentives and other supply-related factors rather than by external demand conditions.

Based on the experience and research, export-promotion (EP) (or outward-oriented, EO) trade strategy soon became the new orthodoxy of development policy.[9] It also became an accepted component of aid conditionality of the World Bank and of some liberal donors. The new ideological orientation, coupled with the influence of aid conditionality, has produced a palpable shift in trade polices of many countries (including that of China and many countries in the former Soviet Block) towards greater reliance on export orientation. During the late 1980s, and early 1990s most of the Latin American countries, which since the 1930s had favoured IS strategy, went through gigantic unilateral reforms (Edwards 1995). Similar processes are taking place in Asia, where countries that for decades have pursued highly protectionist policies, India for instance, are implementing major trade liberalisation efforts.

After more than four decades of experience and research, the range of the debate over trade policies has undoubtedly been narrowed. It is now

widelyaccepted that import substitution at a minimum has outlived its usefulness and growth prospects for developing countries are greatly enhanced through integration with the international economy. With this broader consensus, the debate is now on how to tackle the challenges associated with undertaking trade reforms to move from inward-oriented trade regimes to outer-oriented trade regimes.

Perhaps the key contentious issue in this debate is whether there is a role for the state in 'picking the winners' or selectivity of incentives across different industries. There is a strong revisionist school of thought, based on reinterpretations of economic transformations in the newly industrialised countries (NICs) and Japan, that argue that 'dynamic externalities' earlier associated with infant industry protection really calls for the 'right kind' of intervention.[10] The revisionists claim that government intervention in the form of selective credit and other forms of promotion was an essential element in the success of Taiwan, Korea, Singapore and Japan. In a departure from the conventional wisdom, recently the World Bank (1991) acknowledged that 'market friendly' intervention undoubtedly played a role in dramatic economic transformations in these countries. Then, in the context of the East-Asian Miracle study, the Bank specifically mentioned that directed credit, an important instrument of industrial policy, may have made a substantial contribution to successful industrialisation efforts in Korea and Taiwan (World Bank 1993).[11]

The mainstream economists, however, continue to stress that it was the firm commitment to outward orientation and relatively less reliance (by the developing country standards) on restrictive trade policies (rather than some isolated attempts to promote-specific industries through selective incentives) that played the critical role in the industrial transition in these countries. In particular, they argue that the outstanding success of Korea and Taiwan in the 1960s and 1970s was based on a phenomenal growth of labour-intensive manufactures (including light electrical and electronics machinery, largely consisting of consumer goods), not the typical 'heavy' sectors (chemicals, non-metallic minerals and base metals) which received favoured treatment (Bhagwati 1993a, Little 1994, Krueger 1997). According to these economists various selective interventions were important only to the extent that they 'played an important role in making the export promotion strategy work successfully…by ensuring credibility of commitment on the part of governments' (Bhagwati 1989:260).

Another contentious issue relates to the role of foreign direct investment (FDI) in export-oriented industrialisation. Although there is a broader consensus that FDI can play an important role in the transmission of modern technology, market know-how and modern management practices to developing countries, some economists argue for a selective approach to the promotion and screening of FDI with a view to enhancing net national gains. They argue that Japan virtually prohibited FDI, and Korea and Singapore

managed it very carefully in order to avoid 'crowding out' of local entrepreneurship by foreign firms (Lall 1996). This argument, however, ignores the important point that the role of FDI in export-led industrialisation depends on the particular global context of the entrepreneurial background of the given recipient country, and therefore generalisation from the particular NIC experience may be hazardous (Krugman 1995).

A third unresolved issue is what Bhagwati (1989) calls the 'second export pessimism'. This issue is about how to manage the transition from a closed-economy phase to greater export orientation in face of the constraint imposed upon the export performance of developing countries by the international economy. In his Nobel Prize Lecture, Sir Arthur Lewis (1980) argued that the prosperity in the developed world during the 1950–73 (which provided a conducive setting for the East-Asian success) was special and in the future developing countries could expand exports only if industrial countries were willing to allow the former a greater share of their slowly expanding markets. However, he cast doubt on this possibility noting that historically industrial countries had indicated 'exceptional sensitivity' to manufactured exports from developing countries in times of economic downturn. Following Lewis's lead, a number of recent studies have emphasised the need to reconsider the appropriate weight of export orientation and import substitution in development policy in developing countries, arguing that bleak prospects for access to industrialised country (IC) markets do not justify the reliance on the former as the prime focus of industrialisation (Cline 1982, Dornbusch 1988, Faini *et al*. 1992). In particular, it is argued that a generalised outward shift in the export supply schedule of developing countries would be associated with substantial losses in terms of trade and would undermine the success of a widespread export-led strategy.

The proponents of export-promotion strategy, however, continue to argue that, despite economic slowdown in industrial countries and the rising protectionist sentiment, developing countries still have ample opportunity to prosper through manufactured exports provided they adopt 'correct' domestic policies (Hughes and Krueger 1984, Bhagwati 1988 and 1993a, Krugman 1995). The main arguments on which this optimistic view is based are as follows.

1 The developing countries have shown a remarkable ability to maintain export growth even in the face of slow demand expansion, by obtaining a larger share in industrial-country markets through price competition.
2 The degree of penetration of developing-country exports into industrial-country markets still remains very low even for 'traditional' manufactures. There is therefore a great deal of unexploited absorptive capacity in the 'market sense'.
3 The actual impact of protection is far less strong than one presumes it to be simply because there are many ways (both legal and illegal) in which

exporting countries can 'get around' it in search of an 'as-if-free-trade'solution. The globalisation of the economy—global activities of multinational corporations open up new opportunities.

They further argue that if openness conveys benefits through competition and the nature of policy instruments used, then the gains from export orientation will be almost as great with slower growth of world trade as with more rapid growth, provided of course the world economy continues to remain reasonably open to trade (Krueger 1984).

Scope and outline of the book

The changes for improved outcomes in trade policy reforms in the future are clearly tied to our ability to cast a fresh look at the issues just discussed. The chapters in this volume, which examine selected trade policy issues in the light of the experience of some Asian countries, are a contribution to this ongoing debate. Throughout, the major emphasis is on the experience of 'late-comers'. This is a deliberate choice in response to the view often voiced in the current policy debate that NIC experience cannot be replicated given their 'first-comer' advantages and the more conducive economic circumstances in the world economy at the time they embarked on the process of export-led industrialisation. The research strategy in each chapter has been guided by the conviction that, in order to understand the process of economic growth, it is important to perform detailed studies of the experience of individual countries within a solid theoretical framework. Of course no two countries are alike in terms of the economic structure and the policy context, and hence sweeping generalisations are not possible. However, insights gained from various country studies is perhaps the only meaningful guidance for policy markers in a given country in identifying and/or anticipating critical issues that may crop up in the reform process. There is indeed an emerging consensus in the applied trade and development literature that the use of a cross-country approach to search for empirical linkages has already begun to experience diminishing returns to research and it is important to study individual country cases in order to inform the policy debate.

The ten chapters that follow are grouped into three major parts. Part 1 contains four chapters on 'trade policy and development'. Chapter 2 examines the impact of market-oriented trade policy reforms on industrial adjustment and growth in late-industrialising countries through a case study of Sri Lanka. A key theme running through the chapter is the importance of the concomitant liberalisation of both trade and investment policy regimes in determining the nature of gains from liberalisation reforms in small trade-dependent countries like Sri Lanka. After perusing import-substitution polices for over three decades, Sri Lanka embarked on a significant liberalisation reform in 1977. Despite severe strains caused by internal ethnic strife, the Sri Lankan

government has continued with the new outward-oriented policy stance, implementing still further reforms in the 1990s. Given this long-standing commitment to reforms, Sri Lanka provides a valuable laboratory to study the subject at hand. It is evident that the reforms have led to far-reaching changes in the structure and performance of Sri Lankan manufacturing. As the conventional theory predicts, labour-intensive product lines have expanded rapidly through greater export orientation, contributing significantly to foreign exchange earnings and employment. The manufacturing sector is no longer reliant on the fortunes of the traditional primary export industries to obtain required imported inputs. The employment outcome has been so impressive that the commitment to market-oriented reforms is now bipartisan policy.

Chapter 3 examines the nexus of export-oriented industrialisation, employment and equity using Malaysia as a case study. Malaysia continues to be in the lime light as one of a handful of success stories in the developing world. While Malaysia's economic record has been impressive by the developing country standards throughout the post-independence period, the achievements have been truly remarkable since the late 1980s when there was a decisive policy shift towards greater outward orientation. Rapid and sustained economic growth through export-led industrialisation has been accompanied by rising living standards and improvement in the distribution of income, ameliorating the twin problems of poverty and racial imbalances. The key lesson to come from the Malaysian experience is that, in a small open economy, the task of achieving the conflicting objectives of growth and equity is facilitated by a long-term commitment to an open and liberal trade and investment policy regime. Unlike many other developing countries, Malaysia never resorted to stringent quantitative trade restrictions which insulated the domestic price structure signals from world market conditions. Consequently resource costs arising from rent-seeking activities have always been minimal by developing country standards. With this policy regime, coupled with a stable political climate, the Malaysian economy has been well placed to take full advantage of the new opportunities arising from integration with the global economy.

Chapter 4 deals with one special issue central to the policy debate on liberalisation reforms in developing countries, namely, the impact of these reforms on domestic savings and investment. The chapter draws attention to methodological flaws of available studies on the subject and presents new empirical evidence from a case study of the Indian experience following the reforms started in 1991. We find no evidence of decline in domestic savings. The decline in domestic savings during the immediate aftermath of the reforms as reflected in the official data was simply a statistical artifact arising from the particular estimating technique used. There is also convincing econometric evidence that the net impact of the Indian reforms on corporate investment has been salutary. The adverse impact of decline in public investment on corporate investment has been outweighed by the positive effects of the decline

in the relative price of capital and favourable changes in investor perception brought about by the reforms. Although it is not possible to generalise from a single country case, our results cast doubt on the existing cross-country evidence of a negative impact of liberalisation reforms on private investment.

Chapter 5 takes a critical look at a fundamental consideration influencing policy thinking on designing export promotion strategies, namely, the role of inter-sectoral linkages ('linkages' for short) in determining gains from export growth. Policy makers often place emphasis on linkages in setting sectoral priorities in export development policy, particularly in designing export promotion schemes and in screening and monitoring export-oriented foreign direct investment. Development analysts too place emphasis on linkages as an operational norm in assessing the developmental impact of export industries. It is argued in this chapter that the use of this *closed-economy* planning tool as a performance criterion in the context of export-oriented growth strategy is fundamentally flawed. The argument is illustrated using the recent Indonesian experience with manufacturing export expansion as a case study. There is ample evidence from the Indonesian experience that, in the context of the ongoing process of internationalisation of production, industries characterised by high import intensity and hence low domestic linkages have the potential to make a greater contribution to employment expansion and growth of net export earnings. We find that linkages have no significant correlation—and indeed sometimes a negative one—with employment and net export growth.

Part II of the book, 'foreign investment and export-led industrialisation', has three chapters. Chapter 6 examines the nature and determinants of export-oriented foreign direct investment (EOFDI) in 'new exporting countries' (NECs)—the more recent entrants to the manufactured export area. The chapter develops an analytical framework for analysing the patterns and determinants of EOFDI in NECs and applies it to the Sri Lankan experience following the policy reforms initiated in 1977. There is evidence that the nature of EOFDI and its role in the process of export-led industrialisation depends crucially on the degree of industrial advancement and the stage of entrepreneurial development of the country, changes in the process of internationalisation of production and the nature and timing of policy shifts. It is, therefore, hazardous to generalise from the experience of NICs in considering policy options for NECs.

Chapter 7 probes the relationship between the parentage (ownership) and export propensity of manufacturing firms. It draws attention to methodological flaws of the existing empirical studies and presents new empirical evidence through the application of a more appropriate methodology to a carefully assembled data set for Sri Lanka. The results lend strong empirical support for the proposition that, in developing countries with small domestic markets, a sharp distinction exists between exporting firms and firms which produce for the domestic market. Firms which rely significantly

on both markets are rare. Consequently, industry characteristics and the overall trade policy regime are more important than nationality in determining the degree of export propensity of firms. On the other hand, there is evidence that multinational affiliation is an important determinant of whether a firm is an exporter or not.

Chapter 8 draws upon the Malaysian experience to examine the impact of international production through direct investment on employment and real wages in the manufacturing sector. The analysis is built around testing the structuralist assertion that multinational enterprises (MNEs) involved in export-oriented production in developing countries suppress real wage growth leading to an unequal distribution of gains from the international production. When appropriately controlled for other determinants of inter-industry differences in wage growth, there is no empirical evidence to suggest that the presence of MNEs is negatively related with real wage growth. The observed relatively slow growth of average real wages of workers in foreign-owned export industries can be explained in terms of the ongoing process of wage convergence among industries and the increased exposure of domestic manufacturing to world competition through greater export orientation.

Part III of the book, 'export orientation and the world economy', contains three chapters which take a critical look at the 'demand constraint' argument against export-promotion strategy—the view that export expansion from developing countries is directly dependent on growth in industrial countries. Chapter 9 provides a comparative analysis of the relative importance of supply-related and demand-related factors in determining the growth of agricultural exports from developing Asian countries in the light of the export experience of seven traditional agricultural exporting countries in Asia—India, Indonesia, the Philippines, Malaysia, Pakistan, Sri Lanka and Thailand. In the formulation of export policy, many developing countries place over-whelming emphasis on the promotion of manufactured exports while neglecting or paying inadequate attention to opportunities for continued development and diversification of agricultural (and other primary) exports. This policy choice is born mostly out of the long-standing primary-export pessimism—the view that export prospects for agricultural products are determined predominantly by the long-term pattern of world demand leaving little room for supply-side policies to achieve export success. The results suggest that, in determining export performance of individual countries, supply-side policies carry a greater weight than changes in world demand.

Chapter 10 is a contribution to the debate on the robustness of the available estimates of export demand and supply elasticities for NICs in making inferences about external demand constraint faced by developing-country exporters of manufactured goods. The results suggest that normalisation of the export demand function for price rather than quantity is an important issue in estimating export demand functions of small countries. There is also evidence that estimates of export demand elasticities at high levels of

aggregation are subject to a potentially powerful downward bias when the aggregate consists of categories which are subject to quantitative restrictions. If proper modeling procedures are applied to appropriately disaggregated data, it is likely that the small country assumption—which implies that export success lies predominantly on the supply side—will find far more empirical support than it has heretofore.

Finally, Chapter 11 examines the empirical validity of the recent hypothesis by Hans Singer that, owing to certain country-specific disadvantages, the net barter terms of trade (NBTT) for exports of manufactures from developing countries tend to experience secular deterioration favouring the importing industrial countries. We estimate trend rates of NBTT for manufactured exports from all developing countries as well as from India, Korea and Taiwan, by applying an econometric procedure designed to avoid the problem of spurious trend estimation to a carefully assembled data set. Our results reject the deteriorating trend hypothesis and suggest that the shift away from primary commodities and towards manufactured goods in export composition allows developing countries to escape unequal exchange relations in their trade with industrial countries.

Chapters 2, 4 and 8 are specifically written for this volume. The remaining chapters draw upon the author's sole or joint contributions to international journals. The published material is incorporated in the book with considerable modification, rewriting and expansion where relevant, in order to avoid overlap as well as to update the data and the literature coverage.

Notes

1 Tariffs, import quotas and subsidies are the obvious examples of trade policy instruments in most developing countries. Policies towards foreign direct investment can also be considered as part of trade policy as these policies have become key instruments of export promotion and import substitution beyond the levels dictated by market forces in many countries. Some authors treat exchange rate policy as part of trade policy (Diaz-Alejandro 1975:93, Thomas and Nash 1991:1–2), but the standard practice is to consider it as part of macroeconomic policy.

2 The most prominent proponents of this pessimistic school of thought were Ragner Nurkse, Raul Prebisch, Gunar Myrdal and Han Singer. Useful surveys of their work can be found in Diaz-Alejandro (1975), Bhagwati (1988), Bhagwati and Srinivasan (1979) and Krueger (1997).

3 It was almost taken for granted that there was little room for developing countries to prosper through exporting labour-intensive manufactured goods. A widely used textbook of the time put forward the consensus view as follows:

> Some special cases such as Hong Kong and Puertorico have been able to obtain relief through exporting labour intensive manufactured goods, but it is doubtful whether this solution will be generally available to others. There is a growing resistance on the part of the older industries

> in the advanced countries, for example Lancashire Cotton industry, to the import of cheaper consumers' goods from developing countries. So,…the industrial protection against light consumers' goods from the developing countries is a more serious obstacle to growth of some of these countries. [On the other hand] in order to break into the market of the rich countries, the exports have to be high quality consumers' goods. It is difficult to produce such high quality products economically in the developing countries, not only because of their technical immaturity, but also because of their domestic consumers are geared to the cheaper low quality products, so that they cannot hope to obtain the economies of scale based on the home market for these high quality products.
>
> (Myint 1965:127)

4 Apart from economic considerations, two important historical phenomena greatly influenced policy makers' thinking in favour of import-substituting industrialisation: (i) the strong nationalistic and anti-colonial sentiments that accompanied the attainment of independence, and the symbolic importance of manufacturing as a sign of national economic independence; and (ii) the experience of the Soviet Union's apparently successful rapid industrialisation under a command economy (central planning).

5 As already noted, import-substitution strategy creates a net incentive bias in favour of domestic production of import substitutes relative to what international prices dictate. By reverse reasoning sometimes export promotion (EP) (or export-oriented (EO)) strategy has been considered loosely to imply a situation where incentive for export production is greater than that for production for the domestic market. However, this is not the standard usage. Most analysts agree that an export-oriented strategy is one in which there is no bias of the incentive structure towards favouring production of import substitutes. According to this 'consensus' view, EP strategy eliminates the bias against exports, thereby restoring the incentives to export as much as to produce for the home market. Note that this definition is based on the sequencing of trade regimes, one in which a country moves from an IS strategy to a new policy regime which eliminates the bias against exports (Bhagwati 1988).

6 These four countries, which are popularly know as the four dragons, the four tigers or the 'gang of four', were subsequently joined by Malaysia, Thailand and Indonesia and China to form the country grouping of 'East-Asian Miracle Economies' or 'High Performing Asian Economies' (HPAEs) (World Bank 1993).

7 The chief studies were directed by Little, Scitovsky and Scott (1970) at the Organisation for Economic Corporation and Development (OECD), Balassa (1971, 1982) and at the World Bank, Bhagwati (1978) and Krueger (1978) at the National Bureau of Economic Research and Donges (1976) at the Kiel Institute of World Economics.

8 For a comprehensive survey of these theoretical advances with extensive referencing to the relevant literature see Corden (1996).

9 For details on policy shifts in various countries see Chenery and Keesing (1981), Michaely *et al.* (1991, Chapter 2), Thomas and Nash (1991), Edwards (1995) and Sachs and Warner (1995).
10 The two most important contributions to this 'new-wave' interpretation of the East-Asian experience are Amsden (1989) and Wade (1990). For a detailed listing and an insightful review of the related literature see Rodrik (1995a).
11 See also Stiglitz (1996).

Part I

TRADE POLICY AND DEVELOP MENT

2

TRADE POLICY REFORMS AND INDUSTRIAL RESTRUCTURING IN SRI LANKA

The debate on trade policy reforms in developing countries is far from settled. While there is a growing consensus in the economic profession that old-style interventionist import-substitution policies have 'misfired', there is no agreement on the appropriate way forward. The mainstream policy advocacy in the neo-classical tradition of development economics sees the removal of government in direct production activities and shifting towards market forces as the appropriate strategy for achieving rapid, robust and equitable growth (Little 1982, Bhagwati 1993b, Krueger 1997). The economists of structuralist persuasion are, however, less sanguine about the desirability of such market-oriented reforms (Helleiner 1992 and 1994, Rodrik 1992, Taylor 1988). Based on the widespread failure of market-oriented policy reforms in many developing countries, they argue for activist and selective public policies tailored to the circumstances of each individual country, while eschewing indiscriminate state intervention. Apart from stressing the potential adverse effects in the short run if weak domestic industry is exposed to foreign competition, the structuralists draw upon the conventional economic arguments for selective intervention on grounds of learning by doing and dynamic economies of scale achievable in the context of a protected domestic market. The mainstream economists counter the structuralist critique by arguing that reforms failed in many developing countries not because of an inherent deficiency of the market paradigm but because of the partial and half-hearted nature of reform process.

This chapter aims to contribute to this debate through a case study of Sri Lanka. Sri Lanka has experienced a series of changes in its trade regime since attaining independence from British colonial rule in 1948. During the first decade after independence it continued with a liberal trade regime, until growing balance of payments problems induced a policy shift towards protectionist import substitution policies. By the mid-1970s the Sri Lankan economy had become one of the most inward-oriented and regulated outside the group of centrally planned economies, characterised by stringent trade

and exchange controls and pervasive state interventions in all areas of economic activity. In 1977, Sri Lanka responded to the dismal economic outcome of this policy stance by a sharp change in policy direction and embarked on an extensive economic liberalisation process, becoming the first country in the South Asian region to do so. Despite major macroeconomic problems, political turmoil and government changes, market-oriented reforms have been sustained and broadened over almost two decades so that Sri Lanka today stands out as one of the most open economies in the developing world. This basic policy orientation looks set to continue in the foreseeable future. Indeed, the most dramatic change in the Sri Lankan political landscape in recent years has been the convergence in broad economic policies among the major political parties and groupings; achieving greater openness and liberalisation is now a bipartisan policy in Sri Lanka. Given the decisive policy shift in 1977 and policy continuity during the ensuing years, Sri Lanka appears to provide a valuable laboratory for the study of the impact of foreign trade policy regimes in a developing economy.

The typical pre-liberalisation developing economy is one in which a variety of sectors and markets, as well as the foreign trade regime, are subject to controls. In addition to incurring significant economic costs individually, these controls interact with one another to magnify their total cost to the economy. The manner in which the economy reacts to trade liberalisation depends on what happens in related markets. Moreover, macroeconomic influences provide the framework within which firm-level decisions are made, and thus affect importantly the outcome of liberalisation reforms. We attempt to examine the Sri Lankan experience by taking various liberalisation initiatives as a package and paying attention to the macroeconomic setting in determining the liberalisation outcome. A major limitation of most of the available studies on industrial adjustment under liberalisation reforms have placed overwhelming emphasis on the trade liberalisation component of reforms while paying little attention to the interaction among different markets and/or the role of the macroeconomic regime.[1]

The structure of the chapter is as follows. In the next section we trace the evolution of trade and industry policy in Sri Lanka since independence, followed by a discussion of the key elements of the market-oriented reforms initiated in 1977. Then we examine the industrialisation experience since 1977 in historical context, placing emphasis on aspects such as patterns of industrial growth, export orientation and factor productivity growth. This is followed by an in-depth analysis of the response of foreign investors to the significant trade-cum-investment liberalisation reforms and the pivotal role played by export-oriented foreign direct investment (EOFDI) in transforming a classical primary commodity-dependent economy into a 'new exporting country' (NEC). The final section summarises the main findings and draws policy inferences. A key theme running through the chapter is the importance of the concomitant liberalisation of both trade and investment policy regimes

in determining the outcome of liberalisation reforms in small trade-dependent countries like Sri Lanka. We also draw attention to the need for supportive macroeconomic policies if trade liberalisation were to achieve its full growth impact.

Policy context

Policy trends since independence

During the first decade after independence in 1948, Sri Lanka continued as an open trading nation with only relatively minor trade or exchange rate restrictions and liberal domestic policies. From the late 1950s, a combination of change in political leadership and balance of payments difficulties led to the adoption of a state-led import substitution industrialisation strategy. Trade restrictions, which were introduced in the late 1950s to keep the negative trade balance under control, soon turned out to be the key instrument in the hands of the national planners in directing private sector activities in line with (perceived) national priorities. Following a hesitant and mild liberalisation attempt during 1968–70, the period from 1970 to 1977 was marked by further direct government intervention in the economy under the guise of creating a 'socialist society'. By the mid-1970s, these policy shifts had transformed the Sri Lankan economy into one of the most highly regulated, inward oriented, *statist* economies outside the communist block (Fitter 1973, Rajapatirana 1988, Cuthbertson and Athukorala 1990).

The policy makers in Sri Lanka, like their counterparts in other developing countries, expected the growth of IS industries to reduce the heavy dependence of the economy on imports. The reality was quite different, however. While consumer goods imports were reduced substantially, this was achieved at the expense of increased reliance on imported capital goods and raw materials, resulting, contrary to expectation, in an even more rigid dependence on imports. Given these structural features, the growth dynamism of the newly established industrial sector tended to show a close functional relationship with the fortunes of the traditional export industries. Thus, unanticipated import curtailments brought about by foreign exchange scarcity turned out to be the main constraint on industrial expansion from the late 1960s. Moreover, the 'inefficiency spillover effects' of spillover effects (SOEs) involved in intermediate goods production on private sector end-user industries were quite substantial, particularly since import compression policies were implemented with a distinct bias towards SOEs in the allocation of foreign exchange (Athukorala and Jayasuriya 1994). In most developing countries rapid expansion of domestic industry continued until the 'easy' import-substitution opportunities (i.e. meeting domestic demand in textiles, footwear, some food processing and other light labour-intensive activities) were used up. It was only then that the cost of additional investment in new IS activities

began to rise and growth slowed down (Krueger 1992:43–44). However, in Sri Lanka, a limit was set on the growth of industry by the balance of payments constraint well before the completion of the easy IS phase.

General dissatisfaction with stagnant economic growth, deterioration in the provision of social services, rising unemployment, shortages and widespread rationing of consumer goods, together with opposition to increasing authoritarianism in the political arena, set the stage for a change in the political regime. At the general elections of July 1977 the centre-right United National Party (UNP) scored a sweeping victory on a platform of opening up the economy and revitalising the private sector. The first round of reforms carried out during 1977–79 included significant trade liberalisation, revamping the foreign investment approval and monitoring process with new incentives for investors, a significant interest rate reform and opening of the banking sector to foreign banks, limits on public sector participation in the economy and exchange rate realignment.

The extent of 'outside influence' on the 1977 policy shift towards economic liberalisation remains a debatable issue. From time to time newspapers interpreted the policies as a positioning for receipt of Western aid, and contended that in 1977 the International Monetary Fund (IMF) and World Bank became Sri Lanka's 'new masters'. There is little doubt that following the policy reforms foreign aid to Sri Lanka from Western countries increased significantly and the presence of the IMF, World Bank and other international agencies in the policy scene became prominent. However, one judgement commonly made by Sri Lankan government officials and some economic observers is that, given the dismal economic record of the closed-economy era, even a re-elected centre-left government would have embarked on a similar reform process. Indeed, there was considerable discussion within government circles during the immediate pre-election years on the liberalisation of the trade and foreign investment regimes.[2]

The impact of 1977 policy reforms on economic growth was dramatic; average annual GDP growth rate more than doubled from 2.9 per cent during 1970–77 to 6 per cent between 1978–83. However, this growth surge could not be maintained in the subsequent period, primarily because of a collapse of political stability. From 1984 onwards Sri Lanka has been subjected to a secessionist war in the northern and the eastern provinces, while a radical youth uprising gripped the rest of the country in the late 1980s. In this volatile climate, there was little room for attempts to complete the unfinished agenda of economic liberalisation.

Political instability resulted in severe economic dislocation, and a sharp escalation of defence expenditures, which, in turn, led to widening fiscal deficits, growing macroeconomic problems and erosion of international competitiveness of the tradable sectors. Apart from continued fiscal expansion triggered by the civil war, the drying up of official capital inflows (with the completion of aid-funded public sector investment projects) also contributed

to major macroeconomic imbalances. By the end of 1988, official foreign exchange reserves had fallen to the equivalent of six weeks' imports, while the service payments on external debt had risen to 28 per cent of export earnings. Average annual GDP growth during 1984–89 was only 2.6 per cent. In this context, the government, under pressure from the Bretton Woods institutions, agreed in June 1989 to implement a 'second wave' liberalisation-cum-adjustment package. The programme basically aimed to arrest the deteriorating external payments position and control inflationary pressures by bringing down the fiscal deficit and moderating the rate of monetary expansion. The policy package included an ambitious privatisation programme, further tariff cuts and simplification of the tariff structure, removing exchange controls on current account transactions, commitment to a policy of flexible exchange rate management and initiatives to cut the fiscal deficit.

After seventeen years in government, the UNP lost power at the 1994 general elections to the People's Alliance (PA).[3] The election result was largely determined by the growing disenchantment with the trend towards authoritarian methods of rule and a culture of 'crony capitalism', the continuing civil war, political violence and rampant corruption. In fact, during the election campaign it became clear that an unprecedented consensus had emerged across all mainstream political groups over the superiority of market-oriented polices pursued since 1977 and the need for continuation of pro-market, liberal economic policies to achieve economic development.

There was speculation at the time of the election that if the PA came to power, it would decelerate, if not reverse, the liberalisation process. But, the actual course of policy under the new government has been quite the opposite. The liberalisation process, particularly in the privatisation area has, if anything, accelerated under the new regime. The inaugural policy statement of the new government has provided assurance that economic policy will in general be market friendly and the private sector will be considered the principal engine of growth (Government of Sri Lanka 1995a). The new government is committed to reducing progressively and harmonising tariffs towards a single rate of 10 per cent over the medium term (Government of Sri Lanka 1995b).

With this background we now discuss in detail the key elements of the trade and foreign investment policy in Sri Lanka as they have evolved since 1977.

Trade policy

Trade policy reform was the key element of the economic liberalisation policy package introduced in 1977. In November 1977 quantitative import restrictions on imports, which were near universal, were supplanted by a revised system of tariff, retaining only 280 items under licence. This far-reaching change was accompanied by the removal of most price controls on

domestic trade. While many of the tariff changes involved a gazetted increase in the rate, the tariffication typically involved a sharp reduction in the degree of protection provided previously by the stringent quantitative restrictions (QR) regime. Further, in practice, the retention of some items under licence has proved not to constitute a significant protective barrier, except for items involving health and security considerations; generally licences have been issued freely. There is evidence that in the process of subsequent fine-tuning of tariff rates, a few items whose free importation had a 'damaging' impact on SOEs were returned to the licensing list. Some moderate across-the-board duty increases were introduced in some years for revenue-raising purposes. These limitations notwithstanding, and despite the fact that the pace of trade reforms slackened until a new stimulus was given with the second wave of liberalisation a decade later, there has been no major reversal of the reforms. Indeed, subsequent trade policy initiatives have reinforced the role of tariffs as the central instrument regulating Sri Lanka's merchandise trade. The tariff regime has also become less distortionary during successive rounds of reforms. It currently relies on a three-pronged structure with rates of 10, 20, and 35 per cent. In 1994, the simple (unweighted) average across 6,050 tariff items, was in the order of 20 per cent and the ratio of actual duty revenue to imports was even lower (about 11 per cent)[4] (WTO 1995:35).

A wide range of export promotion schemes including an all-encompassing duty rebate scheme with flexible operational procedures, manufacturing-in-bond, provision of equity and working capital to firms with export potential, and various measures aimed at product and market development, was introduced under a newly established Export Development Board (EDB). Steps were also taken to streamline and improve fiscal incentives for export production at successive stages finally limiting tax-holiday concessions only to export ventures. A scheme of manufacture-in-bond for exporters importing material for re-exporting as a part of a finished good, a cash grant scheme based on annual export increments and subsidised bank credit for exporters were among the other EDB incentives.

Foreign investment policy

The promotion of foreign investment, particularly in export-oriented manufacturing has been a pivotal element of Sri Lanka's market-oriented policy reforms since 1977. The most important aspect of the new foreign investment policy was the setting up of the Greater Colombo Economic Commission (GCEC) in 1978 with wide-ranging powers to establish and operate Export Processing Zones (EPZs).[5] The first investment promotion zone, at Katunayake near the Colombo International Airport (henceforth KEPZ) was opened in June 1978. The remarkable success of the KEPZ paved the way for setting up a second EPZ in Biyagama (BEPZ) in 1982 and a third in Koggala (KGEPZ) in June 1991. The key elements of the investment

promotion policy package offered by the GCEC to EPZ investors were complete foreign ownership of investment projects; a tax holiday for up to 10 years with complete tax exemption for remuneration of foreign personnel employed, royalties and dividends of shareholders during that period; duty exemption for the importation of inputs and assistance with customs clearances; industrial services at subsidised rates and unlimited access to foreign-currency credit at interest rates prevailing in world financial markets. As an important part of the FDI policy, steps were also taken to enter into Investment Protection Agreements and Double Taxation Relief Agreements with the major investing countries. A guarantee against nationalisation of foreign assets without compensation was provided under Article 157 of the new Constitution of Sri Lanka adopted in 1978.

While the Free-Trade Zone (FTZ) scheme was to act as the major instrument of promoting export-oriented investment, many elements of the 1977 policy package also helped to improve the general investment climate in the country for export-oriented production by both local and foreign firms. These elements included the removal of most of quantitative restrictions on import trade, considerable relaxation of controls on capital and profit repatriation and exchange rate depreciation. In addition, a wide range of schemes pitched at export promotion was introduced under a newly established EDB. In 1980, the duty rebate scheme (originally introduced in 1964 and revised in 1969) was completely reformulated with a more flexible implementation procedure to cover almost all non-traditional exports using imported inputs. The coverage of the duty rebate scheme was expanded in 1982 to include sales to EPZs. This revision was intended to provide an inducement to strengthen 'backward linkages' of EPZ activities. A scheme of manufacture-in-bond for exporters importing material for re-exporting as a part of a finished good, a cash-grant scheme based on annual export increments and concessionary credit for exporters were among the other EDB incentives. A five-year tax holiday was introduced in the 1978 Budget Speech for export-orientated companies.

In the original reform package, there was no major change in the policy towards foreign ventures which did not meet the criterion of 'full' export orientation. Such projects had to go through the normal approval procedure of the Foreign Investment Advisory Committee (FIAC). Majority local ownership continued to be the general rule for approving such projects. However, under the new policy emphasis on export-oriented industrialisation, FIAC was empowered to adopt more liberal ownership criteria (even up to 100 per cent foreign ownership) depending on the export potential of the project. With regard to tax concessions and incentives for non-FTZ firms, FIAC-approved foreign firms were treated equally with locally owned firms.

A new *Investment Policy Statement* announced in 1990 (as part of the second-wave liberalisation) introduced several important changes to the foreign investment policy framework in line with the increased outward orientation of the economy. These included abolition of various restrictions

on the ownership structures of joint-venture projects outside EPZs, providing free-trade zone status to export-oriented foreign ventures in all parts of the country (in addition to the area demarcated by the original GCEC Act) and the amalgamation of the activities of FIAC and GCEC under a new Board of Investment (BOI) in order to facilitate and speed up investment approval within a unified policy framework applicable to both import-substituting and export-oriented investors.

Exchange controls

Despite significant relaxation of restrictions on commodity imports in 1977, the Sri Lanka rupee was not made fully convertible on services account transactions. As part of the second-wave liberalisation in 1990, foreign exchange restrictions on these transactions were removed in successive stages culminating in the abolition of the foreign exchange surrender requirement on export transactions in March 1993. These policy steps made Sri Lanka eligible for Article VIII status of the IMF. Following the 1993 reforms, the black market premium on foreign currency has virtually disappeared and there is now a Singapore-style competitive retail market (with independent foreign exchange dealers competing directly with commercial banks in foreign exchange dealings) for foreign exchange.

The lifting of many restrictions on capital transactions was an important element in the 1977 reform package. Repatriation of proceeds from sales of shares in Sri Lankan companies was permitted without prior approval of the Controller of Exchange. Authorised foreign exchange dealers were permitted to approve applications for such remittances. Moreover, foreign investors were allowed to repatriate their capital contribution in the equity of a company on the sale or liquidation of the investment, after settlement of local liabilities like taxes. Transfer of shares was permitted if they did not increase the ratio of non-resident shareholdings originally approved. Despite these noteworthy reforms, the rupee is still not fully convertible on capital account transactions and the prohibition on overseas capital transfers by Sri Lankan citizens has remained intact. As in the past, they are not permitted to invest abroad, to maintain accounts with banks abroad or to raise capital in foreign markets for domestic investment without prior approval. However, it is important to note that current account convertibility opened up many avenues for capital transfers. In particular, the abolition of foreign exchange surrender requirement on exporters is tantamount to a de facto relaxation of these restrictions. Sri Lankans can now remit investible funds overseas through exporters!

Privatisation

Privatisation or closure of uneconomical and inefficient SOEs was a key element of the declared policy. The government envisaged that 'the public

sector will concentrate on essential areas that are not attractive to the private entre-preneur either because the investment involved is too large or because the financial rate of return is not attractive' (Government of Sri Lanka 1978:30). This policy however, lost much of its rigour in the process of implementation; until the 1990s privatisations of SOEs were rare. In fact a number of SOEs were even accorded preferential treatment, including higher tariff protection.

The reluctance to privatise SOEs was certainly not due to any ideological opposition to privatisation, nor was it due to any fear of the political and industrial resistance from state sector trade unions. The primary reason was that state enterprises provided an effective vehicle for dispensing political patronage (Jayasuriya and Knight-John 1997). In particular, they could be used to provide employment to those whom the government wanted to reward. This was a factor of paramount political importance given the election promises of the ruling party to its supporters, particularly to the youth. On the other hand there was no revenue-based inducement for privatisation as the budgetary position was amply strengthened by massive concessionary aid flows in the aftermath of the reforms. In the early years of the new government, Sri Lanka was the recipient of a massive aid flow (the highest level of aid on a per capita basis in the world at the time), as international donor agencies and Western governments flocked to provide financial assistance to this pro-Western, pro-market government. Released from the pressures of fiscal stringency, the government was able to pursue its policy of expanding employment in state enterprises, while ignoring the heavy economic costs of that policy. By the late 1980s, state enterprises still accounted for some 40 per cent of value added even in the manufacturing sector.

The circumstances had changed by the late 1980s, as the fiscal deficit became a major concern. Under the second-wave of liberalisation in 1990 privatisation was given a central role in an effort to redress the massive macroeconomic imbalance in the economy by reducing the fiscal deficit (Kelegama 1995). The strategy that has been formulated for privatisation calls for majority shareholdings in given SOEs to be divested through the stock market or through open tender to a corporate investor. To make privatisation politically acceptable 10 per cent of shares are given free of charge to the employees. Between 1989 and 1995, over sixty public enterprises were privatised (Central Bank of Sri Lanka 1996).

Macroeconomic policy and real exchange rate movements

The designers of the 1977 policy package were aware of the role of complementary macroeconomic policy in making market-oriented policy reforms effective. The basic macroeconomic requirements for sustained export-oriented growth are a favourable investment climate and the maintenance of a realistic, competitive real exchange rate. Trade liberalisation was

accompanied by a significant exchange reform and measures to reduce the budget deficit (which had been the major source of macroeconomic imbalances and, via domestic inflation, pressure on the real exchange rate since the early 1970s). The prevailing dual exchange rate system (introduced in 1968) was abolished, and the new unified rate was placed under a managed float. This resulted in an initial devaluation of almost 80 per cent. The exchange rate was planned to be adjusted daily to reflect changes in foreign exchange market conditions. However, control of domestic cost pressures was essential if the real depreciation achieved through the exchange rate reforms was to be sustainable.[6] This required prudent fiscal policies to ensure that budgetary imbalances did not generate inflationary pressures.

Some elements of the initial reforms package aimed to address this issue. In 1978, the food subsidy—an important source of fiscal deficits—was abolished for nearly one-half of the population. Consequently, food subsidy expenditure declined both absolutely and as a share of total government expenditure, falling from 16 per cent in 1977 to a mere 0.2 per cent in 1985. But the focus on fiscal prudence was short lived, and government policies soon resulted in the generation of inflationary pressures, resulting in real exchange rate appreciation. As discussed above, the government's attitude to SOEs was a contributory factor; while a few loss-making public enterprises were either shifted to the private sector or closed down, most continued to operate despite dismal performance and ongoing dependence on budgetary transfers. These transfers soon outweighed the expenditure reduction resulting from curtailment of food subsidies and aggravated the budget deficit.

But the chief source of macroeconomic instability and pressure on the real exchange rate in the early post-reform period was a massive public sector investment programme that included a billion dollar multipurpose irrigation project, a large public housing programme and an urban development programme (Athukorala and Jayasuriya 1994). In this context, from about 1979 the Central Bank started using nominal exchange rate as an 'anchor' for inflation control. The Bank intensified its intervention in the foreign exchange market and eventually abandoned (in November 1982) the practice of determining the exchange rate daily. The real exchange rate tended to appreciate and, when the exchange rate policy ceased to provide a stimulus for exports, the alternative adopted was to strengthen the various financial incentives offered by the EDB. However, this indirect approach largely failed because of severe institutional and financial constraints.

The stabilisation programme implemented during 1989–90 provided a brief period of relative macroeconomic stability, with steps being taken to bring the fiscal deficit under control and to maintain a more realistic exchange rate under a crawling-peg system. Reflecting the new policy, the Sri Lankan rupee depreciated *vis-à-vis* the US dollar, the intervention currency, by 17.4 per cent in 1989 (based on an end-of-year comparison). Following this substantial nominal devaluation, the Central Bank has continued to adjust

the exchange rate daily, taking into account developments in the for-eign exchange market. However, a spending spree related to the elections in 1994, followed by a massive surge in defence expenditures (which had increased to 7 per cent of GDP in 1996), placed major constraints on sound fiscal management, and made it extremely difficult to maintain a conducive environment for investment and growth.[7]

The cumulative effect of economic liberalisation and the developments in the macroeconomic front on the relative incentives for export-oriented manufacturing is shown by the real exchange rate indices plotted in Figure 2.1.[8] These indices measure the changes in domestic-currency (rupee) price of exports (world-market price of exports adjusted for nominal exchange rate)

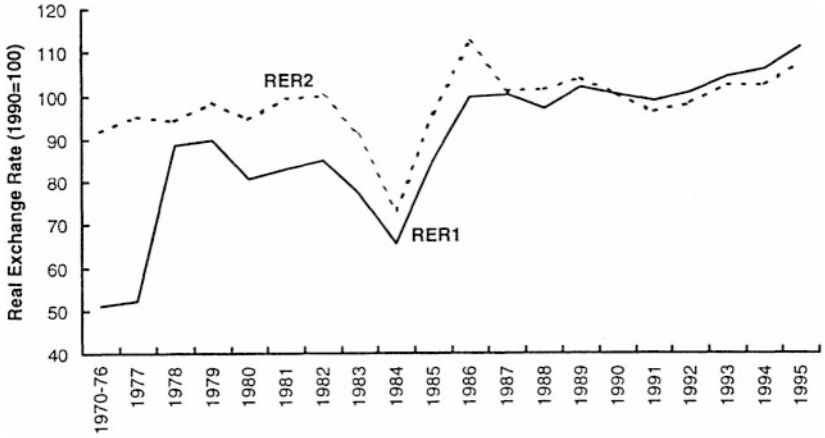

Figure 2.1 Real exchange rate for manufactured exports from Sri Lanka, 1970–95
Source and method: Author's computations based on data obtained from the following sources:
Central Bank, *Annual Report* (various issues) (official exchange rate, exchange rate premium and wholesale price index); official records of Export Development Board (duty rebate, export grants and other export subsidies); and OECD, *Key Economic Indicators* (wholesale manufacturing prices of major importing countries). The export price index was constructed by multiplying market-share weighted nominal exchange rate indices and wholesale manufacturing price indices of the six major destination countries for manufactured exports from Sri Lanka (USA, Germany, Japan, UK, Canada and France). For each country, the wholesale price index was derived as a weights-average of the indices at the two-digit level of the Standard Industry Classification (ISIC), using weights derived from Sri Lanka's export composition.
Notes RER1: Real exchange rate estimated as the ratio of export price index (in rupee) to domestic wholesale price index of manufactured goods. RER2: Real exchange rate measured as the ratio of export price index (in rupee) adjusted for export subsidies to domestic wholesale price index of manufactured goods.

relative to changes in the respective domestic market price. Thus, it can be interpreted as an indicator of the relative profitability of exporting over selling in the home market ('the home market bias' or 'anti-export bias'). Two separate sets of estimates for the real exchange rate (RER1 and RER2) are presented in order to help understand the role of direct subsidies in determining relative profitability. In constructing the indices, the nominal exchange rate has been defined as 'the domestic currency price of foreign currency'. Thus an increase (decrease) in the index implies real depreciation (appreciation) or improvement (deterioration) in international competitiveness.

RER1 series points to a dramatic improvement in relative export profitability during the immediate aftermath of the 1977 reforms. The improvement is however mild in terms of RER2. This is because the liberalisation reforms involved the abolition of premium exchange rate and import entitlements enjoyed by the exporters of manufactured (and other non-traditional) goods. More importantly, both indices indicate a significant deterioration in profitability during the first half of the 1980s, when the public sector investment boom was in full swing. A comparison of RER1 and RER2 suggests that direct export subsidies had a noticeable, though mild, impact on export profitability until about the late 1980s. From then on the annual changes in the two series have been negligible. In the early 1980s, when the exchange rate policy ceased to provide a stimulus for exports, the EDB resorted to strengthening various financial incentives as an alternative to restore export profitability. However, this indirect approach largely failed in subsequent years as the government was forced to curtail funding of EDB operations in response to an aggravating fiscal situation (Athukorala and Jayasuriya 1994, Chapter 5).

The adjustment programme implemented as part of the second-wave liberalisation during 1989–90 provided a brief period of relative macroeconomic stability, with steps being taken to bring the fiscal deficit under control and to maintain a more realistic exchange rate under a crawling-peg system. Commitment to a policy of flexible exchange rate management in order to restore international competitiveness was another key element of the reform package. Reflecting the new policy, the Sri Lankan rupee depreciated against the US dollar, the intervention currency, by 17.4 per cent in 1989 (based on an end-of-year comparison). Following this substantial nominal devaluation, the Central Bank has continued to adjust the exchange rate daily, taking into account developments in the foreign exchange market.

The adjustment programme resulted in a significant recovery in competitiveness. The real exchange rate index had surpassed the 1989 level by 1995. The rate of nominal exchange rate depreciation under the managed-floating exchange regime in these years has more than compensated for the negative effects of the overall macroeconomic policies which have fuelled domestic inflation. In other words, the Central Bank has pursued a sufficiently flexible exchange rate policy stance recently to improve the international competitiveness of the traded goods sector.

Industrial growth and adjustment

Growth trends

The average annual growth rate of manufacturing,[9] which dropped from about 6 per cent during 1965–69 to a mere 3 per cent in 1970–76, significantly recovered following the 1977 reforms (Table 2.1). Despite higher growth by historical standards, the share of manufacturing value added in total GDP remained more or less unchanged around 10 per cent until the mid-1980s. This was mostly a reflection of the superior growth performance of non-tradable sectors—construction, transport, utilities, trade and other services sectors—propelled by the public sector investment boom. Thus the impact of real exchange rate appreciation caused by macroeconomic factors is clearly seen in the sectoral growth patterns. However, since the late-1980s the pattern has changed; in most years, manufacturing growth has surpassed that of other sectors. As a result, the manufacturing share in GDP increased from 10 per cent in the early 1980s to 16 per cent by the mid-1990s.

The major immediate cause of manufacturing output growth in the liberalised economy was the free availability of imported inputs and capital goods. In particular, the availability of intermediate inputs contributed to output growth through greater capacity utilisation (Table 2.1). However, output has continued to expand at an increasing rate even after the capacity utilisation reached an average stable rate of about 70 per cent by the late 1980s. Quite apart from greater input usage, growth of factor productivity seems to have played a significant role with some time lag.

The results of a simple growth accounting procedure undertaken to decompose manufacturing output growth into the relative contributions of factor accumulation and total factor productivity (TFP) growth are reported in Table 2.2. Estimates are given for total manufacturing as well as manufacturing *excluding* textiles and clothing (International Standard Industry Classification ISIC 321 and 322). This is done in order to allow for the fact that the expansion of the latter two industries during the post-reform period has been aided by quota protection under the Multi-fibre Arrangement (MFA).

The adverse productivity implications of a restrictive trade regime are clearly reflected in negative TFP growth between 1966 and 1974. The estimates for the post-reform period do show some sensitivity to the inclusion or exclusion of textiles and clothing industries. Despite these differences, there is clear evidence of a significant improvement in TFP growth. Almost 24 per cent of total output growth (22 per cent when textiles and clothing are excluded) between 1981 and 1993 came from TFP growth. During the immediate post-reform years (between 1974 and 1981)

Table 2.1 Key indicators of manufacturing sector performance, 1965–95[a]

	Manufacturing value added:					
	Share of GDP	*Growth (%)*	*Export growth (%)*[c]	*Capacity utilisation (%)*	*Export–gross output ratio (%)*[d]	*Value added–output ratio (%)*
1965–69[b]	8.3	8.6	n.a.	–	–	48.2
1970–76[b]	11.6	3.9	10.2	53	3.1	50.1
1977	11.4	0.8	15.2	60	5.7	38.4
1978	11.5	9.9	16.2	70	12.6	35.1
1979	11.3	4.7	27.3	72	21.2	31.9
1980	11.2	4.4	35.3	73	21.4	26.7
1981	11.1	4.5	36.2	74	27.3	26.2
1982	11.4	7.8	23.4	76	28.4	26.1
1983	11.1	2.2	27.2	74	28.1	28.1
1984	12.0	13.8	8.2	75	34.9	31.2
1985	11.8	3.7	4.5	74	33.2	34.5
1986	12.5	10.5	4.3	78	36.9	38.6
1987	13.2	7.5	5.2	79	39.1	38.1
1988	13.7	6.1	3.7	78	40.6	38.9
1989	14.2	5.3	6.0	79	40.7	37.1
1990	14.6	9.7	29.2	81	45.5	35.7
1991	14.8	9.1	13.9	83	47.2	36.6
1992	15.3	12.3	37.6	82	53.3	37.0
1993	15.2	10.8	19.6	83	58.3	36.5
1994	15.4	9.1	8.1	84	54.3	36.2
1995	15.8	9.2	2.9	84	55.3	36.8

Source: Complied from Central Bank, *Review of the Economy* and *Annual Report* (various issues)

Notes

a Capacity utilisation, export-output ratio and value added-output ratio (the last 3 columns) relates to 'organised' manufacturing only. Others are economy-wide indicators

b Annual average

c In current SDR terms

d In calculating this ratio, FOB export values have been adjusted to producer-price basis using trade and transport cost margins from the *Input-Output Table—1981* (Ministry of Finance and Planning)

output growth emanated predominantly from factor accumulation, rather than from TFP growth, presumably reflecting the normal adjustment lags in private sector response to new incentives. TFP growth between 1988 and 1993 is significantly higher than that between 1981 and 1988. This seems to reflect both adjustment lags and the impact of further reform measures introduced in the early 1990s.

Table 2.2 Relative contribution of growth of factor inputs and total factor productivity to output growth in private sector manufacturing[a]

	G_o	G_L	G_K	G_M	$S_L * G_L$	$S_K * G_K$	$S_M * G_M$	*TFPG*
Total manufacturing								
1966–74	0.78	3.34	−4.25	8.24	0.45	−1.29	4.61	−2.99
1977–81	3.98	1.68	10.55	2.59	0.18	3.00	1.58	−0.78
1981–88	13.99	7.89	9.93	15.36	0.63	3.64	8.49	1.22
1988–93	25.91	14.23	11.07	21.12	1.09	4.25	11.40	9.17
1981–93	18.96	10.53	10.41	17.76	0.90	3.72	9.87	4.47
Manufacturing excluding textile and clothing								
1966–74	1.45	2.56	−6.83	7.68	0.33	−2.06	4.36	−1.18
1977–81	2.07	−2.69	11.50	0.04	−0.25	3.74	0.02	−1.44
1981–88	15.15	8.39	10.91	15.78	0.55	4.62	8.05	1.92
1988–93	20.66	10.94	9.64	18.14	0.57	4.08	9.50	6.50
1981–93	17.44	9.45	10.38	16.76	0.68	4.35	8.65	3.76

Source and method: For details on data sources and methodology see Athukorala and Rajapatirana (1998). *Economic Liberalisation and Industrial Restructuring in Sri Lanka: A latecomer's Paradigm*, Washington, D.C.: World Bank, (draft report)

Note

a Estimated using the formula:

$$TFPG=G_0-S_LG_L-S_KG_K-S_MG_M$$

where, TFPG is total factor productivity growth, G_O, G_L, G_K, G_M denotes annual compound growth of output, labour, stock of capital and intermediate input between the two given years; and S_L, S_K and S_M denote the average value shares of labour, capital and material in output

Structural change

At the time of market-oriented policy reforms, SOEs accounted for over 60 per cent of manufacturing output and 50 per cent of total manufacturing employment. This public sector dominance continued virtually unchanged until about the mid-1980s (Table 2.3). Since then the position of SOEs has been significantly eroded in the face of rapid output growth in private manufacturing ventures. The share of SOEs in total manufacturing output in 1991 was 20.5, down from over 45 per cent in 1985. As noted, during the controlled era, 'inefficiency slipover effects' of SOEs involved in intermediate and capital goods industries on private sector end-user industries were quite substantial, particularly since import compression policies were implemented with a distinct bias towards SOEs in the allocation of foreign exchange. The elimination of this source of inefficiency slipover through import liberalisation may have been a factor in improving factor productivity in private sector industries.

Table 2.3 Contribution of state industrial enterprises to manufacturing value added by industry groups, 1970–94 (selected years) (%)

Product name	*1970*	*1974*	*1981*	*1988*	*1994*
Food beverages and tobacco	23.7	41.9	41.9	44.4	17.3
Textiles, clothing and leather goods	11.0	37.1	72.1	38.9	0.7
Wood and wood products	72.7	92.2	92.2	74.3	46.3
Paper and paper products	43.0	69.3	65.7	44.6	37.5
Chemical, rubber and plastic	45.6	70.1	42.7	27.7	2.7
Non-metallic mineral products	72.0	82.4	87.0	60.2	24.8
Metal products, machinery and transport equipment	87.0	91.2	45.7	31.1	14.6
Total manufacturing	29.6	65.7	63.5	41.9	5.1

Source: Athukorala (1986), Table 6 (for 1970 and 1974) and Department of Census and Statistics, *Annual Survey of Industries*, 1981, 1989 (reference year 1988), and computer tapes of *Annual Survey of Industries* 1994 (reference year 1993)

Table 2.4 Sectoral composition of output and employment in private sector manufacturing,[a] 1974, 1981 and 1993 (%)

ISIC code	*Industry*	*Production*			*Employment*		
		1974	*1981*	*1993*	*1974*	*1981*	*1993*
311–12	Food	7.01	8.08	15.75	5.74	5.35	11.14
313	Beverages	2.59	1.43	2.07	2.64	1.12	0.86
314	Tobacco	23.65	19.01	11.62	2.11	2.59	3.21
321	Textile	15.82	8.89	8.41	25.22	23.96	12.27
322	Clothing	5.35	21.64	25.27	11.34	29.31	46.70
323	Leather goods	0.74	0.46	1.17	0.77	0.44	1.38
324	Footwear	1.86	1.19	2.18	2.39	1.24	2.25
331	Wood products	0.20	0.25	0.15	0.41	0.67	0.64
332	Furniture	0.16	0.18	0.12	0.54	0.87	0.43
341	Paper and paper products	3.08	1.32	1.01	3.32	1.38	0.65
342	Printing	0.01	1.21	0.99	–	1.65	1.87
351	Industrial chemicals	1.63	0.86	0.98	0.62	0.50	0.82
352	Other chemicals	9.40	10.84	6.85	5.85	5.63	2.95
355	Rubber goods	2.68	6.61	5.55	4.12	6.06	5.55
356	Plastic goods	2.66	3.03	1.88	2.18	2.76	3.25
361	Pottery	0.03	0.85	0.64	0.10	0.99	1.25
361	Glass	0.84	0.92	0.13	2.09	0.77	0.19
369	Non-met. mineral products	0.25	0.55	2.47	2.56	1.43	1.56
371–72	Basic metal products	0.46	0.51	0.52	0.88	0.23	0.17
381	Fabricated metal products	4.49	2.80	1.02	6.93	3.71	1.18
382	Machinery	5.66	1.45	2.12	10.40	2.38	1.41
383	Electrical machinery	6.04	4.04	1.57	4.04	2.65	1.85
384	Transport equipment	2.17	0.63	2.20	3.91	1.17	2.40
390	Other manufacturing[b]	0.73	1.47	5.31	0.88	2.05	10.97
3	Total manufacturing	100	100	100	100	100	100

Source: As for Table 2.3

Notes

a Excluding petroleum refining—zero or negligible

b Jewellery, sports goods, toys, etc.

Given in Table 2.4 are data on the sectoral composition of private sector industrial production and employment. It is evident that the response to the new policy environment has exhibited a rather contrasting pattern across various sectors. Interestingly, export-oriented sectors—wearing apparel, footwear, rubber goods and leather goods—indicate impressive growth performance. The only import-substitution industries which have experienced some increases in output shares, are food and beverages.

Relatively more capital-intensive industries, such as machinery, transport equipment and industrial chemicals figure prominently among declining sectors. However, interestingly, output contraction in the liberalised economy has not been limited to capital and technology-intensive product sectors only. Many domestic resource-based import substituting sectors have experienced significant output contraction. At least part of the explanation may lie in changes to the overall incentive structure faced by manufacturing industries as reflected in the real exchange rate measures; these industries are likely to have been hard hit by domestic cost pressures and competitive imports.

Foreign direct investment and manufactured export expansion

Export response to liberalisation reforms was swift and remarkable (Figure 2.2). The average annual growth rate (in current SDR terms) of manufacturing exports[10] during 1978–95 was over 18 per cent (24 per cent when 1984–89, a period of intense political turmoil, is excluded) compared to a 8.2 per cent growth during 1970–76. The value of total manufacturing exports in 1995 was SDR 1,605 million, up from a mere 29 million in 1977. During 1980–94, Sri Lanka was among the top five low-income countries in terms of both the average annual growth in earnings from manufactured exports and the increase in manufacturing share in total merchandise exports (UNCTAD 1995).

The export orientation of manufacturing, as measured by the 'export coefficient' (the ratio of exports to gross manufacturing output) tended to increase rapidly. The export coefficient in 1995 was 55 compared to 3 per cent in the mid-1970s (Figure 2.2). According to our estimates based on input-output tables for 1981 and 1991 (prepared by the Sri Lankan Ministry of Finance and Planning), export expansion was the most important source of growth between these two years (72 per cent), followed by domestic demand expansion (45 per cent), with import substitution registering a negative (–17 per cent) contribution.

The export structure of Sri Lanka, as it evolved during the colonial era, was characterised by an extremely heavy reliance on a limited range of primary commodities (Athukorala and Huynh 1987). By the time of 1977 policy reform, the share of manufacturers (excluding petroleum products)

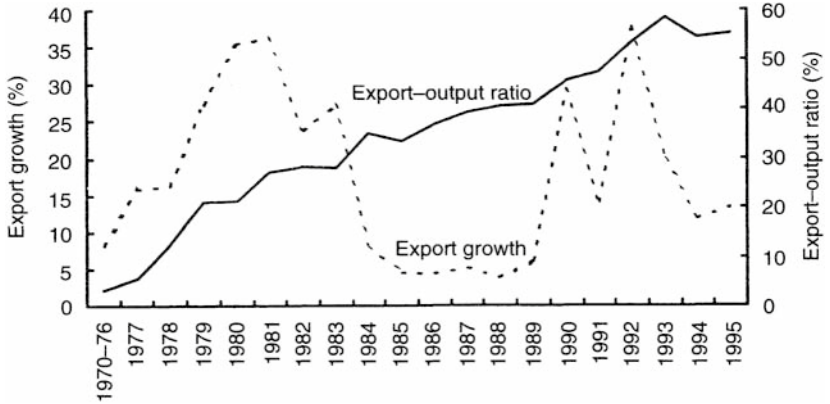

Figure 2.2 Growth of manufactured exports and export-output ratio of domestic manufacturing[a]

Source: Compiled using data from Central Bank, *Annual Report* (various issues)

Note

a Export growth is in current SDR terms. In calculating the export-output ratio, FOB export values were converted to producer-price basis using data on trade and transport margin obtained from the *Input-Output Table—1991* (Ministry of Finance and Planning).

in total merchandise exports was only 4 per cent (Table 2.5). Since then, manufactured exports have emerged as the most dynamic element in the export structure. Exports of manufactures grew (in current US$ terms) at an annual compound rate of 32 per cent during 1978–95, and by the mid-1990s their share in total merchandise exports was over 70 per cent. During 1980–92, Sri Lanka was among the top five low-income countries in terms of both the average annual growth in earnings from manufactured exports and the increase in manufacturing share in total merchandise exports (UNCTAD 1995).

Manufactured exports from Sri Lanka are heavily concentrated in a single standard labour-intensive consumer good, clothing. However, from the late 1980s, there has been a noticeable increase in exports of other labour-intensive products such as electronics (included under the commodity category of 'machinery'), leather goods, footwear, toys, plastic products, jewellery, and resource-based products based on the traditional agricultural exports (tea, rubber and coconut fibre). Reflecting this ongoing pattern of commodity diversification, the share of clothing in total manufacturing exports declined from 72 per cent in the early 1980s to 60 per cent in the mid-1990s (Table 2.5).

Table 2.5 Manufactured exports: composition, growth and share in total exports, 1965–95 (%)

ISIC category	*Composition*[a]							*Growth*[b]
	1965/66	1969/70	1976/77	1979/80	1984/85	1989/90	1994/95	1978–95
Food manufactures	6.50	17.98	37.07	16.04	6.21	3.91	3.33	7.89
Fish products	5.39	15.52	33.23	13.83	5.34	2.72	2.26	6.03
Textiles	3.82	2.74	4.19	2.45	2.85	2.84	4.77	24.40
Clothing	3.17	18.97	39.37	71.92	75.16	64.61	60.28	19.73
Footwear	0.53	3.50	1.90	0.38	1.44	1.04	1.69	25.82
Pottery and ceramics	0.00	0.15	7.83	2.62	0.89	1.03	1.11	15.07
Nonmetalic mineral products	23.65	8.49	2.58	14.41	8.21	19.36	8.49	22.23
Cut-and-polished diamond	0.00	0.00	0.00	0.01	0.20	1.10	0.62	23.46
Non-electrical machinery	0.52	0.00	1.96	1.29	1.17	1.03	1.29	20.39
Electrical machinery	1.64	0.79	0.65	0.30	0.43	0.71	1.62	30.01
Other manufacturing	11.26	5.09	2.86	1.81	3.68	3.74	6.54	20.38
Travel goods	0.00	0.00	0.14	0.04	0.05	0.06	1.52	40.08
Toys and sport goods	0.00	0.00	0.13	0.21	0.37	0.14	1.79	27.29
Jewellery	10.51	3.38	1.31	0.47	0.37	0.47	0.98	25.17
Total manufactured exports	100	100	100	100	100	100	100	
US$ million	3545	4922	29651	125298	381058	832270	2372716	20.21
Manufacturing share in total merchandise exports	0.90	1.48	4.58	12.25	27.21	47.96	67.65	

Source: Compiled from UN trade data (series D) tables held in the International Economic Data Bank, Australian National University

Notes

a Two-year averages

b Annual compound growth rate (in nominal US$) estimated by fitting a logarithmic trend line. All growth rates are statistically significant at the one per cent level

FDI has played a pivotal role in the expansion of manufacturing exports.[11] During 1967–77, a total of 82 foreign manufacturing firms were set up in Sri Lanka. Of these, only 13 were export-oriented ventures (garments 9; gem cutting 2; ceramic-ware 1; wall-tiles 1). In contrast, during 1978–95 the Board of Investment (BOI)[12] signed contracts (under the special incentive scheme for export-oriented firms) for setting up 1,136 firms of which 835 were in operation by early 1995. In addition, there were a significant number of export-oriented firms (over 125) among foreign ventures approved under general incentive provisions. The share of foreign firms in total exports of manufactures increased from 24 per cent in 1977 to over 80 per cent in the mid-1990s. The contribution of foreign firms to the total increment in manufactured exports has increased from 46 per cent between 1978 and 1985 to 85 per cent between 1985 and 1995. The dominance of foreign firms in the expansion of manufactured export growth may be partly attributable to the fact that domestic investors have been restricted in their access to capital by the relative underdevelopment of domestic capital markets and restrictions on their access to foreign capital. However, the major importance of foreign market linkages and other types of firm-specific capital that confer established foreign firms advantages in exploiting market potential cannot be overestimated.

Apart from the 'direct' contribution captured in this data, there is evidence that the presence of foreign firms generates significant positive slipover effects on the export success of local export producing firms. Following the entry of foreign firms into clothing and other light consumer goods industries in Sri Lanka, many international buying groups[13] which had long-established market links with these firms also set up buying offices in the country (Lakshman and Athukorala 1986). These buying offices have subsequently begun to play a crucial role in linking local firms up to highly competitive international markets for these products. Moreover, many local entrepreneurs seem to make use of joint-venture operations with foreign investors as a means of acquiring production and marketing skills required for the successful operation of their own (independent) production units. What all the above reasoning suggests is that the spillover effects of the presence of foreign firms have, to a significant extent, contributed to the 'export success' of local firms.

Spread effects of net exports

The emerging export pattern of manufactured exports from Sri Lanka is characterised by a high degree of import intensity and therefore limited linkages with the rest of the economy. The average import content of total manufactured exports is as high as 70 per cent (Athukorala and Bandara 1989, Table 1). In addition, allowance has to be made for other leakages related to the operation of foreign firms such as profit remittances, salaries

of expatriates and payments of interest on foreign loans.[15] Some commentators have interpreted the high import intensity of export-oriented industries to be an intrinsic feature of export-led industrialisation through neutral incentives and argued for an activist economic policy stance to shift exports towards products with a higher proportion of domestic value added (e.g. Adhikari 1993, Wignaraja 1994). Obviously the higher the net foreign exchange component in a given volume of exports, the greater would be the benefit to the economy from EOFDI. However, for reasons given below, placing too much emphasis on 'per unit net foreign exchange earning' as a performance criterion can lead to wrong policy prescriptions.

First, a country's principal objective in export expansion is to increase national income, not to maximise *net foreign exchange earnings per unit of exports*. In this respect what is more relevant is the market potential which determines the total volume of exports. Labour-intensive manufactured goods that are made to local specifications using local raw material account for only a small and shrinking share of manufactured exports from developing countries. Success in increasing the volume of net foreign exchange earnings therefore depends crucially on the country's ability to enter the fast-growing markets for made-to-order manufactured goods, and component production and assembly within vertically integrated production systems which are typically more import intensive (Keesing and Lall 1992).[16]

Second, unlike import-substituting firms, the performance of export-oriented ventures is not subject to the 'foreign exchange constraint' (which was a dominant consideration in industry policy under the import-substitution strategy). In the case of export-oriented foreign firms in labour-intensive industries, they create no drain on indigenous investment funds or other scarce resources. In the worst case scenario, the total net foreign exchange earning would be equivalent to the payments to local labour. Third, rapid growth of gross export earnings *per se* can be considered an important policy objective yielding considerable national benefits. Entering international markets in manufactures is normally considered a challenging task; therefore export growth (in gross terms) is widely used as an indicator of efficiency and competitiveness of the domestic manufacturing sector. Thus, rapid export growth has a signalling effect for attraction of more EOFDI and the mobilisation of foreign loanable funds at competitive rates.

Forging linkages is essentially a time-dependent process linked to quality improvement in domestic input-production industries. Producing what is sought in competitive international markets, in contrast to producing import-substituting products for a shortage-ridden supplier's market, calls for a vector of imported inputs meeting exacting quality requirements and specifications. Substituting inferior locally produced inputs for higher quality imported inputs may lead to significant market losses, and the cost involved in correcting the defects at a further stage may be prohibitive

(Keesing and Lall 1992). Hence it is often unrealistic to expect export producers to source many inputs from local suppliers at the formative stage of export-oriented industrialisation.

There is some evidence of increase in local input supplies to the export-oriented clothing industry in recent years. Until the mid-1980s, local purchases by export producers were limited only to packaging material. More recently local procurement of yarn by the garment industry has begun to increase following enhanced efficiency of the local textile industry with privatisation and the entry of some foreign firms. A recent firm-level study of input procurement practices of firms in the clothing industry has, however, found that changes in the global environment and international demand patterns make backward linkage effects of export-oriented firms less powerful compared to that of domestic market-oriented firms (Kelegama and Foley 1996)

Finally, it is important to note that inappropriate macroeconomic policies can constrain the development of backward linkages; the existence of an over-valued real exchange rate during much of the study period would have provided an implicit subsidy for the users of imported inputs (Little *et al.* 1993, Chapter 8). This view is consistent with the fact that increase in import dependence is not limited to export-oriented industries only. Disaggregated data on the input structure of domestic manufacturing suggests that increase in import dependence has been a common phenomenon across all sectors.

Import substitution as a pre-condition for export orientation

A crucial issue in the contemporary trade and industrial policy debate in developing countries is whether an import-substitution phase is a precondition for the successful transition to export orientation. Hard empirical evidence on this important issue can come only from a detailed firm-level investigation. However, the available evidence on the commodity composition of exports fails to suggest any direct link between recent export growth and output expansion during the earlier IS period.

Before 1977 manufacturing exports from Sri Lanka were largely limited to exports by a handful of domestic market-oriented multinational subsidiaries in food and beverages, pharmaceutical and chemical industries. These firms temporarily diverted some of their domestic sales to the world market in order to become eligible for import entitlements under the convertible rupee accounts (CRA) scheme. Most of these exporters virtually disappeared after the 1977 trade liberalisation (Athukorala and Jayasuriya 1994:102). Like in other countries such as Taiwan, Malaysia, Bangladesh and Chile (Riedel 1993, Helleiner 1994 and 1995), manufactured exports during the post-liberalisation period seem to have emerged *de novo* in response to the creation of new incentives. Most of the new exporting firms, both firms with FDI participation and pure local ones, seem to have developed initially as exporting ventures

independently of the industrial base laid down in the earlier period. In the garment industry, a few firms established during the IS era have successfully ventured into export business. However, their new operations are largely based on market know-how, managerial inputs and, to some extent even capital, obtained through foreign collaboration and/or international buying groups which came to the country following the trade policy reforms.

Employment and income distribution

In determining the effects of industrial growth on employment, one is handicapped by relatively poor data. The coverage of the available employment and wage data is limited to production units in the organised (formal) manufacturing sector.[17] Even for that sector consistent data series of adequate length (encompassing both pre- and post-reform years) are not available. Nevertheless, several interesting facts emerge from the scanty data (Table 2.6).

Right from the beginning, total employment in organised manufacturing has grown at a faster rate during the post-reform period (Column 2). The level of employment in 1982 was about 45 per cent higher than that in 1977. The growth has been relatively faster from about the late 1980s. Between the early 1980s and the mid-1990s, total employment almost doubled (from around 150,000 to over 300,000). The growth of employment has predominantly come from the private sector, which counterbalances the contraction in POE employment. The public sector share in total employment declined throughout this period. It was about 16 per cent in 1993, down from 45 per cent in the early-1980s.

The contribution of export-oriented foreign firms to employment expansion is impressive. Total local employment (i.e. total employment net of expatriates) FTZ firms[18] increased continuously from a mere 261 in 1978 to 36,000 in 1985 and then to over 233,000 in 1995. There are no time series data on employment in non-FTZ foreign firms. According to periodic sample surveys conducted by the FIAC, total employment in non-FTZ foreign firms approved after 1977 increased from about 2,500 in 1978 to about 50,000 by 1988. Roughly 50 per cent of these employment opportunities are in export-oriented manufacturing, with the balance coming from import-substituting manufacturing (25 per cent) tourism and other services (12 per cent) and agriculture and animal husbandry (FIAC 1988). These figures taken together suggest an increase in the share of export-oriented foreign firms in formal manufacturing in the country from about 10 per cent in the early 1980s to over 50 per cent by the early 1990s.[19]

It is quite possible that the data relating to the organised manufacturing sector understates employment losses caused by import competition during the immediate aftermath of trade liberalisation. There is survey-based evidence that these employment losses were largely concentrated in the small-scale

Table 2.6 Employment in the organised manufacturing sector: key indicators

Year	*Employment (number of workers)**				*Real earnings per employee (1980 =100)*	*Real labour productivity (1980=100)*	*Real wage adjusted labour productivity (1980=100)*	*Earning-value added ratio (%)*
	Total manufacturing (DCS)	*Total manufacturing (CB)*	*PSE*	*FTZ*				
1970–1974[a]	–	108333	38325	***	104.6	105.8	101.2	17.53
1975	–	107944	44301	***	104.3	121.0	116.3	24.09
1976	–	112288	47551	***	107.1	119.9	112.0	26.64
1977	–	118576	56028	***	105.9	112.1	105.8	26.33
1978	142347	131168	63530	261	108.3	96.6	89.2	26.60
1979	160816	146260	75150	5876	101.8	85.7	84.2	28.01
1980	161844	154563	70371	10538	100.0	100.0	100.0	25.70
1981	151549	164440	66355	19727	95.0	112.2	118.1	24.20
1982	–	170577	71255	24926	80.9	97.3	120.3	19.40
1983	202100	–	70182	27805	81.1	121.3	149.6	17.90
1984	212332	–	64292	32725	83.6	110.4	132.1	–
1985	210465	–	58446	35786	101.5	135.1	133.1	–
1986	217146	–	54332	45047	101.7	131.5	129.3	–
1987	212223	–	54049	50743	105.8	130.0	122.9	16.70
1988	219278	–	52050	54626	105.9	137.3	129.7	17.60
1989	243705	–	52611	61429	100.1	134.2	134.1	17.50
1990	281114	–	45283	71358	95.0	137.8	145.1	14.60

1991	–	–	40066	85457	102.5	142.7	139.2	14.80
1992	–	–	41394	104220	102.6	147.6	143.9	15.10
1993	356950	–	39902	122165	95.2	156.4	164.3	16.00
1994	–	–	36714	205660	–	–	–	–
1995	–	353672	38606	223367	–	–	–	–

Sources: Total manufacturing employment—DCS: *Annual Survey on Manufacturing Industries* (for 1978 through 1981), *Annual Survey of Industries* (for 1983 through 1990) and 1993: data tapes of *Annual Survey of Industries—1994*, all conducted by Department of Census and Statistics. Total manufacturing employment—CB and PSE employment: Central Bank of Sri Lanka, *Annual Report*. Other series: Central Bank of Sri Lanka, *Annual Report* (for 1970–79) and World Bank, World Table data tapes

Notes
DCS=Department of Census and Statistics CB=Central Bank
PSE=Public Sector Enterprises
FTZ=Free Trade Zone Enterprises
a Annual average—not available *** Not applicable

manufacturing sector (Athukorala 1986:99). Total employment loss during 1977–80 in the handloom industry alone was estimated at 40,000. However, these employment losses were quickly compensated by the rapidly expanding labour-intensive export industries. In fact, there is circumstantial evidence to suggest that the employment impact of new export-oriented industries would look even more impressive if employment in small-scale manufacturing was appropriately accounted for. Many export-oriented firms in garments, toy and shoe industries have production subcontracting arrangements with small-scale producers in the unorganised sector (Kelegama and Foley 1996).

The sectoral composition of manufacturing employment has undergone significant changes over the past two decades (Table 2.4). Export-oriented manufacturing industries—wearing apparel (322), footwear (324), rubber goods (355), plastic products (356) and other manufacturing (Jewellery, sport goods, toys) (390)—have recorded significant gains in employment share. In 1993 the wearing apparel industry alone accounted for over 46 per cent of total manufacturing employment, up from 29 per cent in 1988. Reflecting the rapid expansion of export-oriented labour-intensive product sectors (mostly garments, shoes, sports goods and various assembly activities) the share of female workers in total manufacturing employment increased from 32 per cent in the early 1980s to over 60 per cent by the mid-1990s.

Table 2.7 provides data on the employment profile of FTZ firms. The majority of jobs are of the assembly type, which require no major skills. The

Table 2.7 Employment profile of FTZ firms[a] (as at end of September 1991)

Employment category	*Total employment*	*Female share (%)*
1. Local employment	81412	78.2
1.1 Manual labour	71570	82.9
Trainees	17720	89.9
Unskilled	13104	72.5
Semskilled	30557	92.2
Skilled	10189	56.3
1.2 Supervisory staff	2927	57.4
1.3 Technical staff	1119	20.1
1.4 Administrative staff	747	24.5
1.5 Clerical staff	3331	57.5
1.6 Other	1724	17.8
2. Expatriate staff	550	20.7
2.1 Technical staff	416	21.9
2.2 Administrative staff	134	17.2

Source: Compiled from data provided by the Board of Investment

Note a Firms (located both in and outside FTZs) approved by the BOI under the FTZ provisions (Section 7 of the BOI Law)

predominance of females in the workforce, a universal feature of employment in EPZs over the world (ILO/UNCTC 1988), is clearly brought out by these data too. Female workers are clustered in lower-skilled (hence lower-paid) jobs than men. According to survey-based evidence, only about 15 per cent of women workers are married, and nearly 30 per cent are below 20 years of age (Voice of Women 1983).

Given the high share of female workers in the EPZ workforce, one can reasonably argue that the reported employment figures may give an exaggerated picture of the employment contribution of EOFDI (Lee 1984, ILO/UNCTC 1988). It is quite possible that these firms have contributed first and foremost to a rise in the labour force participation rates, notably the entry of young women into the labour force who would probably have remained outside the labour force in the absence of EPZ employment opportunities. Unfortunately, data on pre-employment labour market status of the women workers are not available to examine this issue. While the level of employment has increased, the functional distribution of income seems to have changed in favour of the employers. Share of employee remuneration (wage plus other benefits) declined from over 20 per cent in the early 1970s to about 17 per cent in the mid-1980s and remained around that level during the ensuing years.

This pattern is consistent with the behaviour of real wages (as measured by real earning per worker) and labour productivity (real output per worker) (Table 2.6). While real wages have either declined mildly or stagnated throughout the post-reform years, labour productivity has shown an impressive increase. The changes in the functional distribution of income, real wages and labour productivity are much in line with what the received theory predicts about the process of industrial adjustment in a labour-surplus economy under export-oriented industrialisation (Chow and Papanek 1981). The market-oriented reforms in Sri Lanka seem to have triggered a 'neo-classical' response to factor endowment.

The evidence on the functional distribution of income and real wage behaviour suggest that the export-led industrialisation may have been reflected in an increase in income inequality (relative poverty). However, the increase in employment opportunities, (particularly for unskilled and semi-skilled workers) would have contributed to a decline in absolute poverty. The increase in the female participation rate is of particular relevance in this context. It is generally the low-income households who benefit from an increased female participation in the workforce.

Conclusion

The market-oriented policy reforms initiated in 1977 have led to far-reaching changes in the structure and performance of the manufacturing sector in the Sri Lankan economy. With the gradual erosion of the dominant

role of state-owned enterprises, the private sector has been largely responsible for the recent output growth in manufacturing in recent years. The manufacturing sector has become increasingly more export-oriented, and is no longer reliant on the fortunes of the traditional primary export industries to obtain required imported inputs. Despite some output disruption in the immediate aftermath of the removal of trade restrictions, the sector has turned in an improved performance both in terms of output, productivity and employment confounding the predictions of pessimists who expected trade liberalisation to set in a process of deindustrialisation. As is to be expected in the context of a labour-surplus economy, so far the functional distribution of gains from industrial growth seems to have contributed to an increase in income inequality. However, rapid growth in employment opportunities, particularly for semi-skilled and unskilled workers, and the increase in female participation in the labour force should have reduced absolute poverty.

The view that an import-substitution phase is a precondition for the successful transition to export orientation receives no support from the Sri Lankan experience. We found no evidence of a direct link between recent export growth and output expansion during the earlier IS period. Like in other countries such as Taiwan, Malaysia, Bangladesh and Chile, export-oriented manufacturing firms seem to have largely emerged *de novo* in response to the creation of new incentives. Most of the new exporting firms developed initially as exporting ventures independently of the industrial base laid down in the earlier period.

Our findings cast doubts on the popular structuralist prescription of using direct subsidies (as a substitute for genuine trade and macroeconomic reforms) as an export promotion tool. In the typical developing economy with a weak government revenue base the potential stimulus through subsidies is bound to be rather insignificant in a context of aggravating macroeconomic imbalance.

The Sri Lankan experience highlights the complementary role of investment liberalisation for exploiting the potential gains from trade liberalisation. Internationalisation of production through FDI participation has been central to the rapid integration of developing countries in the global manufactured goods trade system. In this context there is limited room for a small developing economy to enter manufactured goods trade solely through local entrepreneurial initiatives. Foreign investment not only provides the initial stimulus for a rapid expansion in exports and the associated increase in employment, but is also a vehicle for the forging of links between local firms and international markets.

To capture the full benefits of trade and investment liberalisation, a supporting set of macroeconomic policies and an attractive investment climate are required. In the case of Sri Lanka, these ingredients have been missing for much of the post-reform period, though there were brief favourable periods,

such as the 1990–94 period, when the underlying capacity for rapid manufacturing, export and GDP growth could be glimpsed. On the other hand, there can be little doubt that the resilience of the economy in recent years in the face of traumatic and debilitating shocks is due in large part to the greater flexibility provided by an open trade regime. In essence, the industrialisation process in this context can be understood as one where the trade liberalisation increases the potential returns to investments which capitalise on a country's comparative advantage, while investment liberalisation permits international firms to be attracted which have the capacity to take advantage of such profit opportunities. Rapid export growth despite political risks and policy uncertainty is consistent with this policy configuration which ensures a handsome profit share in value added in a surplus-labour economy. Substantial uncertainty and macroeconomic instability is acceptable, as long as investment is profitable because labour-intensive export production is usually characterised by a short payback period.

Notes

1 Helleiner (1994) provides a thought-provoking discussion on this analytical imbalance in the literature on economic policy reforms in developing countries.
2 For further discussion on this issue see Cuthbertson and Athukorala (1990, Chapter 5).
3 A loose coalition of the Sri Lanka Freedom Party (SLFP) which ruled the country during most of the closed-economy era and a number of other left-wing parties and a splinter group from the UNP.
4 The difference between the gazetted rate and the actual rate may be due to the operation of tariff exemptions and waivers and the deterrent effects of high tariffs on trade in the relevant items.
5 An area of approximately 160 square miles north of Colombo was demarcated for the GCEC. The Foreign Investment Advisory Committee (FIAC) (set up in 1966) was to continue to approve and monitor foreign investment (in both export-oriented and import-substitution projects) outside the GCEC area. In 1991 the two institutions were amalgamated to form the Board of Investment (BOI).
6 In principle, through recourse to compensating nominal exchange rate depreciation the authorities can maintain a constant real exchange rate; in practice, this leads to a vicious cycle of rising inflationary expectations, increasingly large depreciations and accelerating inflation leading to macroeconomic crises.
7 An additional source of upward pressure on the real exchange rate came from a surge in private capital flows in the 1991–94 period.
8 We also constructed a real exchange rate index for total (export-oriented plus import competing) manufacturing. The time pattern of this index was remarkably similar to that for export-oriented manufacturing. The discussion in this section focuses only on the latter, given the emphasis on export promotion under the new policy orientation.
9 Manufacturing is defined in this chapter to cover all production activities that come under item 3 of the International Standard Industry Classification (ISIC).

10 Excluding petroleum.
11 The role of FDI in the expansion of manufactured exports from Sri Lanka is discussed in detail in Chapter 6. Figures reported in this section, unless otherwise stated, come from that chapter.
12 Formerly the Greater Colombo Economic Commission (GCEC).
13 International buying groups are world-wide purchasing organisations of large retail chains in developed countries, which specialise in the purchase of labour-intensive manufactured goods such as garments, toys and sporting goods mostly from producers in developing countries. For details on their role in the expansion of manufactured exports from developing countries, see Hone (1974) and Keesing and Lall (1992).
14 By going through project descriptions relating to the clothing industry (available from FIAC and GCEC for the period 1978–92) we were able to identify al least 18 joint-venture firms, the local partners of which own and operate their own firms as distinct from the joint ventures.
15 According to estimates by Ramanayake (1984) such leakages amount to almost half of the percentage of domestic value added (gross exports-value of imported inputs). Thus, the net foreign exchange component embodied in gross export earning could not be more than 15 per cent. This is in fact the composite payment for local labour (about 10 per cent), local raw materials (3 per cent) and payments for services (3 per cent).
16 This argument is developed further with evidence from Indonesia in Chapter 5.
17 The term *organised manufacturing* is used here to refer to firms established under the approval of the Ministry of Industries and other relevant government bodies. The Department of Census and Statistics (1985) enumerated total manufacturing employment in 1982 at 587,000. Based on this figure, the formal sector data reported in Table 2.6 seem to cover about 35 per cent of total manufacturing employment.
18 Firms approved by the BOI under the FTZ provisions (Section 7 of the BOI Law). Some of these firms (about 10 per cent) are located outside FTZs.
19 It should be emphasised that the sharp increase in the EOFDI share in total manufacturing employment partly reflects two influences: (i) employment contraction in public sector manufacturing as a result of privatisation of number of firms and the rationalisation of operation in the remaining ones; and (ii) the sluggish employment performance of many private sector import-substitution firms because of stringent import competition in the aftermath of the 1977 trade policy reforms.
20 The data reported in this paragraph are from United Nations, *Statistical Yearbook* (various issues).

3

EXPORT-ORIENTED INDUSTRIALISATION, GROWTH AND EQUITY IN MALAYSIA[1]

A distinguishing characteristic of the economic performance of newly industrialised countries (NICs) in East Asia since the late 1960s is the highly equitable distribution of gains from economic growth. The rapid and sustained growth in these economies has been accompanied by a rapid reduction in poverty and a more equal income distribution than in other countries at a comparable stage of development.[2] Mainstream (neo-classical) economists interpret this achievement as a *natural* outcome of export-oriented industrialisation, which, given the right policies, can be replicated in other developing countries. The argument is that, as comparative advantage of developing countries in international production is in relatively labour-intensive production, the expansion of manufactured exports translates into higher employment. As labour is the most widely distributed factor of production in the economy, employment expansion and the subsequent increase in real wages reduce poverty and income inequality (Fei *et al.* 1979, Chow and Papanek 1981, Balassa and Williamson 1987, Krueger 1995, Stiglitz 1996).

Structuralist economists (the revisionists), however, doubt whether the NIC experience can be replicated in other developing countries (Taylor 1991, Helleiner 1994, Amsden and Van Der Hoeven 1996). These economists argue that the 'growth with equity' was brought about largely by favourable initial conditions of these countries and highly accommodative world markets situation at the formative stage of their economic transformations. The NICs had a head start over the other developing countries in terms of higher educational standards, more even distribution of income and broad-based wealth ownership. These initial conditions helped establish a virtuous circle of high growth and low inequality. As well, the rapidly expanding markets in developed countries in the 1960s and early 1970s provided a fertile milieu for rapid expansion of labour-intensive manufactured exports without requiring real wage restraint. If the NIC firms were forced to operate in a depressed world market similar to that in the period since the mid-1970s, so

the revisionists argue, they would have been under persistent pressure to cut cost rather than to raise prices, leading to real wage stagnation and a massive shift of income from labour to capital (Amsden and Van Der Hoeven 1996).

This chapter seeks to shed light on this debate by examining the case of Malaysia, a country which has achieved phenomenal growth through export-led industrialisation since the mid-1980s. Malaysia's initial conditions and structural characteristics had more in common with the many other developing countries in the region than it did with the East-Asian NICs. Thus, the lessons from the Malaysian experience would be relevant to the debate on trade and industrial policy reforms in developing countries.

The chapter begins with an overview of Malaysian economic policy since independence, in order to place the ensuing discussion in context and to delineate the key policy shifts. Overall growth trends are then surveyed in the context of the ongoing process of export-led industrialisation, followed by an examination of the implications of export-oriented growth for domestic employment and real wages, and poverty and income inequality. The final section presents some concluding remarks.

Policy context

At independence (*Merdeka*) in 1957, economic conditions of Malaysia (then the Federation of Malaya[3]) appeared generally favourable. The colonial inheritance included well-developed infrastructure, an efficient administrative mechanism and a thriving primary export sector with immense potential for expansion. In terms of per capita income, literacy and health care, Malaysia was ahead of most of its neighbours. Although the rate of population increase was already very rapid, the highly favourable ratio of land and other natural resources to total population offered potential to raise income per head.

The mobilisation of this developmental potential for building the new independent Malaysian economy had, however, to be done under conflicting challenges of a plural society inherited from the colonial past. At the time the native Malays, who accounted for 52 per cent of the population, dominated politics, but were relatively poor, being involved mostly in low-productive agricultural activities.[4] The ethnic Chinese (37 per cent of the population) enjoyed greater economic power and dominated most of the modern-sector activities, but lacked the ethnic solidarity or political power of the Malays. Economic policy making in post-independence Malaysia, therefore, turned out to be a continuing struggle to achieve development objectives while preserving communal harmony and political stability.

During the first decade of independence, the government continued the colonial open-door policies relating to trade and industry, while attempting to redress ethnic and regional economic imbalances through rural development schemes and the provision of social and physical infrastructure. Like in many other developing countries at the time, import-substitution industrialisation

was on the policy agenda in Malaysia during this period. However, unlike in other countries, Malaysia eschewed 'forced' industrialisation through direct import restrictions and the establishment of state-owned industrial enterprises (Lim 1992).[5] The industrialisation strategy of the Malaysian government at the time was 'largely a promotional effort, geared to the provision of an investment climate favourable to the private enterprise' (Wheelright 1963:69). Very few industries enjoyed nominal tariffs of more than 30 per cent and non-tariff barriers were almost non-existent (Alavi 1996:70).

Foreign investment was welcomed with open arms during this period. But its impact on the economy was bound to be limited for two reasons. First, in the absence of binding import restrictions, there was no compelling reason for foreign producers to establish import-substituting plants in Malaysia. Second, the process of internationalisation of production within vertically integrated global industries had not yet begun.

By the late 1960s, there was a growing recognition that the easy stage of import-substitution industrialisation was coming to an end and that future prospects for industrial development depended upon the expansion of export-oriented industries. It was decided accordingly to place emphasis on the promotion of export-oriented manufacturing. The incentives offered to export-oriented ventures under the Industrial Incentives Act of 1968 included exemptions from company tax and duty on imported inputs, relief from payroll tax, investment tax credits and accelerated depreciation allowances on investment (Lim 1992).

Economic expansion during 1957–69, though respectable, failed to make a substantial contribution towards solving the 'special' problems of the Malays. On the other hand, with urban unemployment rising and education and language again looming as issues, non-Malays began to question the extent to which their interests were being safeguarded in the new Malaysia. The growing disenchantment among all segments of the population ultimately erupted in the bloody communal riots of May 1969. This event resulted in a clear shift from planning and policy making based purely on economic considerations and towards an affirmative action policy based on ethnicity. The outcome of this policy shift was the new economic policy (NEP), a sweeping affirmative action programme, which formed the basis for the Second Malaysia Plan (1971–75).

The new economic policy

The objective of the NEP was to maintain national unity through the pursuance of two objectives: eradication of poverty through employment generation and restructuring of society with a view to eliminating the identification of race with economic function. To achieve the first objective, the overall development strategy was reformulated with emphasis on export-oriented industrialisation and an ambitious rural and urban development programme.

The Free Trade Zone (FTZ) Act was enacted in 1971 to entice export-oriented foreign direct investment (EOFDI). The rich assortment of incentives offered by the Act to FTZ ventures included duty-free imports of raw material and capital equipment, streamlined customs formalities, subsidised infrastructure facilities and company income tax incentives (Warr 1987). For the second objective, long-term targets were established for *Bumiputra* (ethnic Malays) ownership of share capital in limited companies, and for the proportion of Malays employed in manufacturing and installed in managerial positions. The NEP aimed to increase the Malay share in corporate assets from 2 per cent in 1970 to 30 per cent in 1990, and to have employment patterns in the urban sector reflect the racial composition of the country. Malay participation in business was promoted in two ways. First, the public sector, where Malays held most of the key positions, was expanded by setting up new ventures and the purchase of foreign-owned businesses. Second, Malays were granted privileged access to share ownership and business opportunities in the private sector. The Industrial Coordination Act (ICA) was passed in 1975 in order to implement NEP norms on *Bumiputra* participation at the enterprise level. Under the ICA, the conduct of medium- and large-scale enterprises was subject to licensing with the aim of improving the relative position of the Malays in the modern sector of the economy.

As part of the NEP, Malaysia moved into the promotion of heavy industries over the term of the Fourth Five-Year Plan (1981–85). The Heavy Industries Corporation of Malaysia (HICOM), a public sector holding company, was formed in 1980 to go into partnership with foreign companies in setting up industries in areas such as petrochemicals; iron and steel; cement; paper and paper products; machinery and equipment; general engineering; transport equipment; and building material. These industries were expected to 'strengthen the foundation of the manufacturing sector…[by providing] strong forward and backward linkages for the development of other industries' (Government of Malaysia 1984:271). Even though the new selective industrialisation push was often rationalised as an attempt to emulate the examples of Japan and Korea (hence the 'look East policy', a term coined by Mahathir in 1981), in practice the selection of new projects was based largely on traditional import-substitution criteria. These projects was supported with subsidised credit, government procurement provisions and heavy tariff protection, without subjecting them to any market-based performance norms.[6]

The blow-up in public expenditure owing largely to the heavy industrialisation move began to reflect in widening budget and current account deficits, and an increase in external debt from about 1981. The macroeconomic imbalance was compounded by a significant fall in the prices of tin and palm oil and depressed demand for fledgling manufactured exports (in particular electronics) as a result of the world economic recession in the mid-1980s (Corden 1996). The required cuts in government expenditure had invariable contractionary effects on the domestic economy. At the same time, the

uncer-tainty in the policy environment was reflected in stagnation in private investment (both local and foreign) in the economy. These factors brought the economic advances of the 1970s to a halt and created an environment in which race relations became increasingly tense. This volatile climate paved the way for a series of policy reforms, which placed greater emphasis on the role of the private sector and strengthening the conditions for export-oriented growth.

The national development policy

In 1986 the government declared the NEP to be 'in abeyance'. The Promotion of Investment Act passed in the same year introduced fresh, more generous incentives for private investors, and some of the ethnic requirements of the NEP were relaxed. Regulations on foreign equity participation in Malaysia were also relaxed and up to 100 per cent foreign equity ownership of export-oriented companies was allowed. Work permit requirements for foreign employees of companies with foreign paid-up capital of US$ 2 million or more were eased. The NEP was subsequently replaced (in 1990) with the National Development Policy (NDP). The NDP eased the remaining strictures of the NEP with a view to putting the *creation of wealth ahead of redistributing it*. The policy thrust of the NDP was to redress racial imbalance in a more overt fashion through various initiatives geared to entrepreneurship, managerial expertise and skills development within the Malay community.

The reforms since the mid-1980s have also involved a gradual process of privatisation and restructuring of sate-owned enterprises. By the early 1990s state-ownership in manufacturing was limited only to some politically sensitive ventures in automobile manufacturing, petrochemical, iron and steel and cement industries. Tariff protection to domestic manufacturing, which had always been relatively low compared to other developing countries,[7] was further reduced over time. The effective rate of manufacturing protection declined from 31 per cent in 1979–80 to 17 per cent by the late 1980s (Salleh *et al.* 1993). By the mid-1990s, only 3 per cent of all import tariff lines were subject to licensing requirements and the import-value weighted average nominal tariff was as low as 15 per cent (Sachs and Warner 1995).

The market-oriented policy reforms were accompanied by a strong policy focus on restoring and maintaining macroeconomic stability (including the maintenance of a realistic real exchange rate), and meeting the infrastructure needs of a rapidly expanding economy. The Fifth (1986–90) and Sixth (1991–95) Malaysia Plans saw a significant reduction in overall government expenditure and a shift in government spending away from public sector enterprises and towards infrastructure projects designed to enhance private sector development.

In the area of labour market reforms, there was a new emphasis (like that of the East-Asian NICs) on job creation rather than protecting workers' rights

through labour legislation. Towards this end, attempts were made to achieve labour market flexibility through industrial relations legislation which provided for compulsory arbitration of disputes and prohibition on the right to strike in 'essential services'. Furthermore, unions were banned in the most important export-oriented industry—electronics—until 1988, after which only 'in-house' unions were allowed at the plant, rather than the industry, level.[8] This labour market policy, despite many criticisms, has certainly facilitated the outward-oriented growth process with foreign capital participation.[9]

Growth and structural change

The data on overall economic growth and export orientation of the Malaysian economy are summarised in Table 3.1. Annual growth from 1965–86 averaged 5.5 per cent, a respectable figure by developing country standards. The

Table 3.1 Malaysia: Growth and export orientation, 1970–95

	GDP		*Per capita GDP*		*Export orientation*
	value[a] *(millions of ringgit)*	*growth (%)*	*value*[a] *(ringgit)*	*growth (%)*	*X/GDP (%)*
1965–69	30149	7.08	29023	3.97	46.09
1970–74	35986	9.12	3257	6.04	42.30
1975–79	51703	7.22	4734	4.17	50.44
1980	64883	7.44	4736	5.48	57.54
1981	69387	6.94	4918	3.83	52.34
1982	73509	5.94	5066	3.02	50.89
1983	78104	6.25	5245	3.54	51.18
1984	84116	7.70	5509	5.02	54.27
1985	83305	−0.96	5313	−3.55	54.85
1986	84179	1.05	5225	−1.65	56.31
1987	88717	5.39	5367	2.71	63.85
1988	96647	8.94	5705	6.30	67.61
1989	105547	9.21	6083	6.63	73.26
1990	115828	9.74	6522	7.21	76.28
1991	125861	8.66	6923	6.15	80.84
1992	135667	7.79	7290	5.30	77.65
1993	146987	8.34	7636	4.74	81.45
1994	159848	8.75	7972	4.41	89.82
1995	175225	9.62	8506	6.70	95.50
1996	189595	8.23	8943	5.70	88.17

Sources: IMF, *International Financial Statistics Yearbook—1995* and Malaysia Ministry of Finance, *Economic Report 1995* (for estimates for 1995)

Note a At constant (1990) prices

Figure 3.1 Malaysia: Growth and openness (%), 1965–95
Source: Table 3.1

performance record was, however, rather uneven, reflecting the impact of primary commodity cycles and changes in government expenditure. Growth of real GNP averaged about 6.5 per cent per annum during the 1970s, but then slowed down in the first half of the 1980s falling to negative one per cent in 1985. With better domestic macroeconomic policies and marketbased reforms, the Malaysian economy has picked up again since 1987. Real, GDP growth accelerated to over 8 per cent a year on average over the nine years up to 1995. Interestingly, this outstanding economic performance was achieved in the context of a depressed world economic environment.

The data point to a close association between growth acceleration and the degree of export orientation of the economy (Figure 3.1). The export-GDP ratio increased at a modest rate during the 1970s, slowed down in the first half of the 1980s and then increased sharply from about 1987. The export-GDP ratio in 1995 (96 per cent) was twice as high as in 1970.

In the 1970s and early 1980s, Malaysian economic growth was predominantly accounted for by the expansion of service industries emanating from public sector activities and growth in primary production (Table 3.2). In the primary sector, growth performance in the 1970s was led by a rapid expansion of the palm oil sector and a modest expansion of rubber production. In the deregulated environment since the late 1980s, not only has there been a significant increase in growth, but much of it is has come from the expansion of manufacturing through private sector initiatives. In 1989, for the first time the manufacturing share in GDP overtook that of

Table 3.2 Malaysia: Sectoral growth performance: contribution to GDP and real growth rates (in brackets), 1970–95[a]

	1970	*1975*	*1980*	*1985*	*1990*	*1995*
Agriculture	28.5	26.9	22.9	20.8	18.7	13.9
	...	(9.5)	(5.1)	(3.1)	(4.6)	(2.5)
Industry	32.3	32.6	35.8	36.7	42.2	47.2
	...	(6.7)	(10.7)	(5.7)	(9.8)	(11.2)
Manufacturing	15.8	17.3	19.6	19.5	26.9	33.1
	...	(6.7)	(11.4)	(5.3)	(13.7)	(13.3)
Services	33.5	40.5	41.3	42.6	39.1	38.9
	...	(12.2)	(13.9)	(5.8)	(5.1)	(8.6)
Total	100	100	100	100	100	100
	...	(10.6)	(8.5)	(5.2)	(6.8)	(8.7)

Source: Ministry of Finance Malaysia, *Economic Report* (various issues)

Notes

a Output shares and growth rates are based on constant 1978 prices. Growth rates are annual averages between the reported years... Not applicable

agriculture. Between 1987 and 1995, the manufacturing sector grew by an average annual rate of 14.5 per cent, with the share of manufacturing in GDP increasing from about 20 per cent to over 33 per cent. Between these two years, over 50 per cent of the growth in GDP came directly from the manufacturing sector. In addition, much of output and expansion in the tertiary (service) sectors in recent years has been closely related to the expansion of the manufacturing sector (Ariff 1991).

The expansion of manufacturing production has predominantly been export-led. The export structure of Malaysia, as it evolved during the colonial era, was characterised by heavy reliance on a limited range of primary commodities. In the early 1970s, the share of manufactures[10] in total merchandise exports was about 10 per cent (Table 3.3). Since then, manufactured exports have emerged as the most dynamic element in the export structure. Exports of manufactures grew (in current US dollar terms) at an annual compound rate of 35 per cent during 1980–95. In 1994, with a manufacturing share of about 78 per cent, Malaysia was the developing world's sixth largest exporter of manufactures, after the Four Dragons of East Asia and China. As a result of this rapid export expansion, the share of exports in gross manufacturing output was over 60 per cent in the early 1990s, compared to less than 10 per cent in the early 1970s. In the 1970s, resource-based manufacturing such as food, beverages, tobacco, wood products and basic metals loomed large in the structure of manufactured exports. The transformation of the export structure in line with emerging patterns of the international division of labour gathered momentum in the late 1980s. At first, Malaysia found market niches in simple assembly

Table 3.3 Malaysia: Manufactured exports: composition and share in total exports (%)

	1970	*1975*	*1980*	*1985*	*1988*	*1990*	*1993*
Food, beverages and tobacco	24.9	15.6	8.5	6.8	5.3	3.4	2.9
Textile, clothing and footwear	7.0	11.4	13.2	11.3	9.1	6.5	6.2
Wood products	19.8	10.7	7.7	3.2	3.5	2.2	4.6
Rubber products	3.7	2.3	1.4	1.0	3.5	2.3	2.8
Paper products	1.2	0.5	0.6	0.6	1.0	0.7	0.6
Petroleum products	35.5	5.5	3.1	9.1	2.9	2.1	1.9
Chemicals	7.7	4.6	3.1	5.3	5.3	2.4	3.2
Non-metallic minerals	4.5	1.2	1.0	1.3	1.7	1.3	1.2
Metal products	7.6	3.2	4.1	3.1	4.4	2.6	3.5
Electronics and electrical products	11.5	42.2	49.3	56.8	58.1	44.1	62.6
Electronic components	–	–	37.5	38.8	33.4	19.5	21.2
Electrical appliances	–	–	4.5	4.0	4.7	4.1	5.7
Other electrical machinery	–	–	7.3	14.0	20.0	20.5	35.7
Transport equipment	7.2	3.5	3.6	5.0	1.9	3.2	4.1
Optical and scientific equipment	0.8	1.8	2.2	2.0	1.9	1.8	2.3
Toys and sporting goods	0.4	0.7	0.9	1.5	1.6	1.6	1.8
Other manufactures	3.9	2.3	4.6	2.1	2.7	3.6	4.3
Total manufactures[a]	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Value (million US$)	148.1	799.9	2811.3	4603.1	9960.5	22194.6	34201.7
As % of total exports	8.8	20.7	21.7	30.1	47.2	75.4	72

Source: Bank Negara Malaysia, *Quarterly Bulletin*, Kuala Lumpur, various issues

Notes

a Excluding petroleum products, and processed palm oil and other oil products

—Not available

operations in electronics and electrical goods, and diffused-technology consumer goods (Table 3.3). In recent years, the export composition has begun to diversify into mature technology final products such as radios, TVs, cameras and computers.

Foreign direct investment (FDI) has played a pivotal role in the expansion of manufactured exports. FDI flows to Malaysia have grown remarkably over the past two decades.[11] There has been a boom in the amount of FDI coming into the country, particularly since the mid-1980s; between 1987 and 1991, foreign capital inflows have increased by almost ten-fold. Since the mid-1980s, FDI flows to Malaysia have been increasing at a faster rate than that to the other Association of South-East Asian Nations (ASEAN) countries. Since 1991, the volume of FDI flowing to Malaysia has remained higher than to any of the other ASEAN countries. By the late-1980s, FDI inflows had shifted from production for the domestic market to using Malaysia as a base for manufacturing for the global market. The share of

projects with an export orientation of 50 per cent or more increased from 24 per cent of total approved projects in 1984–85 to about 82 per cent by 1988–89. The proportion of projects with an export orientation of 80 per cent or above increased from one-fifth of the total in 1984 to about three-quarters in 1989. There are no direct estimates of the share of foreign firms in exports. However, a simple comparison of data on export and output shares of foreign firms show that they provided over three-quarters of total manufactured exports by the mid-1990s (Lall 1995). There is a close association between the degree of foreign presence in product sectors and their relative contribution to total manufactured exports (Athukorala and Menon 1996). The electronics industry (which is almost completely foreign owned) alone contributed to over 65 per cent of total non-oil exports in 1995. Malaysia's efforts in attracting FDI in the electronics industry were so successful that since the early 1980s it had been the largest developing country exporter (and one of the world's major exporters) of electronic components, particularly integrated circuits.

There is little evidence that either the government leadership in industrial policy in general or the heavy industrialisation push in the early 1980s in particular have affected the export-led industrialisation process. The structure of industry that has evolved over the past two decades is much in line with what one would have expected given the nature of Malaysia's comparative advantage and changing factor endowment. Most of the industries set up under HICOM were 'born losers' which were artificially spawned with subsidies. By the late 1980s HICOM had invested over RM42 billion in various projects which generated less than 5,000 jobs directly (RM 400,000 per job), and exports from these industries were almost negligible (Chee 1994, Table 10.5). Undoubtedly some employment, some technical and managerial skills and scale economies would have been generated, but these have been achieved at considerable economic cost. According to a detailed analysis of productivity performance of Malaysian manufacturing during the period 1979–89, most of the three-digit industries dominated by state-owned enterprises recorded negative or zero total factor productivity (TFP) growth (Alavi 1996). Interestingly, the industries that topped the list in terms of TFP growth were private sector dominated labour-intensive industries (such as wearing apparel, footwear, pottery, ceramics, toys and sports goods). Apart from the direct economic cost, the inefficient heavy industry projects (which were mostly in investment and intermediate goods industries) burdened downstream industries, which were forced to pay higher prices for the protected products (Lim 1992).

Employment and equity

Unemployment emerged as a public issue in Malaysia only in the early 1960s. In 1963 the unemployment rate in Peninsular Malaysia was estimated at

Table 3.4 Malaysia: Summary statistics on employment and unemployment, 1980 and 1985–96

	Labour force	*Labour force participation rate*			*Unemployment*
	('000)	*Total*	*Male*	*Female*	*rate*
1980	5122	65.3	87.6	43.1	5.6
1985	6039	65.8	87.4	44.3	6.9
1986	6222	65.8	87.5	44.2	8.3
1987	6409	65.9	86.9	44.9	8.2
1988	6622	66.1	85.8	46.5	8.1
1989	6850	66.3	85.8	46.9	6.3
1990	7042	66.5	85.7	47.3	5.1
1991	7204	66.6	85.7	47.5	4.3
1992	7370	66.7	85.7	47.6	3.7
1993	7627	66.8	87.0	46.1	3.0
1994	7846	66.9	87.1	46.5	2.9
1995	8060	67.0	87.2	46.8	2.8
1996*	8278	66.8	86.6	46.9	2.8

Source: Ministry of Finance, *Economic Report* (various issues)

Note
* prediction

6 per cent. By the time the NEP was promulgated in 1970, this had increased to 8 per cent, but the Second Malaysia Plan could offer no more than containment at that level (Snodgrass 1980:59). After a drop to around 5 per cent in the early 1980s, the unemployment rate continued to increase reaching a peak of 8.3 per cent in 1986.[12] Thereafter, it began to decline reaching virtual full employment by 1995, with unemployment at only 2.8 per cent (Figure 3.2). It is interesting to note that this impressive employment record has been achieved in a context of increasing labour force participation of the population, from an average level of 65 per cent in 1980–85 to over 67 per cent by the mid-1990s (Table 3.4). This latter increase is a reflection of both the rapid rate of urbanisation and the increased labour force participation of women, which reached about 47 per cent in the mid-1990s, up from 44 per cent in the early 1980s.

Most of the new employment has come from the rapid expansion of the manufacturing sector (Table 3.5). The share of manufacturing in total labour deployment in the economy increased from 14 per cent in the mid-1970s to over 25 per cent by the mid-1990s. The *direct* contribution of manufacturing to total employment increment between 1987 and 1994 was as high as 60 per cent. In addition, as noted much of output (and hence employment) expansion in the tertiary (service) sectors in recent years has been closely related to the expansion of the manufacturing sector. The contribution of FDI to employment expansion of manufacturing employment has been

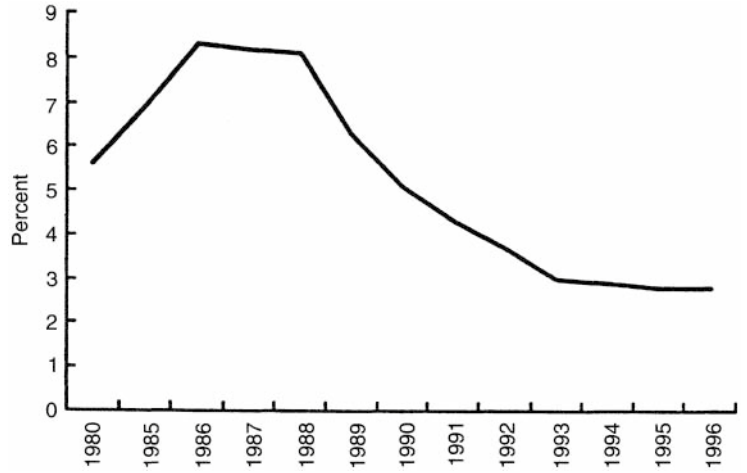

Figure 3.2 Malaysia: Unemployment rate, 1980 and 1985–96
Source: Table 3.4

Table 3.5 Malaysia: Employment by sector, 1976, 1980, 1985, 1990 and 1995 (% shares)

Sector	*1976*	*1980*	*1985*	*1990*	*1995*
Agriculture, forestry and fishing	43.6	40.6	31.3	29.9	18.9
Industry	20.9	22.7	23.6	24.6	34.9
Manufacturing	14.2	15.8	15.2	17.6	25.5
Services	35.5	36.7	45.1	45.5	46.2
Total	100	100	100	100	100
('000)	4376	4817	5622	6682	8060

Source: Ministry of Finance, *Economic Report* (various issues)

remarkable. The percentage of workers employed in foreign firms increased from about 30 per cent in 1983 to 42 per cent in 1992.[13]

Real wages in the manufacturing sector declined in the early 1970s (Table 3.6). The index of real wages (1990=100) in manufacturing was 61 during 1970–74 compared to 68 during 1965–69. At the time, critics of the exportled industrialisation strategy claimed that the working class was subject to high 'disciplines' (through restrictions on labour unions) and low wages for the benefit of multinationals and local capitalists (Osman-Rani 1983, Jomo and Osman-Rani 1984, Lee 1984). This pessimistic view was, however, repudiated by subsequent developments.

Table 3.6 Malaysia: Employment, real wages, price-cost margin and labour productivity in manufacturing

	Employment (1990 = 100)	*Real wages* (1990 = 00)	*Price–cost margin (%)*	*Labour productivity*[a] (1990 = 100)
1965–69	12.1	67.6	17.3	57.1
1970–74	24.9	61.6	21.5	64.0
1975–79	53.4	74.2	20.3	67.5
1980	66.3	73.7	—	—
1981	65.4	81.5	17.3	73.6
1982	67.4	85.8	16.6	71.8
1983	67.3	86.9	17.9	82.6
1984	68.6	94.5	19.0	89.9
1985	63.5	106.7	18.6	94.1
1986	63.5	103.9	20.1	102.8
1987	67.9	100.8	18.6	98.6
1988	77.1	97.2	18.1	99.5
1989	91.7	96.5	18.9	104.5
1990	100.0	100.0	18.6	100
1991	110.3	103.0	18.9	106.7
1992	121.4	108.2	18.8	107.3
1993	138.7	107.6	—	—
1994	153.1	112.4	—	—
1995	166.4	120.8	—	—

Source: Compiled using data obtained from the following publications:
Department of Statistics, Malaysia, *Annual Survey of Manufacturing*—employment and wages for the period 1965–79 and price-cost margin and labour productivity for 1965–92
Department of Statistics, Malaysia, *Monthly Manufacturing Statistics*—employment and wages for the period 1966–95
Ministry of Finance, Malaysia, *Economic Report*—consumer price index

Notes
a Real value added per worker
—Data not available

The decline in real wages in the early 1970s partly reflected the shift in the structure of production away from capital-intensive import-substitution activities and towards labour-intensive export production. At the same time, real wages were kept low by the availability of a vast pool of surplus labour in the economy, particularly in the rural sector. With the gradual absorption of surplus labour in export-oriented industries, real wages started to rise from the late 1970s. The real wage index increased from an average level of 74 in 1975–79 to 105 in 1985. Following a mild decline during the years of macroeconomic adjustment in the mid-1980s,[14] the index increased continuously reaching a historical high of 121 in 1995.

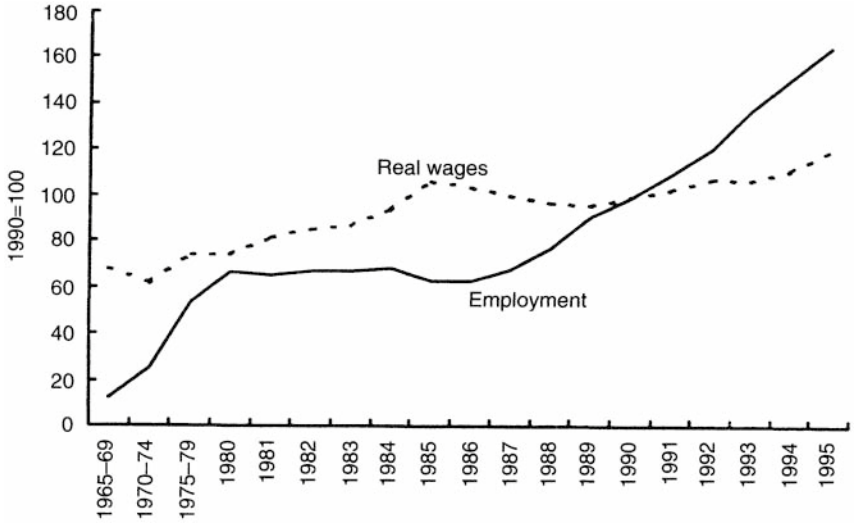

Figure 3.3 Malaysia: Employment and real wages in the manufacturing sector (1990=100), 1965–94

Sources: Compiled from Malaysian Department of Statistics, *Annual Survey of Manufacturing* and *Monthly Bulletin of Manufacturing Statistics* (for 1993 and 1994)

Interestingly, the recent increases in real wages have occurred in a context where the profitability of manufacturing production (as measured by the price-cost margin) remained virtually unchanged (Table 3.6). Thus, it appears that with the rapid depletion of surplus labour reserves in the economy, the workers have become the major beneficiaries of productivity growth in manufacturing. Higher productivity, rather than lower wages, seems to have borne the burden of creating competitiveness. In the absence of minimum wage legislation, employment levels have risen first followed by market- and productivity-driven increases in wage levels.

Growth in real wages in the 1990s would have presumably been much sharper had it not been for the influx of migrant workers (Athukorala 1993b, Pillai 1995). As the domestic labour market approached full employment, forcing rapid increases in real wages, there was a massive inflow of migrant workers from neighbouring labour surplus countries, Indonesia in particular. Official estimates put the number of migrant workers in Malaysia at 650,000 in 1995. The Finance Minister admitted in the 1996 Budget Speech that the total number (both legal and illegal workers) could be as high as 2 million, about 25 per cent of the local labour force.

Right from the start, the problem of poverty was a major concern of Malaysian policy makers as it had a delicate ethnic and a regional dimension. In 1957–58, 34.9 per cent of households had incomes of less than RM 120

per month (the official cut-off point for measuring poverty). More than half of these households were Malays, and more than two-thirds were rural (Snodgrass 1980). Rural development programmes in the 1960s brought about some improvement in several forms of social consumption, such as in education, public health services and other amenities (Anand 1983). The impact of these programmes on reducing poverty and income inequalities was rather limited. According to a socio-economic survey conducted in 1967–68, while the percentage of households with incomes of less than RM 120 had decreased by 0.2 per cent, the total number of households receiving incomes less than this limit had increased substantially. The ethnic and rural-urban distribution of poverty and income inequality had hardly changed over the period. According to the post-enumeration Survey of 1970, 78 per cent of poor households were Malays. Mean household income among the Malay community was RM 41 per month, compared with RM 79 per month for Indians and RM 86 per month for Chinese.[15] Poverty continued to remain very much a rural problem; 88 per cent of poor households were rural, and almost 60 per cent of rural households were poor.

Since the mid-1980s, Malaysia's record of reducing poverty and income inequalities has undoubtedly been a success (Table 3.7). According to official estimates, the incidence of poverty among all households (as measured by the so-called *head-count* measure—the percentage of population below the poverty line) fell from 18.4 per cent in 1984 to 9.6 per cent in 1995; this figure is projected to fall to 6.0 by the year 2000. A significant decline in

Table 3.7 Malaysia: Incidence of poverty and hardcore poverty by region and Gini coefficients, 1970–95 and forecast for 2000

	1970	*1984*	*1990*	*1993*	*1995*	*2000*[b]
Incidence of poverty						
Urban	0.255	0.082	0.075	0.053	0.041	0.022
Rural	0.586	0.247	0.218	0.186	0.161	0.110
Total	0.493	0.184	0.171	0.135	0.096	0.060
Incidence of hardcore poverty[a]						
Urban	0.158	0.024	0.014	0.011	0.009	0.010
Rural	0.446	0.087	0.052	0.043	0.037	0.001
Total	n.a.	0.063	0.040	0.030	0.022	0.005
Gini coefficient	0.537	0.479	0.446	0.459	0.464	—

Sources: Anand (1983); Government of Malaysia (1989, 1991, 1993 and 1996)

Notes

a The cut-off income level for the determination of hardcore poverty is set at half of that used in defining poverty (which varies from year to year; refer to source documents listed above)

b Forecast

—Not available

poverty is observable for both urban and rural households, even though the incidence of poverty is still high in rural areas. According to the Human Development Index of the United Nations, Malaysia ranked fourth (after Saudi Arabia, South Korea and Mauritius) in the world in terms of improvement in living standards between 1970 and 1990 (Snodgrass 1995).

Though less so than in reducing absolute poverty, Malaysia has been successful (by the standard of developing countries at the same stage of economic development) in addressing inequality in the size distribution of income. Between 1970 and 1990, the Gini coefficient fell sharply from 0.537 to 0.446 (Table 3.7). Since then, there has been a slight deterioration with the Gini coefficient rising to 0.464 in 1995. The overall trend, however, suggests that the benefits of rapid growth in Malaysia have been distributed reasonably widely. As regards the ethnic dimension of income distribution, there has been a notable improvement in the relative position of Malay households in terms of mean household income between the mid-1960s and 1990 (Table 3.8). The data for 1995 indicate a slight worsening of the relative position of Malay households. The disaggregated data suggest that this worsening has been due mainly to differential growth rates of incomes in the top 20 per cent and the bottom 40 per cent of households. Within the middle 40 per cent of households the relative position of Malays has remained virtually unchanged (Government of Malaysia 1996:89). All in all, income inequality, in terms of both size distribution and race, remains an issue in Malaysia. However, because of the remarkable success in raising living standards across the board, it is less of a politically sensitive issue now than it once was.

Table 3.8 Malaysia: Mean monthly household gross incomes by ethnic group,[a] 1957–95

	1957/58	*1967/68*	*1970*	*1984*	*1990*	*1995*
All groups[b]	199	217	264	1095	1167	2007
Malay	144	130	172	852	940	1600
	(100)	(100)	(100)	(100)	(100)	(100)
Chinese	272	321	394	1502	1631	2895
	(189)	(247)	(229)	(176)	(170)	(181)
Indian	217	253	304	1094	1209	2153
	(151)	(195)	(175)	(128)	(128)	(135)

Sources: For years up to and including 1970: Anand (1983); 1984 and 1987: Government of Malaysia (1989); 1990 and 1995: Government of Malaysia (1996)

Notes

a Figures in parentheses indicate group incomes relative to Malay incomes. All other figures are in Ringgit

b Includes minorities and non-citizens

The reduction in poverty and increase in overall living standards stem mainly from the growing opportunities for non-agricultural work, particularly in the rapidly expanding export-oriented manufacturing industries. The demand for unskilled labour created by the process of export-led industrialisation has been so great that it is now a scarce factor with a rising price (i.e. real wage rate). Since unskilled labour is the most widely distributed factor of production, the increase in its real wage has brought about an overall reduction in poverty in the country. In addition, the increase in the number of two-income households has contributed to the increase in total household income. This is underpinned by the increasing importance of women in the workforce. The labour force participation rate for women increased from 37.2 per cent in 1970 to 47.1 per cent in 1995, while the share of women in employment increased from less than 30 per cent to 31.4 per cent over the same period (Government of Malaysia 1991, 1996). Again, much of this increase is due to the demand for unskilled labour generated by the rapid expansion of labour-intensive export-oriented manufacturing activities. In sum, the Malaysian experience with employment generation and poverty reduction since the late 1980s under export-led industrialisation compares closely with that of Hong Kong, Korea and Taiwan in the late 1970s and 1980s (Fei *et al.* 1979, Chow and Papanek 1981, Hong 1990).

Most accounts of recent Malaysian history emphasise the staggering successes of the Malaysian leadership in restoring and maintaining national unity and social harmony in a country with considerable potential for bitter ethnic violences (e.g. Salleh *et al.* 1993, Snodgrass 1995). With political stability (achieved through the affirmative action program under the NEP) and sound economic policy has come enormous economic growth, and all ethnic groups have benefited from the increased size of the cake. The emergence of a Malay middle class on the back of NEP has given the Malay leadership a new-found security in pushing liberal line on ethnic issues—subordinating racial redistribution to national growth and development. The new motto of nation building, as announced by the Prime Minister Mahathir in his 1991 Vision 2020 Statement, is now the transformation of Malaysia into a true Bansa Malaysia (Malaysian Nation). It seems that, with economic success that combined growth with equity, an era of ethnic politics has come to an end and Malaysia is witnessing the birth of a new kind of a society that values economic status rather than ethnic origin. For instance, at the 1995 general elections, there was a massive swing to the ruling National Front both among ethnic Malays, who form the majority of the country's population, and non-Malays. Interestingly, this pattern was especially clear in the urban areas, a traditional power base for the Chinese-dominated Democratic Action Party, the major opposition party.

Conclusion

Malaysia is undoubtedly a development success story. While economic performance has been impressive by developing-country standards throughout the post-independence period, the achievements have been truly remarkably since the late 1980s when there was a decisive shift towards greater outward-orientation of economic policy. Economic growth during this period has been accompanied by rising living standards, and an improvement in the distribution of income, ameliorating the twin problems of poverty and racial imbalances.

Malaysia's economic success can be attributed to the ability it has shown in positioning itself within the new world economic order characterised by increased internationalisation of production. As a small open economy, Malaysia's economic policy stance has not been to isolate itself from these global trends, but rather to respond to developments on the international front as they unfolded. While there were some policy excesses triggered by conflicting objectives in a plural society, the policy makers have been successful in rectifying policy errors swiftly.

The Malaysian experience of growth with equity is consistent with the mainstream (neo-classical) policy stance relating to export-oriented industrialisation. A key lesson to come from the Malaysian experience is that in a small open economy, the task of achieving the apparently conflicting objectives of growth and equity is facilitated by a long-term commitment to an open and liberal trade and investment policy regime. Unlike many other developing countries, Malaysia never resorted to stringent quantitative trade restrictions. Domestic price signals were therefore never insulated from world market conditions, and resource costs arising from rent-seeking activities have always been minimal by developing country standards. Despite the affirmative action policies under the NEP, the private sector was never marginalised and the policy emphasis on export orientation was never compromised. This policy regime, coupled with a stable political climate, has enabled the Malaysian economy to take full advantage of the new opportunities arising from integration with the global economy.

There is no evidence in support of the view that the government leadership in industrial policy in general or the heavy industrialisation push in the early 1980s in particular have affected the export-led industrialisation process. The structure of industry that has evolved over the past two decades is much in line with what one would have expected given the nature of Malaysia's comparative advantage and changing factor endowment. Fortunately, given the virtual free trade status enjoyed by export producers in procuring intermediate and investment goods, the inefficient heavy industries were not a drag on the process of export-led industrialisation.

There is little doubt that the affirmative action programme under the NEP was instrumental in establishing the legitimacy of government policy and achieving political stability and social harmony. It was an effective explicit

mechanism in demonstrating that all would share in future growth. At the same time, the resource cost of these direct redistributional policies was not a major drag on growth because of the key role played by FDI flows and rapid export expansion in augmenting the domestic resource base.

Notes

1 Originally published as 'Export-led Industrialisation, Employment and Equity: The Malaysian Case' (co-author, J.Menon), *Agenda*, 4(1), 1996, pp. 63–76. Substantially expanded.

2 Thus the East-Asian experience defied the conventional view based on the development experience in the Western world that rapid growth (which requires massive capital accumulation) would only be attained through significant income inequality (the Kuznets effect) (Kuznets 1955).

3 The Federation of Malaya, comprising 11 states in the Malay Peninsula secured independence from Britain on 31 August 1957. Sabah, Sarawak and Singapore joined Malaya to form Malaysia on 16 September 1963. Singapore left the federation in August 1965.

4 In 1957–58, 34.9 per cent of households had incomes of less than RM120 per month (the official cut-off point for measuring poverty). More than half of these households were Malay, and more than two-thirds were rural (Snodgrass 1980).

5 Snodgrass (1980:206) ascribes this policy neutrality to the influence of advice from a major World Bank mission to Malaysia in 1954. There are at least two other factors which might have been more influential in determining the direction of Malaysian policy, however. First, throughout this period, Malaysia generally enjoyed a sound balance of payments position (due mainly to booming primary exports), and hence felt no compulsion to resort to stringent import restrictions. Second, the ethnic tensions that existed between the Malay political leadership and the Chinese business sector may also have held back any concerted effort to promote local industry through trade protection and other means of direct government involvement.

6 By 1987, there were 867 corporate public enterprises in Malaysia, more than a third of which were in manufacturing. The symbol of the selective industrial policy was the Proton (Malaysian car) project which was set up by HICOM in collaboration with the Mitsubishi Corporation in Japan.

7 In a recent comprehensive study of the patterns and chronology of trade policy reforms during the postwar era, Sachs and Warner (1995, Table 1) identify Malaysia as one of the eight developing countries whose trade regimes remained *open* throughout the period. The other seven countries are Barbados, Cyprus, Hong Kong, Mauritius, Singapore, Thailand and the Yemen Arab Republic.

8 In any case, unionism has not historically been a powerful force in the Malaysian labour market. Even by 1985, less than a quarter of the workers in manufacturing had been unionised (Mazumdar 1993:371).

9 For a lucid discussion of Malaysia's political changes as they relate to the industrialisation process, see Crouch (1994).

10 Manufactures are defined to include commodities belonging to section 3 of the International Standard Industry Classification (ISIC).

11 The Malaysian experience with attracting FDI has been discussed in detail elsewhere (Athukorala and Menon 1995).
12 The unemployment rates reported in this paragraph are surprisingly high by developing country standards, given the relatively rapid rate of growth of the Malaysian economy compared with that of many other developing countries. In his study of the Malaysian labour market, Mazumdar (1981) ascribes this apparent peculiarity to two special features of the Malaysian economy (which was predominantly a reflection of an extreme case of youth unemployment): prevalence of joint households (a household that supports dependent (non-earning) relatives) which generally encouraged youth unemployment and the relatively small size of the informal sector. This factor may also partly account for the long pre-employment waiting period and high-level of open unemployment among school leavers.
13 The role of FDI in employment generation is discussed in detail in Chapter 8.
14 During these years of macroeconomic adjustment, the downward flexibility of real wages enabled adjustment to be quicker and less painful. The relatively rapid adjustment helped with the resumption of economic growth, which in turn made subsequent real wage growth possible.
15 While intra-community distribution of income was fairly equal for the Malays and Chinese (Gini coefficients of 0.48 and 0.49, respectively), there was significant variation in income within the Indian community (Gini coefficient of 0.54).

4

STRUCTURAL ADJUSTMENT REFORMS, SAVING AND INVESTMENT IN INDIA[1]

A well-known feature of trade liberalisation reforms in developing countries over the past three decades is that a large number of countries have embarked on reforms at times of severe economic difficulties: acute balance of payments crises, rapid inflation or a sharp decline in income and employment.[2] Such crisis-driven liberalisations (or reforms 'under distress', as Michaely *et al.* (1991) have dubbed them) are often implemented as part of a comprehensive reform package designed to stabilise the economy and to redress its underlying structural weakness. Reform packages of this nature, which are normally designed and implemented with institutional and financial support from multilateral financial institutions, are popularly know as 'structural adjustment programmes (SAPs for short).

The success of a SAP in bringing about a sustainable recovery in economic activity depends crucially on the behaviour of savings and investment in the aftermath of the reform process. An important objective of the reform process is to improve the country's balance of payments position without necessarily sacrificing output growth. The attainment of this objective requires improvement in domestic savings. As well, since public investment is usually one of the first casualties of fiscal austerity measures undertaken as part of the reform programme, a strong recovery of private investment is crucial in determining the response of domestic output to the reform process. As the development experience of the Asian newly industrialised countries clearly demonstrates, rapid and sustained economic growth is consistent with external equilibrium only if the economy can generate domestically an increasing share of investible funds needed for such growth (World Bank 1993, Corden 1996).

In theory, the initial effects of the reform process on saving and investment is ambiguous. The net outcome depends largely on the particular policy configuration embodied in the reform programme. For instance, the elimination of restrictions on capital inflows and consumer goods imports may lead to a consumption boom, possibly financed by foreign borrowing, as domestic residents exploit the 'window of opportunity' presented by the relaxation of controls. This would consequently lead to a fall in the private saving rate. Also, favourable expectations of income growth in the post-reform

economy may translate into greater perceived wealth, and greater perceived wealth may, in turn, be reflected in reduced saving if households change their consumption levels with a view to achieving desired wealth targets. Similarly, in the case of private investment, stabilisation measures such as exchange rate devaluation, and fiscal and financial restraints may lead to a fall in aggregate demand and depress investment for several years. On the other hand, trade reforms undertaken simultaneously with the stabilisation measures can provide a positive stimulus to private investment by reducing the relative price of capital goods or an increase in the availability of investible funds to firms via the banking sector. Given these complexities there is no reason to expect that the economy in question will witness an improvement in saving and investment in the post-reform economy. Thus, in the final analysis, the net effect of the reform programme on savings and investment is very much an empirical issue.

The purpose of this chapter is to examine the impact of structural adjustment reforms initiated in India in 1991 for domestic saving and investment through a careful analysis of disaggregated savings and investment data while paying attention both to measurement issues, and economic fundamentals which underpin saving and investment behaviour.[3] Performance of saving and investment has been one of the key issues in the current debate on the process of adjustment in the post-reform Indian economy. The official data (published by the National Statistical Organisation, CSO) point to a decline in the saving and investment rates (the ratio of gross domestic savings/investment to GDP) during the post-reform years. This decline can be seen as a reversal of the upward trend in the savings/investment rate since the mid-1980s. Two schools of thought have emerged to 'explain' this disappointing saving/investment performance in the post-reform period. The official view as expressed in The Economic Survey 1994–95 (Ministry of Finance) takes the position that the decline in the savings rate is possibly 'spurious' as it is not consistent with economic fundamentals. This view, therefore, calls for a review of the 'methodology for estimating savings and capital formation in the economy' (p. 3). A second view holds that the decline in the savings/investment rate is in fact real and is an unintended consequence of the reform process (EPW Research Foundation 1995; Rao 1995).

The chapter is structured as follows. It begins with an overview of the salient features of the saving and investment performance in the post-reform economy, highlighting certain key aspects of the data that have been overlooked in the current debate. In particular, we note that the decline in the savings rate since 1991 has been driven by the fall in household physical savings. Since household physical savings are obtained from the capital formation accounts, we argue that the answer to the savings decline must necessarily lie either in the behaviour of household capital formation or in its measurement. In the next section we examine whether the apparent decline in household capital formation is real or a statistical artifact. Finally, we

undertake an econometric analysis of the behaviour of private corporate investment and relate the results to the literature that debates the short-run consequences of structural adjustment on private investment.

Saving and investment behaviour in India: an overview

The key features of saving and investment behaviour in India in recent years are well known.[4] First, the savings rate (domestic savings as a ratio of GDP) increased over the period 1951–91 to a peak of 23.7 per cent in 1991 (Roy and Sen 1991). Following the policy reforms in 1991, it fell sharply to 20 per cent in 1993 and remained around that level in 1994 (Table 4.1). Second, the fall in the domestic savings rate since 1991 has, predominantly, been due to the fall in the total household savings rate that fell from a peak of 20 per cent in 1991 to 16 per cent in 1994. The public sector saving rate has shown a negative trend over much of the 1980s and 1990s, but its magnitude is too small to influence the overall direction of the saving rate. Third, the *decline in the total household savings rate has been due to a corresponding decline in the rate of household physical savings* (Figure 4.2). There has been a significant fall in the latter from a peak of 11.3 per cent to 5.6 per cent between 1991 and 1994– that is, *a halving of the household physical savings rate* in a space of three years. Interestingly, household financial savings as a percentage of GDP has, on the other hand, increased over time to a peak of 10.3 per cent in

Table 4.1 India: Gross domestic saving by sectors, 1981–94 (per cent of GDP)

Year[a]	*Household*			*Private corporate*	*Public*	*Total*
	Financial	*Physical*	*Total*			
1982	6.0	7.7	13.7	1.6	4.5	19.8
1983	7.2	5.8	12.9	1.6	4.4	19.0
1984	6.4	7.7	14.1	1.5	3.3	18.9
1985	7.7	6.0	13.7	1.7	2.8	18.2
1986	7.1	7.5	14.6	2.0	3.2	19.8
1987	8.0	6.2	14.2	1.8	2.7	18.7
1988	8.0	8.9	17.0	1.7	2.2	20.9
1989	6.9	10.4	17.3	2.2	2.0	21.5
1990	8.1	10.0	18.1	2.6	1.6	22.3
1991	8.7	11.3	20.0	2.7	1.0	23.7
1992	10.1	7.8	17.8	3.2	2.1	23.1
1993	7.8	7.7	15.5	3.0	1.5	20.0
1994	10.3	5.6	15.9	4.0	0.2	20.2

Source: *National Accounts Statistics*, CSO, various issues

Note a Data are on the basis of the Indian fiscal year, 1 April in the previous year to 31 March of the given (stated) year

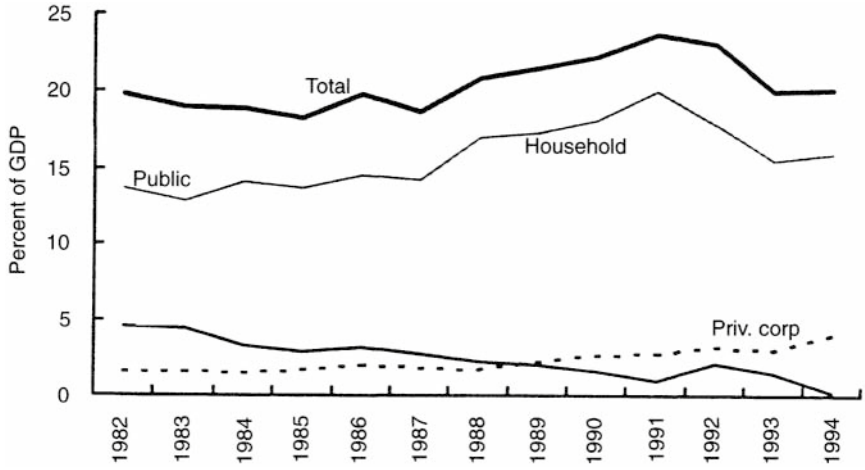

Figure 4.1 India: Saving rates—aggregate and by sector, 1950–94
Source: National Accounts Statistics, CSO

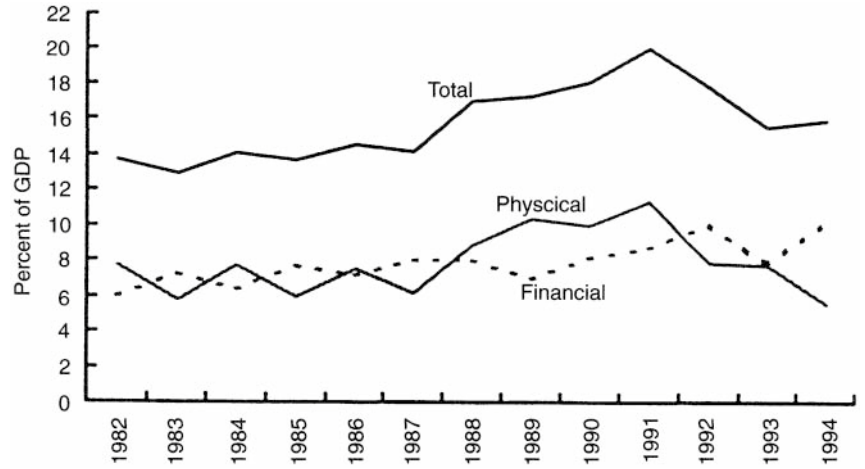

Figure 4.2 India: Household saving and its components, 1950–1993
Source: National Accounts Statistics, CSO

1993–94. Since household savings in physical assets contribute approximately half of the total domestic savings, clearly the sharp decrease in the household physical savings rate has outweighed the impressive increase in household financial savings to generate a decline in the savings rate. Finally, as against the significant decline in household physical saving, the corporate savings rate has increased steadily over time, reaching 4 per cent of GDP in 1994.

Table 4.2 presents data on investment performance. Historically India's reliance on foreign capital as a source of investment finance has been rather low by developing country standards. The time pattern of the investment rate has, therefore, largely mirrored that of the saving rate. While there is a strong cyclical component in the investment rate over the period 1951 to 1994, the secular component indicates a steady increase over the 1980s to around 25 per cent in 1992 (Figure 4.3).

The post-reform period has exhibited a noteworthy departure from this historical trend. The investment rate in 1994 was 21.3 per cent compared to 23 per cent in 1992. According to disaggregated data, this decline has entirely emanated from the rate of household investment, which exhibited a precipitous fall from 11.2 per cent in 1991 to 5.6 per cent in 1994. By contrast, private corporate investment has responded positively to the policy reforms. The rate of private corporate investment increased continuously during the post-reform years reaching 6.8 per cent in 1994 compared to an average level of 4.1 per cent during 1985–91. The public sector investment rate has remained virtually unchanged during this period.

It is evident from the discussion so far that the decline in the domestic saving rate in post-reform years has predominantly emanated from a decline in the rate of household physical savings. Likewise, the decline in the domestic investment rate is largely accounted for by a decline in the rate of household

Table 4.2 India: Gross domestic capital formation by sector, 1982–94 (per cent of GDP in current prices)

Year[a]	*Household sector*	*Private corporate sector*	*Public sector*	*Total*
1982	7.7	5.7	10.4	23.8
1983	5.8	5.7	11.1	22.5
1984	7.7	3.4	10.0	21.1
1985	6.0	4.4	10.8	21.2
1986	7.5	5.5	11.2	24.2
1987	6.2	5.3	11.7	23.2
1988	8.9	3.6	9.9	22.5
1989	10.3	4.3	9.9	24.5
1990	9.0	5.2	10.0	24.2
1991	11.2	4.7	9.7	25.7
1992	8.5	5.2	9.2	22.9
1993	7.7	6.7	8.9	23.3
1994	5.6	6.8	8.9	21.3

Source: *National Accounts Statistics*, CSO

Note

a Data are for the Indian fiscal year, 1 April in the previous year to 31 March of the stated (given) year

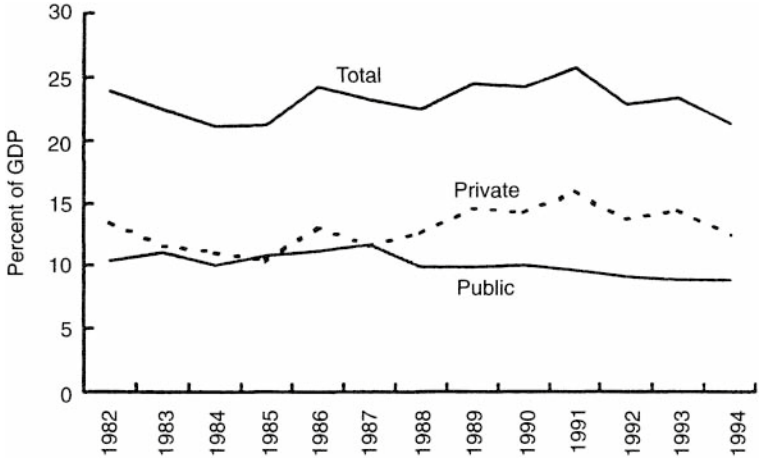

Figure 4.3 India: Investment rates—aggregate and by sector, 1950–1994
Source: *National Accounts Statistics*, CSO

capital formation. According to the methodology adopted in the compilation of saving/investment data (see p. 76), the component of household physical saving in total domestic saving is *identical* to the component of household investment in physical assets in domestic investment data. The decline in the saving and investment rates in the post-reform period can, therefore, be attributed to a common factor, namely the sharp fall in household physical investment (saving).

The intriguing behaviour of household physical investment

Can the decline in household physical investment (saving) during the post-reform period be considered a direct outcome of the process of structural adjustment? The experiences of other countries which have undertaken structural adjustment reforms (such as Chile in the 1970s and Mexico in the 1990s) suggest that some elements of a market-oriented reform package, such as relaxing restrictions on bank lending for consumption purposes and the easing of restrictions on consumer goods imports, can encourage consumption leading to a decline in the private saving rate (McKinnon 1993). In India, there is evidence to suggest a significant increase in consumer credit in the post-reform period. At the same time, while there has not been significant elimination of quantitative restrictions on consumer goods imports, the liberalisation of intermediate and investment goods has undoubtedly brought about significant increase in the availability of 'luxury' consumer goods. If these developments had an adverse effect on saving performance, this should have been reflected in financial saving. Conceptually financial saving should

be more vulnerable to the new waves of 'consumerism' than physical saving. Yet, as we have already noted, the data point to a significant increase in household financial saving rate (Table 4.1).

Is there any sound economic reasoning to expect a fall in household physical investment (=saving) in a context where both private financial saving and private corporate investment have recorded impressive performance? As a prelude to resolving this puzzle, it is important to understand the actual coverage of household physical saving. The term 'households' as used in the Indian national accounts is a misnomer. The household sector includes not only individuals but also unincorporated private ventures such as proprietorship and partnership firms and the unregistered small-scale industrial sector. Moreover as we will see later in this chapter, the distinction between the 'household' and corporate sectors in terms of their domains of operation has gradually disappeared due to various factors emanating from the regulatory system.

In theory, the same set of economic factors should drive investment decisions in the private sector, whether they are private corporate firms or unincorporated enterprises. As the Raj Committee aptly put it:'Investment behaviour in the unincorporated enterprises has to be viewed in [the] wider context as part of the growth of private business enterprises within the economy' (RBI 1982:46). In this context, the sharp decline in household physical investment (physical savings) can be considered real if and only if we have sufficient reasons to believe that the new policy regime has generated an incentive bias in favour of corporate investment and against non-corporate and household investment.

There is no evidence of such an incentive bias during the post-1991 period. In fact, the new trade liberalisation and industrial deregulation policies have been designed in such a way that the performance of unincorporated and small-scale scale production units are cushioned against adjustment pains in the process of economic opening. This reflects a continued adherence to the age-old tenet of 'small-scale reservations' in Indian development planning (Bhagwati and Srinivasan 1993, Duncan 1995, Joshi and Little 1996). Although imports of capital goods and of intermediates have been largely liberalised, imports of consumer goods (which come under the so-called *Negative List* of the new import policy) are still subject to stringent quantitative restrictions (QRs). Moreover, the tariff structure still has a substantial bias against consumer goods imports (WTO 1993). These features of the trade regime suggest that the effective rate of protection (ERP) (protection accorded to value added in domestic production) for the so-called household sector would have in fact increased as compared to that for private corporate sector production during the post-reform years. At the same time, entry barriers in many product sectors where small-scale units tend to show a greater concentration remain virtually intact; over 800 items, including most consumer goods, are reserved for small-scale sector producers—companies with a total investment of less than 6 million rupees (Duncan 1995:16).

To sum up, the co-occurrence of a decline in household fixed investment (physical saving) and an increase in corporate fixed investment cannot be explained in terms of underlying economic forces and the nature of the policy reform process. In fact, there are reasons to argue that both should have moved in the same direction. This brings us to the second (official) explanation of the decline in saving/investment during the post-reform period; the decline is a statistical artifact.

Why should there be a systematic downward bias in the measurement of gross domestic capital formation (GDCF)? Put in another way, has there been any specific development in the Indian economy since 1991 that renders the old methodology of measuring capital formation vulnerable to measurement errors? To set the stage for answering this question, it is important to understand the estimation procedure adopted by the Central Statistic Organisation (CSO). Total GDCF is estimated using the commodity flow method. Capital formation in the public and the private corporate sectors is estimated *directly* by the expenditure approach, using government budget documents and the annual reports of private corporate enterprises. The value of household fixed investment (which is considered identical to household savings in fixed assets in savings estimates) is then derived by subtracting public and corporate capital formation from GDCF. The estimates of the latter two components are generally considered reasonably reliable, as they are directly estimated from relevant primary records. But there are reasons to suspect that GDCF estimates are subject to significant biases and errors arising from the nature of the commodity flow method used in estimating that aggregate (RBI 1982, Rakshit 1983, Goyal 1992, Srinivasan 1994). Naturally, any bias in GDCF estimates would be reflected entirely in household capital formation (household saving in physical assets) which is derived as a residual.

Like household physical saving, household financial saving is derived as a residual—by deducting the net additions to the government and corporate sector's holding of financial assets from the total of the net additions to such assets in the economy. Thus in both these components of household savings, any error in estimated totals and the estimates for the other two sectors are eventually reflected in the estimates for the household sector. However, in the case of financial saving, this is not considered a serious problem because estimates for the two other sectors and the total come from fairly reliable primary data.

The estimates of machinery and equipment used by the CSO in estimating GDCF come from the Summary Results of the Annual Survey of Industry (ASI) for earlier years.[5] The gap is filled by extrapolating the ASI data on the basis of index of industrial production (IIP). For instance, the currently available GDCF estimates for 1993 and 1994 have been derived through this extrapolation procedure. As has been noted by Ahluwalia (1985), the IIP suffers from two major problems which may have resulted in significant under estimation of GDCF for these two years. Firstly, the weights used to derive

the indices are based on ASI data on value added for the year 1981–82. The use of these fixed weights implies that fast-growing industries are grossly under estimated, particularly in the context of strong growth recorded by a number of industry groups since the mid-1980s. Secondly, and more importantly, the coverage of IIP is limited to the organised or the registered manufacturing sector.

It can be argued that the bias in the IIP against the small-scale sector may have been exacerbated in the post-reform period. As noted earlier, there has been an ongoing process of 'informalisation' of the Indian industry since the early 1980s, largely in response to stringent labour legislation and other institutional constraints (such as stringent closure restrictions) (RBI 1982, Ahluwalia 1991, Duncan 1995). The informal (unorganised) sector comprising unincorporated firms and household production units in manufacturing has continued to grow mostly at the expense of the relative importance of the private corporate sector during the period, since the early 1980s. To quote Ahluwalia(1991:14):

> Admittedly small industry is *the home of unrecorded growth* (emphasis added). Some of the growth may have been growth displaced from the large-scale sector because of the competitive (small vs. large) nature of policies. There is reason to believe that some projectionist policies for the small-scale sector have led to the fragmentation of some large-scale units into small ones in order to gain from such protection.

This process of 'informalisation' of domestic industry would have perhaps intensified following policy reforms in 1991 for two reasons. First, as discussed, the incentive structures seems to have changed in favour of manufacturing sectors suited for the profitable operation of small-scale units. Secondly there is some evidence of a new emphasis on export-oriented production which requires greater flexibility in labour relations to maintain international competitiveness (Duncan 1995). In a context where the share of informal sector production units continue to grow at a rapid rate, estimates based on the commodity flow method are likely to understate domestic capital formation. This can be avoided only by revising the estimation procedures on a continual basis in order to capture construction material, machinery and other investment goods produced in the unorganised sector.

A second explanation of the underestimation of GDCF in the post-reform period relates to rapid growth of capital (and intermediate) goods imports as a result of import liberalisation initiatives since 1991. The index (1978–79= 100) of machinery imports increased from 441 in 1990–91 to 572 in 1992–93 and then to 696 in the second quarter of 1993–94 (CSO, *Monthly Bulletin of Statistics*, October 1994). This rapid import growth implies a continuous increase in the share of imported capital goods in total domestic availability

of capital goods. Given the time lag involved in the compilation of trade data, it is likely that the estimates of total fixed capital formation obtained on the basis of a historical ratio of imported to total available capital goods understate increases in capital formation in the post-reform economy.[6]

This argument is further supported by the disaggregated data on GDCF by the type of asset reported in Table 4.3. The table highlights that the increase in the private corporate investment rate has been mostly due to an increase in fixed capital formation in machinery and equipment, the latter as a ratio of GDP almost doubling in three years. At the same time, the decline in household physical saving rate can be attributed in most part to a precipitous fall in household fixed capital formation in machinery and equipment from 4.4 per cent of GDP in 1990–91 to an astonishing 0.6 per cent of GDP in 1993–94. Not only does the latter indicate that the decline in household physical saving is possibly spurious, it also points out that the source of the measurement bias may well be an underestimation of gross fixed capital formation in machinery and equipment.

Finally, it is pertinent to note that the inverse relationship between private corporate capital formation and household capital formation in the Indian economy (as revealed by the CSO data) is *not a peculiar post-reform phenomenon* (Joshi and Little 1994). It is a 'stylised fact' of the sectoral behaviour of capital formation in India over the past three decades which is most clearly seen in Figure 4.4. This historical pattern reinforces our argument that the CSO's method of GDCF estimation suffers from a systematic

Table 4.3 India: Gross fixed capital formation by sector and type of asset, 1988–94 (per cent of GDP in current prices)

Year[a]	*Household*			*Private corporate*			*Public*			*Total*
	C	*M*	*Total*	*C*	*M*	*Total*	*C*	*M*	*Total*	
1988	4.2	4.1	8.3	0.5	2.6	3.1	5.8	4.6	10.2	21.6
1989	4.4	4.2	8.6	0.5	2.6	3.1	5.6	4.4	10.0	21.7
1990	5.3	4.3	9.6	0.4	2.9	3.3	4.8	4.8	9.6	22.5
1991	5.6	4.4	10.0	0.5	3.3	3.8	4.8	4.6	9.4	23.2
1992	5.3	1.8	7.1	0.7	4.8	5.5	4.9	4.6	9.5	22.1
1993	5.2	1.9	7.1	0.8	5.2	6.0	4.5	4.0	9.5	21.6
1994	4.7	0.6	5.3	0.9	6.2	7.1	4.4	3.9	8.3	20.7

Source: *National Accounts Statistics* , CSO (various issues)

Notes

a Data refers to the year ending 31 March in the reported year
C Construction
M Machinery

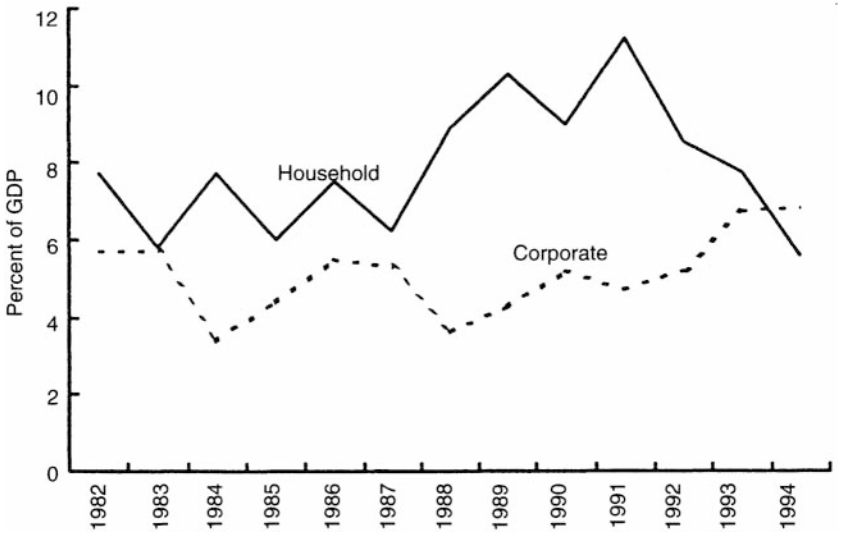

Figure 4.4 *India: Household and private corporate investment*
Source: National Accounts Statistics, CSO

underestimation bias and, given the residual estimation procedure used, its bias is directly reflected as an artificial decline (increase) in household fixed investment at times when corporate investment increases (decreases).

Determinants of private corporate investment

The upshot of the above discussion is that the use of the available data on total or household investment may lead to misleading inferences about the private sector investment behaviour during the post-reform years. The only meaningful procedure available to examine this important aspect of economic adjustment is to work with the data on corporate investment. As noted, in terms of this series, there has been an impressive increase in the level of private corporate sector investment following the reforms. In this section we proceed to examine empirically the contribution of the reform process to the observed increase in corporate investment over and above the impact of other relevant factors at work.

Investment function

In formulating the investment function we follow the neo-classical approach to business fixed investment (see for instance Jorgenson 1967). In this approach, corporate investment in the current period (INV_t) is hypothesised

to be related negatively to the real rental cost of capital ($RRCC_t$) and positively to the capital stock at the beginning of the period (K_{t-1}) and change in real output in the current period (DY_t):

$$CRIV_t = f(RRCC_t, \Delta Y_t, K_{t-1})$$
$$f_1 \leqslant 0, f_2 \geqslant 0, f_3 \geqslant 0 \quad (1)$$

The definition of *RCC* employed here is,

$$RRCC = [PK_t(r_t - \pi_t^e + \delta_t)]/P_t \quad (2)$$

where *PK* is the price of capital goods, *P* the output price level, r the nominal bank lending rate, π^e the expected inflation rate and δ the economic depreciation rate. The marginal corporate tax rate is ignored for lack of data.

RRCC captures the combined effect of changes in the cost of credit (bank lending rate) net of the expected rate of change of the price of investment goods, the rate of depreciation and the current price of investment goods relative to the price of output (general price level). The use of an overall index of real rental cost of investment is obviously superior to the usual practice of using the real lending rate alone to represent the cost of investment in the investment function. The cost of credit is obviously only one element of the investor's profitability calculations.

The choice of K_{t-1} as an explanatory variable is based on the neo-classical theory of optimal capital accumulation. This theory postulates the flow of replacement investment is proportional to the accumulated stock of investment goods. The inclusion of ΔYR as an explanatory variable implies an accelerator-type relationship between the level of domestic economic activity and capital formation.

The common practice in the empirical literature is to define the dependent variable as the ratio of investment to the capital stock (*CRIV/K*). A major limitation of this approach is that it implicitly imposes the *homogeneity assumption* on the coefficient of *K* (that is, investment in the current period is proportional to the capital stock at the beginning of the period, other things equal). In practice, investment may not always move in tandem with the accumulated stock of capital and hence the arbitrary imposition of homogeneity assumption may distort coefficient estimates. On these grounds, we start with an unrestricted equation (which contains the dependent variable in level form and the level of capital stock as an additional explanatory variable) and then impose and test the homogeneity assumption on the coefficient of *K* as part of the estimation process.

The neo-classical investment function (Equation 1) is augmented by including three additional variables. These are bank credit to the private sector (*BCP*), public sector fixed capital formation (*PBIV*), and a post-reform dummy (*PRD*) which takes value 1 for the three years 1991–92, 1992–93 and 1993–94 and zero for other years. *BCP* is included as an additional variable guided by the McKinnon-Shaw financial repression paradigm which forcefully argues that, in the context of the typical developing country, the availability of loanable funds may exert an independent influence on investment behaviour independent of the cost of capital (McKinnon 1973 and Shaw 1973). For practical applications, the real stock of bank credit to the private sector (BCC) can be used as a proxy for credit constraints on investment (Solimano 1992).

The choice of lagged *PBIV* is guided by the prevalent view in the Indian economic literature that public investment plays an important complementary role in promoting private investment (Bardhan 1984, Chapter 4). This complementarity is expected to work on both supply and demand sides. On the supply side, the private sector relies on public investment for most of the infrastructure, because this is either a natural or a legal monopoly of the government. Thus public investment in infrastructure and private investment should be complementary. On the demand side, in theory, the relationship is ambiguous. If there is some slack in the economy one would expect a change in public investment to push private investment in the same direction. Otherwise, some private investment will probably have to be 'crowded out'. However, since government plays a dominant role in the provision of infrastructure and in key intermediate- and investment-goods producing industries, one can assume that 'the stimulation effect of public investment on private investment tends to dominate any possible negative effect through competing for investable funds' (Bardhan 1984:25).

PRD is included to test whether the stabilisation-cum-structural adjustment policy reforms *per se* have had a salutary influence on investment behaviour over and above their impact operating through other variables explicitly allowed for in the regression specification. Some elements of the reform package, such as the liberalisation of capital and intermediate goods imports, relaxation of restrictions on industrial licensing and the new emphasis on the role of the private sector in economic growth can lead to favourable changes in business perception leading to higher investment. The private sector response to these policy initiatives of course depends on the degree of predictability and credibility of the reform process (Serven and Solimano 1993). If the reforms are not seen to be sustainable, it could discourage investment in the initial period after the reforms as rational entrepreneurs prefer to wait till the reforms are more likely to be permanent (Rodrik 1991a, Ibarra 1995).

With these three additional variables the investment function can be written as:

$$CRIV_t = f(RRCC_t, \Delta YR_t, K_{t-1}, BCP_t, PBIV_t, PRD)$$
$$f_1 \leq 0, f_2 \geq 0, f_3 \geq 0, f_4 \geq 0 f_5 \geq 0, f_6 \geq 0 \quad (3)$$

This investment function provides a useful starting point for our discussion on the behaviour of private investment in the post-reform period. First consider the stabilisation programme itself—that is, a set of absorption reducing measures (e.g. contractionary fiscal and monetary policies) that will in all likelihood lead to a decline in output in the short run. If investment is highly responsive to changes in output (via the accelerator), then the stabilisation measures may lead to a decrease in private investment, at least initially. Moreover, since public investment faces the brunt of the cuts in fiscal adjustment, private investment may be further affected if the latter is highly complementary to public investment. On the positive side, the liberalisation of capital goods imports should bring about a fall in the relative price of capital goods (and hence, *RRCC*) and consequently, increase investment.

Data and the econometric procedure

Equation 3 is estimated over the sample period 1955–94 using annual data.[7] All variables, except *RRCC* (which are measured in proportional form) and of course *PRD*, are measured in natural logarithms. Data sources are listed and methods of data transformation adopted and key limitations of the data are discussed in the Appendix to this chapter.

In line with standard practice in modern time series econometrics, we begin the estimation process by testing the time series properties of the data. Two tests for unit roots are used: the augmented Dicky-Fuller (ADF) test and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. The latter tests the null of a unit root against the alternative of stationarity while the former tests the null of stationarity against the alternative of a unit root. The choice of the KPSS test to supplement the widely used ADF test is based on evidence that tests designed on the basis of the null that a series is I(1) have low power in rejecting the null. Reversing the null and alternative hypotheses is helpful in overcoming this problem (Kwiatkowski *et al.* 1992).

The test results[8] suggested that the variables do not have the same order of integration; CRIV, RRCC and BCP are found to be I(1) variables while K and PBIV belong to I(0) category. Thus now-fashionable econometric procedures that are appropriate for I(1) variables are not applicable in our case. However, given the presence of non-stationary variables, it is necessary to guard against the possibility of estimating spurious relationships. The time series econometrician's prescription in this type of situation is to difference the non-stationary variables (to achieve stationarity) and use them in that transformed form together with the other (stationary) variables. This procedure, while statistically acceptable, has the disadvantage of ignoring

long-run relations. We therefore opted to use the general to specific modelling procedure of Hendry, which aims to minimise the possibility of estimating spurious relations while retaining long-run information (Hendry 1995). Under this procedure, the long-run relationship being investigated is embedded within a sufficiently complex dynamic specification, including lagged dependent and independent variables, in order to minimise the possibility of estimating spurious relationships. For details see Appendix at p. 87.

Results

The final parsimonious estimated equation, together with a set of commonly used diagnostic statistics, are reported in Table 4.4.[9] The data series are summarised in Table 4.5, in order to aid the interpretation of the results.

The equation is statistically significant at the 1 per cent level (in terms of the standard F test) and it performs well by all diagnostic tests. Apart from these tests, a residual correlogram of up to six years was estimated for each equation, with no evidence of significant serial correlation. The equations also comfortably passed the CUSUM test on the recursive residuals and the

Table 4.4 India: Determinants of corporate investment: regression results

$$\Delta CRIV_t = -0.93 + 0.30\Delta BCP_t + 1.89\Delta YR_tM - 2.87\Delta RRCC_t + 0.78PBIV_{t-1}$$
$$(3.26)\ (3.05) \qquad (1.50) \qquad (3.35) \qquad (1.41)$$
$$- 0.38(PRIV - K)_{t-1} + 0.38\Delta CRIC_{t-2} + 0.40D80 + 0.37PRD$$
$$(3.13) \qquad (2.48) \qquad (1.59) \qquad (2.38)$$

$$R^2 = 0.54 \quad F(8,29) = 4.12 \quad LHK(1,28) = 0.06 \quad SE = 0.02 \quad DW = 2.19$$

$$LM1(1) - F(1,28) = 0.52 \quad LM2 - F(2,27) = 0.77 \quad RESET - F(1,28) = 0.48$$
$$JBN - \chi^2(2) = 2.09$$

$$ARCH1(1) - F(1,28) = 0.26 \quad ARCH2 - F(2,27) = 0.26 \quad PRF - F(3,27) = 2.36$$

Source: Author's estimates. Data sources and methods of data compilation are explained in the Appendix

Note

t-ratios of regression coefficients are given in brackets. Approximate critical values for the *t*-ratios are: 10%=1.30 (*), 5 %=1.68 (**) and 1%=2.42 (***)

Test statistics: LHK=F-test for the long-run homogeneity restriction on the coefficient of K; *LM*=Lagrange multiplier test of residual serial correlation; *RESET*=Ramsey test for functional form mis-specification; *JBN*=Jarque-Bera test for the normality of residuals; *ARCH*=Engle's autoregressive conditional heteroscedasticity test; *PRF*=Chow's second test for prediction failure (the out-of-sample forecasting ability). PRF tests were performed on a model re-estimated (excluding the dummy variables) for the sub-period 1955–90. The figures in parentheses indicate the degrees of freedom for the null hypothesis

Table 4.5 India: Summary data on variables used in econometric analysis[a]

Variables	*1955–60*	*1961–70*	*1971–80*	*1981–85*	*1986–90*	*1991–94*
Dependent Variable						
CRIV	1118	1864	2130	5207	5993	13081
Explanatory Variables						
K	46214	57802	107645	142533	161441	171069
BCP	103	342	2133	7070	13014	17547
YR	57224	78281	112641	151589	197086	246029
PBIV	2412	6336	8790	14365	18414	17217
RRCC(%)	3.6	3.9	6.4	8.9	13.4	10.2

Source: As for Table 4.4

Note

a Value series are in crores of Indian rupees at constant (1981) prices (crore=10 million). Figures reported are annual averages for the given sub-period

CUSUMSQ test. On re-estimating for the pre-reform period 1955–90, the equation passes the Chow test for prediction failure (CPF). Thus the coefficient estimates can be used with confidence for making inferences about the impact of policy reforms on investment behaviour.

The results provide evidence of a significant negative short-run effect of real rental cost of capital (*RRCC*) on the level of investment. There is also evidence of a significant positive short-run effect of bank credit and lagged government investment on private investment. However, the lagged level terms of these two variables were found to be statistically insignificant (and therefore omitted in the reported regression) suggesting their impact in not important in determining the long-run (steady-state) level of investment. The proposition that in the Indian economy public investment plays an important complementary role in promoting private investment is supported by our results. The standard accelerator mechanism also appears important in explaining private investment. The homogeneity restriction on the coefficient of K is data acceptable in terms of the standard F test (*LHK*). Thus the result suggests the existence of a proportional relationship between the beginning of period capital stock and the level of investment in the current period.

The regression results, when analysed in the context of data reported in Table 4.5, yield the following inferences about the impact of policy reforms on corporate investment. The decline in real public sector investment during the post-reform years (from an annual average level of Rupees 18,414 billion during 1986–90 to 17,217 billion during 1991–94) seems to have had an adverse impact on corporate investment. However, this adverse impact was outweighed by the salutary effects of decline in real rental cost of capital and recovery of income levels brought about by the policy reforms. The *RRCC*

index suggests a 24 per cent decline in real rental cost of capital between 1986–90 and 1991–94. An inspection of the composite data series of *RRCC* (see equation 2 on p. 80) suggests that this decline was largely brought about by a decline in the price of investment goods brought about by import liberalisation which was much larger in magnitude than combined cost effects of currency depreciation and the increase in bank lending rates (the general tariff rate on capital goods declining from 85 per cent in 1991 to 25 per cent in 1995). Finally, the result for the post-reform intercept dummy (*PRD*) supports the hypothesis that the reforms have had a salutary influence on investment behaviour over and above their impact operating through other variables as explicitly allowed for in the regression specification. It seems that the reform process has been instrumental in bringing about favourable changes in business perception leading to higher investment.

Conclusion

This chapter has attempted to contribute to the debate on the implications of market-oriented policy reforms on saving/investment performance by examining the Indian experience following the reforms initiated in 1991. In search of sources of decline in saving/investment rates as reflected in the official data, we carefully analysed disaggregated saving and investment series, while paying attention to measurement issues and economic fundamentals which underpin the behaviour of saving and investment. It is found that the observed decline in savings and investment rates has predominantly originated in household physical saving, the main sub-category of saving which is common to both saving and investment estimates. Both household saving in financial assets and corporate saving have recorded impressive increases during the post-reform period.

The persistent decline in household physical saving occurred in a context where private corporate investment exhibited a significant growth. There is no sound economic reasoning or empirical evidence to argue that the reform process has specifically favoured the corporate sector while inflicting a damaging impact on the household sector (which includes unincorporated business). On the other hand, there are reasons to suspect that the decline in domestic saving rate as reflected in official data is a statistical artifact resulting from an underestimation bias in the estimation of total gross domestic capital formation. The analysis here does not permit any generalisation, but it does suggest that one should closely look at the methodology of the estimation of saving/investment before making any inference on the basis of the available official data about the impact of reforms on saving/investment behaviour.

Given the limitations of the aggregate investment data, we undertook an econometric analysis of the implications of reforms for investment performance focusing solely on corporate investment. The data series on corporate investment are directly compiled from company financial statements

and therefore presumably a better indicator of private sector investment performance.

There is evidence that the decline in real public sector investment as a result of fiscal squeeze carried out as part of the reforms has had an adverse impact on private investment. However, this adverse impact seems to have been outweighed by the salutary effects of the reform process on investment performance operating through decline in real rental cost of capital, the recovery of income levels and favourable changes in investor perception resulting in a significant net increase in private investment.

Interestingly, our findings for India stand in contrast with the existing evidence on the response of private investment to market-oriented reforms in some other developing countries. For example, Rodrik (1991b) notes the absence of response of manufacturing investment to policy reforms initiated in Turkey in the 1980s. A number of country studies in Chibber *et al.* (1992) observe a disappointing performance of private investment in the post-reform period. Explaining this peculiarity of the Indian experience requires further study, but the recent cross-country study by Jones (1994) on the relationship between the relative price of capital and capital formation seems to suggest one possible explanation. According to this study, during the highly restrictive trade and industrial policy regime prior to 1991, India was a clear outlier among other developing countries in terms of the extremely high level of the relative price of capital goods. The study also finds a strong negative relationship between relative price of capital goods, and capital formation and growth across countries. Thus, the removal of quantitative import restrictions and significant reduction in the tariffs on capital goods imports can be singled out to be *key policy factors* behind the impressive performance of private corporate investment in the post-reform Indian economy.

Notes

1 This chapter is based on my ongoing collaborative research with Kunal Sen towards a book on *Saving, Investment and Growth in India*.

2 It is important to note that not all liberalisation attempts in developing countries have been crisis driven. In fact, almost as many liberalisations have started under 'placid' conditions, with no obvious malfunctioning of the mechanism and/or when the economy was experiencing some difficulties but these were not severe enough to lead to a perception of crisis. For details on circumstances and motivations for introducing liberalisation reforms in developing countries see Michaely *et al.* (1991), Edwards (1995) and Rodrik (1995a).

3 For details on the Indian reforms see Bhagwati (1993b), Cassen and Joshi (1995) and Joshi and Little (1996).

4 For further discussions, see Shetty (1990), Roy and Sen (1991), Joshi and Little (1994), and EPW Research Foundation (1995).

5 For details on the commodity flow method used by the CSO in estimating capital formation see CSO (1989).

6 We believe that this source of underestimation bias in investment is of general relevance in analysing saving/investment performance in the context of trade liberalisation in developing countries.
7 All data series are on the basis of the Indian fiscal year, 1 April in the previous year to 31 March of the given (stated) year.
8 The test results are available on request.
9 An intercept dummy variable (D80, which takes value 1 for 1980–81 and zero otherwise) was included in the equation to allow for an overall shift in the CRIV series in as a result of the revisions to the method of estimation of investment in that year. When D80 is omitted, the R^2 declines marginally, but the coefficients attached to all other regressors remain virtually unchanged.

Appendix

Data: sources and compilation

The data series used in this study have been directly obtained or compiled from the following publications:

1 Central Statistical Organisation (CSO), *National Accounts Statistics*, Delhi (various issues).
2 Government of India (1995), *Economic Survey 1994–95*, Delhi: Ministry of Finance.
3 Reserve Bank of India, *Monthly Bulletin*, Delhi (various issues).
4 Reserve Bank of India, *Report on Currency and Banking*, Delhi (various issues).

In the selection and transformation of most of the data series, we have simply followed established practice in this field of research. However, the choice of data series for the compilation of the RRCC index and the construction of the real capital stock series (K) need some explanation.

The interest rate on bank lending used in constructing the RRCC series is the one-year lending rate of the State Bank of India. Ideally, the lending series should have been constructed as weighted averages of rates relating to loans of different term structures using relative shares of respective deposits/loans. Unfortunately, information on the maturity structure of deposits is not readily available. There is, however, evidence that, as most of the key series move in tandem, the choice of a particular series over the preferred weighted average does not make significant difference in empirical analysis (Laumas 1990).

The measure of general price level is the GDP deflator (1980=1.00). Capital goods prices are measured in terms of the implicit deflator for gross domestic fixed capital formation (1980=1.00). The expected rate of change in capital goods price is measured as the rate of change of capital goods price (measured by the implicit deflator for gross domestic fixed capital formation) with a one-year lag. The static inflationary expectations hypothesis underlying this

variable choice is considered appropriate for a low-inflation country like India, especially when working with annual data.

Data on real capital stock are readily available from Source (2) for the years since 1980–81. This series was extended back to 1954–55 applying the following formula:

$$K_{t-1} = K_t = DEP_t - INV_t$$

where, K is real capital stock at the end of year 1980–81 and DEP and INV denote real depreciation and real investment during each year.

For useful discussions on the nature and limitations of Indian data on investment (and saving) in India see RBI (1982), Rakshit (1983) and Srinivasan (1994). It is generally believed that, on the whole, these data have a much firmer foundation (both in terms of coverage and inter-temporal consistency) than those for any other country at the same stage of development.

Error correction modelling procedure

The error correction modelling (ECM) procedure is an estimation technique designed to minimise the possibility of estimating spurious relations while retaining long-run information when modelling with time series data (Hendry 1995). The estimation procedure starts with an overparameterised autoregressive distributed lag (ADL) specification of an appropriate lag order:

$$Y_t = \alpha + \sum_{i=1}^{m} A_i Y_{t-i} \sum_{i=0}^{m} B_i X_{t-i} + \mu_t$$

where α is a constant, Y_t is a (n×1) vector of endogenous variables, $\boldsymbol{X}_t$ is a (k×1) vector of explanatory variables, and Ai and Bi are (n×n) and (n×k) matrices of parameters.

Equation 1 is then reparameterised in terms of differences and lagged levels so as to separate the short-run and long-run multipliers of the system:

$$\begin{aligned}\Delta Y_1 =& \alpha + \sum_{i=1}^{m-1} A_i^* \Delta Y_{t-i} + \sum_{i=0}^{m-1} B_i^* \Delta X_{t-i} \\ &+ C_0 Y_{t-m} + C_1 X_{t-m} + \mu_t\end{aligned} \tag{2}$$

where

$$C_0 = \left(I - \sum_{i=1}^{m} A_i\right) \quad C_1 = \left(\sum_{i=0}^{m} B_i\right)$$

and where the long-run multipliers of the system are given by $C_0^{-1} C_1$

Equation 2 constitutes the 'maintained hypothesis' of our specification search. This general model is 'tested down' (using ordinary least squares (OLS)), by dropping statistically insignificant lag terms, and imposing data-acceptable restrictions on the regression parameters. The testing procedure continues until a parsimonious error correction representation is obtained which retains the *a priori* theoretical model as its long-run solution. To be acceptable, the final equation must satisfy various diagnostic tests relating to the OLS error process.

5

LINKAGES AND GAINS FROM EXPORT GROWTH: ISSUES AND EVIDENCE FROM INDONESIA[1]

The linkage analysis pioneered by Hirschman (1958) figured prominently in the policy debate on planning for industrialisation in developing countries in the 1960s and 1970s. The key premise of Hirschman's policy advocacy was that, under the existing domestic demand conditions, a country can maximise developmental gains from limited investible resources by directing investment flows towards *key sectors*. A key sector was defined as a sector that has maximum linkages with the rest of the economy in terms of potential sales to other sectors (*forward linkages*) or purchase from other sectors (*backward linkages*). Like other popular growth strategies of the time, Hirschman s policy advocacy was intended to serve as 'an alternative strategy to linking the economy to the rest of the world on the basis of comparative advantage' (Findlay 1984). In other words, the basic policy thrust was to turn inward and seek the key to industrial development in greater interaction between domestic industries, while ignoring neo-classical 'efficiency' (or factor proportion) considerations of resource allocation. To the criticism that administratively created linkages may imply waste, Hirschman replied that such criticism is valid only if one assumes resources to be in fixed supply; as he saw it, disequilibria resulting from emphasis on key sectors would call extra investment into being by stimulating entrepreneurship.

Disenchantment with import-substitution industrialisation has led an increasing number of countries to open up their economies and integrate them into the international economic system over the past three decades (Chapter 1). Notwithstanding this palpable policy shift, surprisingly, the concept of linkages, whose very purpose was to *assist developing countries to delink from the international economy*, has continued to linger in the minds of both policy makers and development analysts. Policy makers often take into account potential linkages in determining sectoral priorities in export development policy. Linkages are also an important consideration underlying export incentive policies, and approval and monitoring of export-oriented foreign direct investment. Development analysts often place emphasis on

linkages as an operational norm in assessing the developmental impact of the emerging export industries.[2] Indeed, the popular criticism in the development literature that multinational enterprises (MNEs) involved in export-oriented assembly activities stifle linkage development in manufacturing, and the labeling of import-dependent export industries as 'footloose' (or 'enclave') industries, reflects the general perception that linkages are a key to success through export oriented industrialisation.

The purpose of this chapter is to argue that the use of inter-sectoral input linkages—a closed-economy planning tool—as a performance criterion in the context of export-oriented growth strategy is fundamentally flawed. More specifically we argue that placing emphasis on linkages in determining sectoral priorities is likely to yield wrong policy inferences under export orientation. This is because in the ongoing process of internationalisation of production, industries with low linkages could well have the potential to make a greater contribution to employment and national income (net foreign exchange earnings). We support our arguments with an empirical analysis for 1985–90 of the relationship of sectoral input linkages to the employment impact of Indonesia's manufactured exports and to the contribution of these exports to net foreign exchange earnings.

The choice of Indonesia as the subject of our study was motivated by the following reasons. First, following the market-oriented policy reforms initiated in the mid-1980s Indonesia has experienced strong growth in manufactured exports. While there was very heavy reliance initially on just two products, plywood and clothing, the export commodity mix has begun to diversify considerably since about the late 1980s.[3] This ongoing process of export expansion and diversification provides an excellent laboratory for studying the issue at hand. Second, import intensity and/or the footloose nature of the emerging export patterns has attracted much attention in the recent economic policy debate in Indonesia (Manning and Jayasuriya 1996). In particular, redirecting investment to the export sectors that make greater use of domestic inputs has been a key element of the export development policy embodied in successive five-year development plans (*Repelita*), starting with *Repelita* IV (1984–85 to 1988–89). A recent Asian Development Bank report on Indonesia's industrialisatrion policy (Lall and Rao 1995:1) has stressed that 'in the emerging international environment export sustainability requires that the base of Indonesia's competitive advantage be broadened and deepened, with the upgrading of export products, *greater local context in export activity*, and broad entry into more high value-added products' (emphasis added). The rationale for this policy emphasis has never been questioned in the otherwise rich literature on Indonesian policy reforms, perhaps implying a consensus among Indonesian observers about the appropriateness of linkages as an operational norm in assessing the developmental impact of emerging export industries. The third consideration relates to data availability. Our empirical analysis requires a complete set of input-output tables which put

export and domestic production on a comparable basis, while separating imports from domestic output relating to all intermediate and final transactions. Indonesia is one of the few developing countries to meet this data requirement.

This chapter begins with a discussion of the conceptual issues surrounding the linkage analysis in the context of export-oriented industrialisation. We then develop an empirical procedure for the measurement of linkages, net exports and export-induced manufacturing employment. Finally we present and interpret the results, and offer some concluding remarks.

Conceptual issues

The use of the concept of linkages as a policy criterion under export-oriented industrialisation suffers from two fundamental limitations. First it runs counter to the conventional factor proportions considerations which are at the heart of the current debate on gains from export-led industrialisation. Second it overlooks the nature of market potential for manufactured exports from developing countries. When these two considerations are appropriately taken into account, there are strong grounds for the alternative view that attempts to forge linkages through direct policy intervention can be both ineffective and counterproductive. In this section, we present and elaborate on, this alternative view in order to set the stage for the ensuing empirical analysis.

Let us begin with the factor proportions considerations. In an open economy, the factor intensity of production depends not only upon the technology in the final and intermediate stages of domestic production, but also upon the technology which underlies the structure of foreign trade. This is because participation in international trade provides the economy with the opportunity to specialise in products in which it has comparative advantage (i.e. labour-intensive products in the case of a surplus labour economy), while relying on world trade for the procurement of intermediate inputs. Intermediate goods industries are typically more capital intensive than are final goods industries. The importation of intermediate inputs for export production, therefore, involves an implicit substitution of labour for relatively capital-intensive intermediate products in the production process. For instance, when an economy imports capital-intensive inputs such as machinery, synthetic fibre and industrial chemicals with foreign exchange earned by exporting labour-intensive products such as garments, footwear and toys, it is implicitly substituting the latter labour-intensive goods for the former capital-intensive goods in the production process. This would enhance the labour intensity of the overall production process. Thus, resource allocation considerations derived from the principle of comparative advantage seem to make a strong case for the development of footloose (loosely linked) export industries in a labour-abundant economy (Riedel 1974, 1976).[4] Such specialisation would

reduce the resource costs of production and enhance the employment potential of export expansion.[5]

As regards market potential, our contention is that emphasis on achieving greater domestic content in exports can run counter to the objective of rapid market penetration in world trade. In contrast with the closed-economy approach of import-substitution industrialisation (ISI), the key to success under export-oriented industrialisation (EOI) lies in a country's ability to produce what is demanded in international markets. This in turn requires timely and swift changes in the export structure in line with changing patterns of internationalisation of production. In this context there is little room for forging input linkages through government intervention.

In analysing market opportunities for exports from developing countries, it is useful to distinguish between four different product categories of manufactures:

1 'resource-based' manufacturing or manufacturing activities which involve further local processing of material previously exported in raw state;
2 light (labour-intensive) consumer goods (e.g. clothing, toys, shoes, sporting goods);
3 component production and assembly within vertically integrated or otherwise tightly controlled production systems; and
4 mature technology final products (motor vehicles, radios, TVs, computers).

A resource-rich country (like Indonesia) has considerable room for the expansion of exports in the first category. However, quite apart from the obvious limits which would eventually be set by the resource endowment, there are other constraints on export success in this arena (Helleiner 1973:25). For instance, some processing activities, particularly those in the mineral and chemical industries, are characterised by high physical and/or human capital intensity and may not therefore be suitable for location in a low-income country. Moreover, world demand growth for resource-based manufactures has proved to be much slower than that for the other three product categories. In the area of differentiated final goods (Category 4), world exports originate almost exclusively from developed market economies or in more advanced newly industrialised countries (NICs). In these products labour cost, while significant, takes second place to the availability of high-quality operator and technical skills, a good domestic basis of supplies and services and excellent infrastructure. Also, given the heavy initial fixed costs, MNEs—which play a pivotal role in the production and trade in these products—hesitate to establish an overseas plant without considerable experience of involvement in the host country (Guisinger 1985).

For a surplus-labour country like Indonesia, light manufactured goods (Category 2) and component production and assembly (Category 3) are the most promising areas in the early stage of export-led industrialisation.

Production in both categories is characterised by the use of technologies extremely intensive in low-skilled labour. In the 1960s, when the present-day NICs began to make strides along the export-led growth path, the former was the most promising growth area. Since the late 1960s production activities in the latter area have shown phenomenal growth as a new aspect of modern world trade. This phenomenon has been the outcome of the growing ability of modern industry to 'slice up the value chain' of goods traditionally viewed as skill-, capital-, or technology-intensive and shift the labour-intensive slices to low-wage locations (Krugman 1995). The transfer abroad of component assembly occurs in many industries where the technology of production permits the separation of labour-intensive segments from other stages of production. Assembly activities related to high-tech electronic industries, the production of semi-conductor devices in particular, are by far the most important. The other industries with significant assembly operations located in developing countries are computers, electrical appliances, automotive parts, electrical machinery and optical products. The indications are that this form of internationalisation of production will continue to expand giving surplus-labour countries the opportunity to find expanded niches for labour-intensive production.

In the area of standard consumer goods, market potential for goods that are *made to local specifications* using local inputs (and hence have greater potential for forging backward linkages) is extremely limited. Such goods account for only a small and shrinking share of manufactured exports from developing countries. Success in expanding the volume of exports in this sphere depends crucially on the country's ability to enter the fast-growing markets for *made-to-order* manufactured goods, which are generally more import intensive. As distinct from meeting consumer requirements in a shortage-ridden suppliers' market for import-substituting products, producing what is sought in the former markets calls for a vector of imported inputs meeting exacting quality requirements and specifications. The substitution of such inputs with locally produced inputs of secondary quality may lead to significant market losses, and the cost involved in correcting the defect in a further stage may be prohibitive (Wortzel and Wortzel 1980, Keesing and Lall 1992: p. 179).

Limits to the use of local raw materials (even if they meet quality requirements) in the production of light consumer goods can also derive from the nature of global strategies of multinational enterprise (MNE) and international buying groups.[6] MNE subsidiaries operate within a framework of their own international production and marketing networks. The parent firms generally aim to preserve a high level of international mobility for their processing operations. Establishing long-term commercial relationships with local suppliers may run counter to this goal. Even in a situation where production is undertaken largely by local firms without MNE involvement, like in the case of the clothing industry in Indonesia, successful market penetration in these goods depends on the relationship between domestic producers and buyers

abroad, a relationship which is normally formed through the involvement of international buying groups (the 'buyers', for short). The buyers place orders with producers according to their own market assessment, and in most cases, they insist on the use of inputs from specific foreign sources for quality considerations (Keesing 1983, Rhee *et al.* 1984, Keesing and Lall 1992).

Assembly production in vertically integrated industries (Category 3) normally tends to be even more import intensive than light manufactured goods. Because of the multi-stage vertical integration of the overall production process, value added by a manufacturing facility in a given location is likely to be only a small fraction of the value of its shipments, which are dominated by the cost of intermediate inputs (Krugman 1995:334). Moreover, the input structure of this type of production activity is rigidly determined as part of the overall global value chain. In particular, in semi-conductor and other high-tech industries which account for the bulk of world trade in assembly activities, offshore assembly activities are often carried out by subsidiaries (mostly fully owned) of the end-user companies using components obtained through intra-firm trade. This is because of the need to preserve technical secrets and undertake precision operation to exacting standards. Given these features of the production process, there is limited, if any, room for encouraging local sourcing through government policy. However, despite the high import intensity and meager value addition on a *per unit* basis, the entry into the process of 'slicing up of value chain', which accounts for a large and ever expanding share of world trade, is an effective means for a developing country to maximise its *total* net export earnings and to open up a vent for its surplus labour.

It follows from the above that, in the context of emerging patterns of international division of labour, there are powerful forces which make the export structure of a surplus-labour economy import intensive and hence footloose. When the export structure shifts away from traditional resource-based processing activities and towards more dynamic product lines, in particular when the manufacturing industry successfully links itself to the process of 'slicing of value chain' in vertically integrated industries, import intensity of export production could well increase leading to a decline in overall sectoral linkages. However, the enlarged market potential for these new product lines would bring about a rapid expansion of total net export earnings. At the same time growing labour intensity of the emerging export structure (as a result of the increased substitution of labour for intermediate inputs), coupled with rapid export growth, would be reflected in growing employment opportunities in export-oriented manufacturing. Thus we hypothesise that declining (or stagnating) input linkages, and rapid growth of total net exports earnings and export-related employment can go hand in hand at the initial stage of export-led industrialisation in a surplus-labour economy. From a policy point of view, this implies that linkages are a misleading indicator of the developmental implications of export-oriented industrialisation.

Methodology and data

Methodology

The empirical analysis of this chapter involves the measurement of three important aspects of export performance, backward (input) linkages, net foreign exchange earnings and employment generation. For this purpose we make use of the Leontief inter-industry accounting framework which provides for capturing both direct and indirect (inter-sectoral) repercussion in the measurement process.

Following an input-output framework of the 'complementary import' type,[7] let:

$$X = A^d X + Y^d + E \tag{1}$$

Where X is the vector of total gross output, $A^d = [a_{ij}^d], a_{ij}^d = \frac{X_{ij}}{X_j}$, is the domestic input-output coefficient matrix; and Y^d and E are vectors of domestic and export demand on domestically produced goods. Solving equation (1) for X,

$$X = (I - A^d)^{-1}(Y^d + E)$$

where $(I—Ad)^{-1}$ is the Leontief domestic inverse matrix. An element of this matrix, A_{ij}^d, indicates output required of the ith sector to sustain one unit of output of sector j. Thus the sum of the jth column of $(I—A^d)^{-1}$ gives a measure of total backward linkages ($BWLj$) when domestic final demand or exports for the jth commodity increases by one unit:

$$BWL_j = \sum_i^n A_{ij}^d \tag{3}$$

Note that $BWLj$ shows the *total* units of output required directly and indirectly from all sectors (including the unit of output delivered to final demand by the given sector) when the demand for the/th commodity rises by one unit.

To measure import intensity of domestic production, define a diagonal matrix of imported input coefficients, $[r_i], r_i = \frac{R_i}{X_i}$, where R_i shows direct imports used per unit production in a given sector. The empirical basis for the quantification of the total import content of sectoral production can then be obtained as,

$$R(I - A^d)^{-1} = M \tag{4}$$

where M is the import inverse matrix (total import requirement matrix of domestic production). An element of this matrix, m_{ij}, indicates the total amount of import i (both direct and indirect) required to produce a unit of commodity

j locally. Therefore, when there is a unit increase in final demand for sector j, the corresponding increase in total demand from that sector for imported inputs (m_{Tj}) is given by:

$$m_{Tj} = \sum_{i=1}^{m} r_{ij} \quad (j = 1, 2, ..., n) \tag{5}$$

Let ej refer to the value of total exports from sector j. Assuming that imports required to produce a unit of output are identical whether the product is sold domestically or exported, the total value of imports embodied in e_j, which is denoted by m_{Tj}, can be estimated as:

$$m^n_{Tj} = m_{Tj} e_j \tag{6}$$

Net export earnings of sector j (denoted by) is given by:

$$e^n_j = e_j - m_{Tj} e_j = (1 - m_{Tj}) e_j \tag{7}$$

Total net export earnings (net foreign exchange earnings from exports) of the economy (E_T) is therefore,

$$E_T = \sum_j e^n_j \tag{8}$$

The procedure for measuring employment implications of exports is similar to that adopted in measuring import intensity. The starting point is to define a diagonal matrix of employment coefficients, $G = [g_i], g_i = \frac{G_i}{X_i}$, where G_i is number of workers employed in industry i. The empirical basis for the quantification of the total import content in sectoral production can be obtained as,

$$G(I - A^d)^{-1} = L \tag{9}$$

where L is the employment inverse matrix (total employment requirement matrix of domestic production). An element of this matrix, which we denote by l_{ij}, indicates the total number of workers employed by sector I (both direct and indirect) to produce a unit of commodity j locally. Therefore, when there is a unit increase in final demand for sector j, the corresponding increase in total employment (l_{Tj}) is given by:

$$l_{Tj} = \sum_{i=1}^{m} l_{ij} \quad (j = 1, 2, ..., n) \tag{10}$$

Based on L sectoral and total export-induced employment can be estimated by replicating the estimation procedure suggested by Equations (7) and (8).

Data

To implement the methodology developed in the previous section we make use of the input-output tables for 1985 and 1990 and export data for the period 1985–95 provided by the *Biro Pusat Statistik* (BPS). The input-output tables are based on the *Klasifikasi Lapangan Usaha Indonesia* (KLUI)—the Indonesian version of the International Standard Industry Classification (ISIC). For the purpose of our analysis two modifications were made to the original data provided by the BPS. First, in order to achieve inter-temporal comparability we reclassify the 169–sector 1990 table according to the 128–sector classification used in 1985, using a sectoral concordance provided by the BPS. Second, export data for the period 1985–95 which are based on the Standard International Trade Classification (SITC) system are converted to the I-O classification using the SITC-KLUI concordance developed in Santosa (1994). After undertaking the computations relating to Equations (2), (4) and (9) using the 138-sector tables, final estimates of net exports and export-related employment were made for the manufacturing sectors only. After omitting three 'non-exporting industries' (i.e. industries for which there were no reported exports for any of the years) and two sectors for which there was ambiguity in separating 'manufactured' component from total exports, the final analysis covers 77 KLUI/ISIC industries.

There is no unique way to separate manufactured exports from total merchandise exports. The two most widely used definitions are the *ISIC-based definition* under which all products belonging to ISIC 3 are treated as manufactures and the *SITC-based definition* which covers only the products in SITC sections 5 to 8, less 68 (non-ferrous metals). To ensure wider comparability of our results, we prepared estimates under both definitions, with the difference between the two identified as a third category, resource-based manufacturing. In order to see the sensitivity of the results to the 'special' market conditions faced by processed wood and clothing during the period under study we also generate alternative estimates net of these exports.[8]

Before turning to the results, it is pertinent to comment on the limitations of our estimation procedure. First, it is based on the implicit assumption that the import content of production of exports in each industry is identical to the average import content of total production of the industry. This is not entirely accurate. The usual pattern is that when industries are finely classified, import content in an industry's production for exports is higher than its production for the home market (Michaely 1984:28). Our estimation procedure may, therefore, have led to an *underestimation* of the relative import intensity of manufactured exports (and therefore overestimation of linkages and net exports). Second, the estimates, as they

are based on the inter-industry transaction table, incorporate import requirements on the current account only. The unavailability of a capital coefficient matrix precludes the measurement of import requirements on the capital account. Third, the measurement of linkages solely on the basis of material flows has its own limitations. In particular, the charting of simple inter-industry flows fails to account for the degree to which components of value added—returns to capital, labour and the state—interact with the rest of the economy.[9] This (third) limitation does not, however, pose a problem for our analysis; the current debate on the economic effects of manufactured exports expansion has largely (if not solely) focused on material (input) linkages.

Results

Summary indicators of linkages, import intensity and net exports are reported in Table 5.1. Estimates of sectoral linkage indices and data on export composition used in deriving these summary measures are reported in the Appendix at p. 107.

The estimates point clearly to a decline in the degree of linkage of manufactured exports during the period under study. This result is remarkably resilient to the particular definition of manufactures used and the inclusion/exclusion of plywood and clothing as part of total exports. In terms of the broader ISIC definition, in 1985 $1,000 worth of exports was reflected in an increase in output by $1,820 from all sectors in the economy. This declined to $1,752 in 1990 and further to $1,730 by 1995. The decline is even sharper for non-clothing SITC exports from $1,790 in 1990 to $1,600 in 1995.

The trends in import intensity of exports are largely consistent with this reduction in export linkages. In all cases, the degree of import intensity has increased. This accords with our expectation based on the ongoing process of export diversification towards assembly-type activities and relatively more import dependent light consumer goods such as shoes, toys and sporting goods.

Despite the increased import dependence and weakened linkages, net export earnings from manufactured exports have recorded strong growth. Thus, in line with our hypothesis, rapid expansion in export volume (in gross terms) under the emerging pattern of export orientation has more than compensated for the increased import intensity of the production structure. Interestingly, even when the increased import intensity of exports is appropriately allowed for, there has been an impressive increase in the share of manufactures (however defined) in Indonesia's total export composition. For instance, the share of total ISIC manufactures in total net exports increased from 26 per cent in 1985 to 67 per cent in 1995. When the narrow SITC definition is used, manufacturing share in total net export earnings in 1995 was about 38 per cent, up from 6 per cent in 1985. In making inferences for future export

Table 5.1 Indonesia: Linkages, import intensity and net export earnings of manufactured exports

	1985	*1990*	*1993*[a]	*1995*[a]
Backward linkage index				
ISIC manufactures	1.820	1.752	1.732	1.730
ISIC manufactures excluding plywood and clothing	1.782	1.718	1.644	1.672
SITC manufactures	1.646	1.784	1.763	1.716
SITC manufactures excluding clothing	1.790	1.665	1.625	1.614
Import intensity				
ISIC manufacturing	0.195	0.229	0.249	0.255
ISIC manufacturing excluding plywood and clothing	0.229	0.288	0.304	0.309
SITC manufacturing	0.320	0.344	0.350	0.360
SITC manufacturing excluding clothing	0.355	0.386	0.417	0.419
Exports, gross & net (within brackets)[b] (US$ million)				
ISIC manufacturing	3929	11589	23602	28411
	(3162)	(8935)	(17725)	(21165)
ISIC manufacturing excluding plywood and clothing	2245	5535	11910	17143
	(1731)	(3940)	(8290)	(12379)
SITC manufacturing	1060	5718	14302	173845
	721	(3751)	(9296)	(11126)
SITC manufacturing excluding clothing	548	3288	8744	11851
	(354)	(2018)	(5098)	(6885)
Contribution to total net export earnings (%)				
ISIC manufacturing	26.33	48.73	65.90	66.66
ISIC manufacturing excluding plywood and clothing	14.42	23.26	30.82	42.03
SITC manufacturing	6.01	22.15	34.56	37.78
SITC manufacturing excluding clothing	2.95	11.92	18.95	23.38
Other (primary) exports[c]	73.67	51.27	34.10	33.34
Total merchandise exports US$ million	100	100	100	100
	12005	16933	26896	29453

Source and method: Estimated using the methodology and data sources discussed in the text

Notes

a Projections based on the 1990 input-output structure

b Net exports are given in brackets

c Difference between total merchandise exports and ISIC manufactures

growth potential, it is pertinent to pay more attention to SITC exports net of clothing. Import intensity of this export category has increased significantly as a result of recent shifts towards both light manufactures such as shoes, toys and sporting goods and dynamic component production activities in electrical goods, electronics and optical goods. Notwithstanding this, their

share in total net exports increased from 3 per cent in 1985 to 19 per cent in 1990 and to over 23 per cent in 1995.

Estimates of the employment implications of manufactured exports are given in Table 5.2. The employment multiplier (Table 5.2, note b) for total ISIC and SITC exports has declined marginally between 1993 and 1995, following an impressive increase between 1985 and 1993. This decline is due to the fall in the relative export shares of the two largest export items, clothing and wood products, which are highly labour intensive compared with most other export items. When these two categories are excluded (that is, in terms of ISIC exports net of wood products and clothing and SITC exports net of clothing) there are clear indications of a continuous increase in employment intensity. Thus, as one could anticipate on factor proportions grounds, there has been a clear shift in the composition of new export lines towards greater employment intensity.

Table 5.2 Indonesia: Manufactured exports and employment

	1985	*1990*	*1993*[a]	*1995*[a]
Employment multiplier[b]				
ISIC manufacturing	0.289	0.378	0.382	0.367
ISIC manufacturing excluding plywood and clothing	0.229	0.256	0.315	0.383
SITC manufacturing	0.364	0.358	0.382	0.333
SITC manufacturing excluding clothing	0.261	0.263	0.279	0.326
Export-related employment ('000)[c]				
ISIC manufacturing	1137	4384	9016	10427
	(1.82)	(5.93)	—	—
ISIC manufacturing excluding plywood and clothing	514	1416	3752	6566
	(0.82)	(1.92)	—	—
SITC manufacturing	436	2044	5643	5789
	(0.70)	(2.76)	—	—
SITC manufacturing excluding clothing	154	865	2440	3863
	(0.24)	(1.11)	—	—

Source and method: As for Table 5.1

Notes

a Projections based on the 1990 input-output structure

b The employment multiplier measures the number of employment opportunities generated directly and indirectly by $1,000 worth of exports

c Percentage shares in total employment are given in brackets

Total employment induced by ISIC exports shows a four-fold increase, from 1.1 million to 4.4 million between 1985 and 1990. According to our

predic-tion based on the 1990 input-output structure, this would have increased to over 10 million by 1995. Under the SITC definition the increases are from 514,000 in 1985 to 1.4 million in 1990 and then to 6.5 million in 1995. The increase is much sharper for non-clothing SITC exports, a six-fold increase between 1985 and 1990 (from 154,000 to 865,000) and a six-fold increase to 3.8 million between 1990 and 1995.

The evidence suggests that, despite the decline in linkages, the contribution of manufactured exports both to net foreign exchange earnings and their employment contribution have been impressive. And this inference remains unaltered when plywood and clothing, the two largest product categories which benefited from special market circumstances, are excluded from our calculations. In fact, the growth trends in net exports and export-related employment are much sharper for the non-clothing SITC exports, where the future for Indonesia's manufactured export expansion drive lies. Thus, the results support our contention that linkages are not appropriate criteria for judging developmental implications of export-led industrialisation.

As a further test, we undertook a correlation analysis of the relationship between sectoral linkages, and sectoral contribution to growth of net foreign exchange earnings and export employment. Contributions to employment and net export growth are measured (in current $ terms) between 1985–86 and 1993–95. Two-year averages at the beginning and end of the period are used to allow for possible random changes in data. Linkages indices used are the ones based on the 1990 I-O table.[10] The results are reported in Table 5.3.

There is little support for a positive association (as implied in the linkage enthusiast's position) between linkages (BWL) and contribution of manufactured exports either to net export growth (CGNX) or to employment increment (CGEM). The coefficients for total SITC exports are positive, but they are not statistically different from zero. For total ISIC exports the coefficients are negative but do not attain statistical significance. By contrast the coefficients are negative and statistically significant at least at the 10 per cent level or better for ISIC exports excluding wood products and clothing and SITC exports excluding clothing. Thus, when wood products and clothing are excluded to focus appropriately on product categories in which Indonesia has room for further export expansion, there is statistical support for our alternative proposition that linkages are negatively (*not* positively) related to contribution to employment expansion and net export growth.

Finally, it is interesting to note that for all export categories, no matter what definition of manufacturing is used, there is a strong positive relationship between sectoral contributions to net export earning and employment. The upshot is that product categories which make a greater contribution to net exports (and hence to national income) are also the ones which exhibit a superior performance in terms of employment generation. This finding is consistent with our postulate that at the present stage of Indonesia's export

drive, both light manufactured goods and assembly activities in vertically integrated industries are to be preferred on both net export growth and employment grounds.

Table 5.3 Indonesia: Correlation between linkages (BWL), growth of net exports (CGNX) and export-related employment (CGEM)[a]

Export category[b]	*BWL and CGNX*	*BWL and CGEM*	*CGNX and CGEM*
ISIC manufacturing (77)	−0.054	−0.003	0.946***
ISIC manufacturing excluding plywood and clothing (69)	−0.206 * *	−0.185*	0.793***
SITC manufacturing (51)	0.018	0.112	0.923***
SITC manufacturing excluding clothing (47)	−0.294 * *	−0.220*	0.832***

Source: Estimated using data reported in Table 5A-2

Notes

a The level of statistical significance is denoted as: * 10 per cent, ** 5 per cent, *** 1%

b Number of observations is given in brackets

Conclusion

In this chapter we have taken a critical look at the prevalent emphasis on linkages as an important criterion for formulating policies for and assessing development implications of manufactured export expansion in Indonesia. Our findings, based on the export experience of Indonesia during 1985–95, suggest this policy emphasis is unwarranted. Import intensity and linkages of most of the dynamic product areas are largely determined by factors beyond the control of the individual exporting nations. Emphasis on linkages can therefore be both ineffective and counterproductive. In the context of the ongoing process of internationalisation of production, industries characterised by high import intensity and hence low domestic input linkages have the potential to make a greater contribution to employment expansion and growth of net export earnings.

The findings of this study by no means imply that linkages are bad or the footloose nature of production is an immutable feature of the export structure of a developing country. The greater the linkages between the export sectors and the rest of the economy the greater would be the benefits to the economy from export expansion, provided such linkages are the natural outcome of industrial deepening. What we simply argue here is that there is little room for creating linkages through policy intervention, and such policy intervention may in fact act as a brake on development. In particular, direct intervention in the form of domestic procurement requirement can stifle the evolution of the export structure in line with changing patterns of internationalisation of

production, and thus frustrate the achievement of employment and balance of payments objectives. With the gradual adjustment of the domestic cost structure as a result of greater international specialisation and with increase in domestic income levels, the industrial structure will gradually shift over to intermediate and investment goods industries. This will lead to strong inter-industry linkages, provided of course that the incentive structure and the general investment climate of the economy continue to remain conducive for such specialisation.

Notes

1 Originally published as 'Gains from Indonesian Export Growth: Do Linkages Matters?' (co-author: B.H.Santosa), *Bulletin of Indonesian Economic Studies*, 33(2), 1997, pp. 73–96. Rewritten to place the Indonesian experience in the wider developing-country context.

2 In the context of an export-oriented policy regime the term 'linkages' is usually used to mean 'backward linkages'. Forward linkages essentially relate to domestic downstream processing of sectoral output, and therefore are not relevant in assessing the implications of export expansion for the domestic economy. In this chapter we use these two terms interchangeably.

3 There have been a number of studies on Indonesia's export policy and emerging export patterns. See Hill 1996 (Chapter 8) and Manning and Jayasuriya (1996), and work cited therein.

4 There is ample evidence that administratively created linkages through emphasis on intermediate industries were one of the main causes of very high capital intensity in manufacturing and sometimes of value subtracted at world prices (Little 1982:44).

5 In this study we focus only on the latter aspect. For an interesting theoretical exposition and empirical test of the former aspect see Riedel (1974).

6 MNE subsidiaries are directly involved in both production and exporting while the buying groups are trade intermediaries who play a crucial role in linking domestic producers with sellers in end-markets.

7 Input-output tables are basically of two types, depending on the way import transactions are treated in the compilation. In a complementary import type I-O table the import content of each transaction is separately identified and allocated to an import matrix. A competitive import type I-O table treats all imports (intermediate plus final) as competing with domestic production and thus, imports are not separated from domestic transactions. For the purpose of accurate measurement of linkages and import intensity of domestic production it is necessary to work with a table of the former type (Bulmer-Thomas 1982).

8 The expansion of processed wood exports was propelled by government—enforced export substitution (through progressive prohibition on the export of logs since the early 1980s), buttressed by the country's power in the international market for tropical timber. Clothing exports have been influenced by export quotas imposed under the Multi-fibre Arrangement (Hill 1996, Chapter 8).

9 For a useful discussion on the limitations of the measurement of linkages using I-O tables see Weisskoff and Wolf (1977).

10 Obviously the 1990 I-O table better reflects the export production structure during the post-reform era than the table for 1985. The results are, however, remarkably resilient to the use of 1985 linkage estimates. In other word there has not been any significant change in sectoral ranking in terms of linkages between the two years. The correlation coefficient between the two linkage series is as high as 0.82.

Appendix

Table 5A-1 Indonesia: Percentage composition of manufactured exports, 1985, 1990, 1993, 1995

I-O Code		*1985*	*1990*	*1993*	*1995*
	Resource-based manufactures				
52	Canned and preserved meat	0.081	0.080	0.017	0.126
53	Dairy products	0.000	0.141	0.016	0.033
54	Processed and preserved vegetables	0.153	0.562	0.390	0.566
55	Processed and preserved fish	0.082	0.593	0.359	0.490
56	Vegetable and animal oil	11.30	4.619	3.573	4.864
57	Milled and polished rice	0.143	0.020	0.017	0.000
60	Other flour	0.051	0.185	0.094	0.093
61	Bread and bakery products	0.033	0.044	0.016	0.011
62	Noodle/macaroni/similar products	0.005	0.030	0.025	0.123
63	Sugar	0.571	0.304	0.156	0.123
64	Chocolate and sugar confectionery	0.122	0.292	0.094	0.178
65	Syrups of all kind	0.000	0.002	0.031	0.061
66	Ground coffee	0.145	0.019	1.482	2.158
68	Processed soybeans	0.002	0.000	0.001	0.022
69	Other foods	0.117	0.095	0.733	0.144
70	Animal feed	0.003	0.097	0.530	0.499
71	Alcoholic beverages	0.003	0.014	0.016	0.004
72	Non-alcoholic beverages	0.020	0.090	0.062	0.026
73	Cigarettes	0.130	0.570	0.187	0.441
74	Other processed tobacco	0.010	0.000	0.749	0.005
84	Swan and processed wood	9.657	4.358	1.576	13.454
85	Plywood and other products	19.826	23.518	19.284	2.939
86	Wooden construction material	0.057	0.419	2.293	0.063
87	Wooden furniture and fixtures	0.289	2.501	2.839	3.104
104	Processed rubber	17.440	7.120	0.499	6.904
114	Non-ferrous basic metal	12.767	4.982	4.368	2.453
	Total (%)	73.011	50.659	39.406	38.884
	Total ($ million)	2868.7	5871.3	9300.7	11060.4

Table 5A-1 (Cont.)

I-O Code		*1985*	*1990*	*1993*	*1995*
	SITC manufactures				
75	Spinning	0.337	1.464	2.028	2.858
76	Weaving	4.272	6.844	8.799	5.289
77	Made-up textile goods except apparel	0.223	0.766	0.468	0.622
78	Knitting	2.465	2.813	0.125	0.135
79	Wearing apparel	6.060	11.016	14.151	11.396
80	Carpet/rug/rope, etc.	0.858	0.396	0.125	0.066
81	Other textiles	0.272	0.202	0.031	0.389
82	Tanned and finished leather	0.194	0.548	0.187	0.158
83	Footwear and leather products	0.057	0.602	6.989	7.546
89	Woven goods except yarn and plastic	0.274	0.197	0.094	0.474
90	Paper and cardboard	0.684	1.693	0.562	2.566
91	Goods made of paper and cardboard	0.004	0.012	1.701	0.710
92	Printed material	0.009	0.305	0.016	0.025
93	Non-fertiliser basic chemical	0.649	0.995	1.092	2.003
94	Fertiliser and pesticides	2.036	1.851	0.640	0.969
95	Synthetic resin and plastic material	0.568	0.423	0.406	1.106
96	Paint and varnish	0.000	0.060	0.234	0.156
97	Medicine	0.392	0.178	0.109	0.145
98	Cleaning material and cosmetics	0.714	1.048	0.593	0.661
105	Tyres and tubes	0.190	0.567	0.343	0.640
106	Other rubber goods	0.124	3.687	0.094	0.187
107	Plastic ware	0.046	1.413	1.061	0.583
108	Ceramic and earthenware	0.127	0.394	0.187	0.239
109	Glass and glassware	0.212	0.802	0.530	0.585
110	Structural clay and ceramic products	0.002	0.025	0.140	0.290
111	Cement and limestone	0.547	0.835	0.699	0.086
112	Other non-metallic mineral products	0.018	0.056	0.780	0.244
113	Basic iron and steal	0.853	1.980	1.217	1.221
115	Kitchen industries	0.002	0.449	0.375	0.504
116	Cutlery and agricultural tools	0.000	0.060	0.172	0.198
117	Metallic furniture and fixtures	0.028	0.194	0.577	0.465
118	Structural metal products	0.005	0.063	1.451	0.105
119	Other metal products	0.126	0.343	0.530	1.340
120	Motor vehicles except motorcycles	0.219	0.368	0.718	0.090
121	Electrical machinery	0.002	0.077	1.295	2.130

Table 5A-1 (Cont.)

I-O Code		*1985*	*1990*	*1993*	*1995*
122	Communication equipment	3.003	1.315	4.618	5.745
123	Household electrical appliances	0.000	0.035	0.063	0.052
124	Other electrical appliances	0.012	0.201	0.250	1.990
125	Accumulator and dry battery	0.031	0.442	0.031	0.511
126	Ship and spare parts	0.040	0.496	0.421	0.320
128	Car bodies	0.157	0.202	0.203	0.169
129	Motor cycles	0.005	0.044	1.061	0.868
130	Non-motorised vehicles	0.005	0.181	0.140	0.181
131	Aircraft and spare parts	0.017	0.129	0.078	0.059
132	Profession and scientific instruments	0.437	0.049	0.250	0.079
133	Photographic equipment	0.086	0.423	0.686	0.520
134	Watch, clock and like	0.172	0.058	0.156	0.200
135	Jewellery	0.190	0.453	1.841	1.174
136	Musical instruments	0.008	0.041	0.281	0.364
137	Sporting goods	0.005	0.243	0.156	1.478
138	Other manufacturing	0.252	2.300	1.84	1.222
	Total (%)	26.989	49.341	60.594	61.116
	(US$ million)	1060.4	5718.1	14301.5	17384.5
	ISIC manufactures (%)	100.0	100.0	100.0	100.0
	(US$ million)	3929.1	11589.4	23602.2	28444.9

Source: Computed from PBS data tapes using the methodology discussed in the text

Notes
ISIC=International Standard Industry Classification
SITC=Standard International Trade Classification

Table 5A-2 Indonesia: Sectoral linkages and contribution to net exports and export-related employment

I-O code		*BWL 1985*	*BWL 1990*	*CGNX*	*CGEM*
	Resource-based manufactures				
52	Canned and preserved meat	2.265	2.302	0.133	0.057
53	Dairy products	2.051	1.997	0.032	0.015
54	Processed and preserved vegetables	1.817	1.906	0.776	0.335
55	Processed and preserved fish	2.077	2.076	0.742	0.317
56	Vegetable and animal oil	1.971	1.604	5.444	2.279
57	Milled and polished rice	2.041	2.062	0.050	0.015

Table 5A-2 (Cont.)

I-O code		*BWL 1985*	*BWL 1990*	*CGNX*	*CGEM*
60	Other flour	2.029	1.789	0.116	0.077
61	Bread and bakery products	1.911	1.829	0.006	0.004
62	Noodle/macaroni/similar products	1.931	1.629	0.139	0.118
63	Sugar	1.821	1.776	0.063	0.045
64	Chocolate and sugar confectionery	1.957	1.353	0.181	0.282
65	Syrups of all kind	1.847	2.094	0.066	0.040
66	Ground coffee	1.866	1.661	3.463	5.259
68	Processed soybeans	1.797	1.782	0.014	0.026
69	Other foods	2.112	2.038	0.170	0.267
70	Animal feed	2.148	1.839	0.728	1.156
71	Alcoholic beverages	1.369	1.471	0.009	0.006
72	Non-alcoholic beverages	2.074	2.094	0.038	0.022
73	Cigarettes	1.786	1.609	0.459	0.102
74	Other processed tobacco	2.007	1.861	0.004	0.000
84	Swan and processed wood	1.659	1.636	18.173	26.168
85	Plywood and other products	1.848	1.637	−0.119	−0.708
86	Wooden construction material	1.891	1.895	0.073	0.105
87	Wooden furniture and fixtures	1.764	2.059	4.210	6.099
104	Processed rubber	2.062	2.042	5.031	1.580
114	Non-ferrous basic metal	1.633	1.589	0.483	0.170
	SITC Manufactures				
75	Spinning	1.245	1.331	2.458	2.175
76	Weaving	1.746	1.774	4.634	7.368
77	Made-up textile goods except apparel	1.813	2.136	0.633	0.958
78	Knitting	1.967	1.827	−0.068	−0.111
79	Wearing apparel	2.009	2.054	10.942	16.605
80	Carpet/rug/rope, etc.	1.450	1.741	−0.009	−0.063
81	Other textiles	1.980	1.741	0.371	0.535
82	Tanned and finished leather	2.148	2.146	0.175	0.202
83	Footwear and leather products	1.931	1.573	8.368	11.866
89	Woven goods except yarn and plastic	1.648	1.744	0.587	0.865
90	Paper and cardboard	1.348	1.684	2.427	0.922
91	Goods made of paper and cardboard	1.308	1.991	0.781	0.255

Table 5A-2 (Cont.)

I-O code		*BWL 1985*	*BWL 1990*	*CGNX*	*CGEM*
92	Printed material	1.419	1.918	0.026	0.008
93	Non-fertiliser basic chemical	1.304	1.449	1.689	0.484
94	Fertiliser and pesticides	1.432	1.561	0.467	0.066
95	Synthetic resin and plastic material	1.122	1.686	0.690	0.178
96	Paint and varnish	1.279	1.529	0.185	0.054
97	Medicine	1.428	1.672	0.100	0.024
98	Cleaning material and cosmetics	1.294	1.702	0.593	0.156
105	Tyres and tubes	1.706	1.856	0.545	0.224
106	Other rubber goods	1.628	1.819	0.187	0.062
107	Plastic ware	1.105	1.413	0.313	0.241
108	Ceramic and earthenware	1.568	1.761	0.266	0.727
109	Glass and glassware	1.469	1.513	0.624	1.873
110	Structural clay and ceramic products	1.405	1.641	0.362	1.005
111	Cement and limestone	1.859	1.881	0.044	0.019
112	Other non-metallic mineral products	1.674	1.691	0.325	0.974
113	Basic iron and steal	1.577	1.735	1.159	0.096
115	Household appliances	1.819	1.759	0.649	0.354
116	Cutlery and agricultural tools	1.574	1.759	0.240	0.131
117	Metallic furniture and fixtures	1.530	1.841	0.542	0.283
118	Structural metal products	1.443	1.756	0.109	0.076
119	Other metal products	1.404	1.727	1.393	0.853
120	Motor vehicles except motorcycles	1.093	1.685	0.025	0.005
121	Electrical machinery	1.449	1.698	1.933	0.317
122	Communication equipment	1.207	1.458	5.055	0.946
123	Household electrical appliances	1.455	1.711	0.068	0.010
124	Other electrical appliances	1.349	1.546	2.000	0.319
125	Accumulator and dry battery	1.844	1.825	0.500	0.080
126	Ship and spare parts	1.355	1.731	0.333	0.180
128	Car bodies	1.342	1.402	0.123	0.091
129	Motor cycles	1.772	1.694	1.009	0.608
130	Non-motorised vehicles	1.441	1.719	0.153	0.087
131	Aircraft and spare parts	1.180	1.683	0.104	0.090

Table 5A-2 (Cont.)

I-O code		*BWL 1985*	*BWL 1990*	*CGNX*	*CGEM*
132	Profession and scientific instruments	1.150	1.625	0.072	0.022
133	Photographic equipment	1.390	1.625	0.569	0.398
134	Watch, clock and like	1.311	1.624	0.191	0.129
135	Jewellery	1.771	1.697	2.597	1.480
136	Musical instruments	1.415	1.713	0.495	0.283
137	Sporting goods	1.860	1.984	1.528	0.971
138	Other manufacturing	1.536	1.647	0.952	0.682

Source and method: Computed from PBP data tapes using the methodology discussed in the text

Notes
LKG=Backward linkage index
CGNX=Percentage contribution to growth of net exports between 1985–86 and 1994–95
CGEM=Percentage contribution to growth of export-related employment between 1985–86 and 1994–95
ISIC=International Standard Industry Classification
SITC=Standard International Trade Classification

Part II

FOREIGN INVESTMENT AND EXPORT-ORIENTED INDUSTRIALISATION

6

EXPORT-ORIENTED FOREIGN DIRECT INVESTMENT: A TYPOLOGY WITH EVIDENCE FROM SRI LANKA[1]

Foreign direct investment (FDI) is generally expected to play a major role in the process of export-oriented industrialisation (EOI) in developing countries. Affiliates of multinational enterprises (MNE),[2] as part of the parent company's global network, have marketing channels in place, possess experience and expertise in the many complex facets of product development and international marketing and are well placed to take advantage of inter-country differences in the costs of production. Moreover, MNEs may be better able to resist protectionist pressures in their home countries in such a way as to favour imports from their affiliates. In view of these considerations, enticing export-oriented foreign direct investment (EOFDI) has become an integral element of policy reforms toward export-led industrialisation in many developing countries. Indeed, the new receptive attitude toward FDI represents a significant departure from the conventional distrust of MNEs during the import-substitution era.

Despite this policy emphasis, the empirical literature on the role of EOFDI in the expansion of manufactured exports from developing countries (DCs) is both sparse and lopsided. The few available empirical analyses have focused almost exclusively on the experience of the first generation of DC exporters, the newly industrialised countries (NICs). It is, therefore, commonplace in the related policy debate to draw upon the experience of NICs as guidance for more recent entrants to the manufactured export arena—the new exporting countries (NECs).[3] Such practice is bound to yield wrong policy prescriptions because the role of FDI in export expansion can vary across countries depending on changes in the process of internationalisation of production, the nature and timing of policy shifts, and the initial conditions of the given host country such as the degree of industrial advancement and the stage of entrepreneurial development (Bhagwati 1985, Ranis and Schive 1985, Helleiner 1988).

The purpose of this chapter is to shed some light on the potential contribution of EOFDI to the process of export-oriented industrialisation and the conditions under which such contribution can be achieved by

examining the case of a selected NEC, Sri Lanka. We first develop a framework for analysing the nature and determinants of EOFDI by drawing upon the existing body of knowledge on the subject. This framework is then applied to examine the recent experience of Sri Lanka with promoting such investment.

Sri Lanka provides an interesting subject for a case study of the subject at hand. Following the extensive market-oriented policy reforms initiated in 1977, the export structure of Sri Lanka has undergone a dramatic transformation away from the historic primary commodity dependence and towards increased reliance on labour-intensive manufactured exports (Chapter 2). FDI has been the major driving force behind this structural shift in export structure. Although generalisation from a single case has its pitfalls, the insight gained from the study may be useful to policy makers in other labour-abundant developing countries in identifying critical issues that may come up in the process of promoting EOFDI.

Export-oriented foreign direct investment: a typology

Basically, there are two distinct, but not mutually exclusive, strategies that a DC may pursue in order to obtain MNE involvement in its export-expansion endeavour:

1 reorientating import-substituting MNE affiliates (affiliates established with the prime objective of serving the domestic market) towards foreign markets: and
2 attracting 'fresh' (green field) investors specifically to produce for foreign markets.

For the typical low-income country the former strategy does not seem to provide a viable basis for continued and efficient export expansion (Helleiner 1973, pp. 25–27). A well-known feature of MNE behaviour is that the parent company strictly controls the performance of its affiliates in the interest of global profit. The export decision of affiliates is, therefore, not simply a matter of responding to domestic export incentives and government directives. In fact, in most cases, exports from import-substituting MNE affiliates take the form of 'over-spill' from excess capacity and such exports cannot reasonably be planned for. Moreover, even if these firms do respond to host government's carrot-and-stick approach, there is no guarantee that the final outcome would justify the overall cost involved. Import-substituting production units operating in a small, protected market are not usually internationally competitive. Therefore, export incentives have to be introduced and maintained at high levels to generate the anticipated export push. On the benefit side, there may be little to gain in terms of employment generation because such exports, being simply an extension of import-substitution production, tend to be highly capital intensive (Helleiner 1989). For these considerations, the present-day discussion on export expansion from low-income countries focuses almost

exclusively on the second alternative, the promotion of export-oriented direct foreign investment (EODFI).

What are the opportunities available to the NECs in enticing green-field investors to established export-oriented ventures in their economies? A crucial point relating to this issue is that FDI involvement in manufacturing for export from DCs is varied in its origin depending on host country comparative advantage in international production. The four-way commodity classification system developed in Chapter 5 in order to discuss market opportunities for manufactured export from DCs, when combined with the existing evidence on the pattern of internationalisation of production, provides us with a typology for conceptualising on this issue.[4] This typology is presented in Table 6.1.

Table 6.1 A typology of export-oriented foreign direct investment in new exporting countries

	Product category	*Product characteristics*		*Role of FDI*
		Technology	*Factor intensity*	
1	Resource-based manufacturing – local processing of primary products previously exported in raw state	Diffused	Mostly capital intensive	Of selective importance
2	Light standardised consumer goods – clothing, shoes, sporting goods	Well diffused	Labour intensive	Important
3	Component production and assembly within vertically integrated production systems: semi conductor assembly, parts of electrical machinery, motor vehicle parts etc.	Mostly internal to MNEs	Labour intensive	Extremely important
4	Differentiated final goods: ships, motor vehicles, radios, television sets, computers	Diffused	Capital and skill intensive	Of little importance

Sources: Based on Helleiner (1973 and 1988), de la Torre (1977), Grunwald and Flamm (1985), Guisinger (1985), Ranis and Schive (1985), Wells (1986a)

In the first and fourth areas, FDI is of limited relevance to many developing countries that attempt to embark on the export-oriented growth path. As for the first category, resources are, after all, found in particular national locations. Even if resources are available, there are other factors which make policies to entice foreign investors ineffective. For instance, some processing activities, particularly those in the mineral and chemical industries, are characterised

by high physical and/or human-capital intensity and may not therefore be suitable for locating in a low-income country. A further major deterrent is cascaded tariff structures in industrialised countries (ICs) which provide heavy effective protection to domestic processing industries.

In the area of differential final goods (Category 4), overseas production units of MNEs are almost exclusively located in other ICs or in more advanced NICs. In these products labour costs, while significant, take second place to the availability of world-class operator, technical and managerial skills, a good domestic basis of supplies and services, relatively free access to world-priced inputs including capital and excellent infrastructure. In other words, the locational decisions of MNEs depend on the availability of a wider array of complementary inputs that make their facilities efficient by world standards. Also, given the heavy initial fixed costs, MNEs are hesitant to establish an overseas plant without considerable experience of involvement in the host country. Moreover, in making investment decisions in this sphere investors attach significant weight to the existence of a large domestic market which can absorb a substantial proportion of output at the initial stage of market entry (Guisinger 1985).

For NECs standardised labour-intensive consumables (Category 4) are the most promising growth area in their export-expansion endeavour. The role of FDI in this sphere, however, remains a controversial issue. On the basis of the experience of East-Asian NICs, it has been argued that FDI involvement is by no means necessary for successful expansion of these exports as they embody well-diffused technology (Hone 1974:146, Nayyar 1978:61–62, Helleiner 1988:130). In the spectacular export take-off of East-Asian NICs in the 1960s, the key role was played by indigenous firms with the help of marketing services provided by foreign buyers—the Japanese trading houses and the large retail buying groups in developed countries. MNEs came only later when the prospects of exports from these countries became clear and their export composition started to shift over to more sophisticated product lines (Westphal *et al.* 1979).

There are, however, strong reasons to argue that the East-Asian pattern of local entrepreneur dominance in this product area may not be replicated in NECs. There are at least three points relevant to our argument. First, perhaps the most important factor behind the East-Asian experience was the unique entrepreneurial background of these countries. Hong Kong, Singapore and Taiwan started with a stock of entrepreneurial and commercial talents inherited from the pre-revolutionary industrialisation of China. They also had well-established international contacts based upon entrepôt trade which involved exporting of manufactures to begin with. Likewise, considerable industrial experience accumulated over the preceding five decades or so under the Japanese occupation laid beneath the foundation of Korea's export take-off (Rhee *et al.* 1984:132, Lin and Monk 1985:239). Therefore, there was no vast difference between domestic firms

in these countries and foreign firms with regard to knowledge of and access to production technologies and market channels. While there is no empirical evidence to prove so, it may not be unrealistic to surmise that many (perhaps all) of the present-day NECs are not comparable with these countries in terms of the initial level of entrepreneurial maturation. In most NECs, import-substitution growth strategy pursued indiscriminately over a long period has thwarted the development of local entrepreneurship; domestic firms are generally poorly oriented towards export markets where competitive pressures are greater.

Second, since about the early 1970s, successful exporting firms in NICs (mostly in the East-Asian NICs) have begun to play an important role as direct investors in labour-intensive export industries in NECs. Two main factors, namely the erosion of international competitiveness of labour-intensive export products from their home countries as an outcome of wage increases, and the imposition and gradual tightening of quantitative import restrictions (QRs) by DCs on certain labour-intensive exports (mostly textile, garments and footwear), have contributed to this new developments (Wells 1986a). There are indications that, in line with the rapid structural transformations that are taking place in NICs, the intermediary role of these 'new' investors in linking NECs to world markets may become increasingly important in years to come. From the point of view of the host DC, a major advantage of MNEs from NICs (or, third-world multinational enterprises, TWMNEs) is that, unlike multinationals from industrial countries (ICMNEs) they are used to and/or easily adaptable to relatively unsatisfactory business conditions (e.g. poor infrastructure, bureaucratic red tape) in these countries (Wells 1986a, Athukorala and Jayasuriya 1988).

In their new locations, TWMNEs have a strong competitive edge over local firms because of their product expertise, long-established links with foreign buyers and better access to input supply sources in their home countries. Usually, the host NECs prefer to restrict the entry of TWMNEs into these export sectors so that local firms can benefit from the new market opportunities generated by QRs on NICs. However, in practice, because of the lack of domestic entrepreneurial talents and the natural reluctance of foreign buyers to deal with unknown parties, such a move is bound to run counter to the export expansion objective of the country. The host country approach towards these new investors has, therefore, become increasingly receptive in recent years (Chen 1990).

Third, there is evidence that some developments since the mid-1970s in ICs' policy towards imports from DCs have brought about some shifts in the geographic pattern of foreign investment by IC firms operating in the related industries (Grunwald and Flamm 1985:7). Of particular importance in this connection are the introduction of various trade preference schemes, regional preferential arrangements, value-added tariff concessions and country-specific import quotas (voluntary export restraints, VERs), and the increase over

time in the degree of selectivity (usually in favour of newcomers at the expense of established (NIC) exporters) with which such policies are implemented. Trade preferences (and value-added tariff concessions) can stimulate EODFI when they involve significant cuts in effective protection on goods in which the countries concerned possess a comparative advantage. Likewise, VERs provided opportunities for developed country firms to exploit quota rent through overseas investment in affected industries.

The location in developing countries of relatively labour-intensive component production and assembly within vertically integrated international industries (Category 3) has been an important feature of international division of labour since about the late 1960s. This development is part of an adjustment process whereby firms in DCs adapt to the increasing pressures of domestic real wage increases and import competition from low-cost sources (Grunwald and Flamm 1985). The transfer abroad of component assembly occurs in many industries where the technology of production permits the separation of labour-intensive components from other steps in production. Assembly operations related to high-tech electronic industries, the production of semiconductor devices in particular, are by far the most important The other industries with significant assembly operations located in DCs are electrical appliances, automobile parts, electrical machinery and optical products.

Up to about the late 1970s, assembly operations were mostly carried out in the East-Asian NICs and in some low-wage countries specifically advantaged by proximity to the US (Mexico, Haiti and the Caribbean Islands) and to the Western European industrial countries (Spain, Portugal, Ireland, Greece and Yugoslavia). In recent years, the geographic coverage has widened to include countries such as Thailand, Malaysia , the Philippines, India, Malta, Tunisia and El Salvador. This pattern seems to reflect the impact of both wage increases in the originally favoured locations and FDI promotion policies in new host countries. As well, given the importance of overseas assembly for their survival, many MNEs have started having a diversified mix of country locations that reflect the optimum combination of risk and return (Grunwald and Flamm 1985:75).

Assembly exports from DCs have grown much faster than total manufactured exports from these countries. For instance, their share in total US imports of manufactures from DCs increased from 4 per cent in the mid-1960s to over 20 per cent in the late 1980s (UNCTC 1992:127). It can be reasonably expected that overseas production arrangements will continue to remain a dynamic growth area in the foreseeable future. For developed country NMEs in product areas such as electronics, electrical goods and automobiles, whose home operations are severely affected by import competition from low-cost sources, offshore assembly is crucial for their survival. Governments in these countries also actively encourage such operations through value-added tariff provisions and other measures with a view to cushioning domestic

economies against disruptions resulting from rapid imports penetration. For instance, the US government has created a special tariff structure which allows goods exported from the US for further processing to be reimported subject to ad valorem tariffs which are levied only on the value added abroad, not on the value inclusive of the original added in the US. While there have been attempts towards assembly automation in developed countries, there is no indication as yet of a trend away from offshore production (UNCTC 1986). In many high-tech industries (notably in electronics) rapid innovation and continuous technical change, which bring about a constant cycle of change and obsolescence, are a formidable constraint to rapid automation (Grunwald and Flamm 1985:7–9).

In world-wide offshore assembly operation, MNEs from industrialised countries (ICMNEs) are the key actors. While MNEs from the US dominate the scene, the involvement of Japanese and Western European MNEs also has been gaining importance since the late 1970s. More recently MNEs from more advanced developing countries (or third-world multinational enterprises, TWMNEs as they are popularly known), notably those from the East-Asian NIEs have joined this process of internationalisation of production. In response to rapid domestic wage increases, the growing reluctance of domestic labour to engage in low-paid blue-collar employment and stringent restrictions on the importation of labour, firms in the electronics industry and other durable consumer goods industries in NICs in East Asia have begun to produce components and sub-assemblies in neighbouring countries where labour costs are still low (UNCTC 1988, Chen 1990, Lall 1992).

Foreign investment climate

The relative attractiveness of a given country for FDI depends on both its comparative advantage in international production and the general investment climate. The typology developed in the previous section suggests that, at the present stage of economic development, Sri Lanka's comparative advantage in the international market for investment sites lies mostly in assembly activities in vertically integrated industries and light manufactured goods (Categories 2 and 3). According to the existing literature, in terms of the key country-specific factors which receive emphasis in site-selection decisions in these product areas (in particular, the availability of relatively cheap and trainable labour and infrastructure of reasonable quality), Sri Lanka ranks very favourably among countries at its stage of economic development (ILO/UNCTC 1988, UNCTC 1988, Chapter 12). In this context, the relative attractiveness of the domestic investment climate is crucial in explaining Sri Lanka's relative performance among DCs in attracting EOFDI.

The term 'investment climate' is used here to cover both policy-induced incentives and general business environment. Policy-induced incentives ('incentives' for short) encompass everything from straightforward incentives such as cash grants, tax holidays and low-interest loans to various disguised subsidies such as low public utility rates. General business environment, on the other hand, is a catch-all term for various considerations impinging on investment decisions such as political stability and the attitudes of the host countries towards foreign enterprise participation, macroeconomic environment, and stability and clarity of rules governing foreign investment. Most economists today accept the argument that general investment climate is much more important than specific incentives (Wells 1986b). Tax concessions and other profit-related incentives are relevant only if the general business environment is conducive for making profit. Moreover, as countries compete for attracting investment, the incentives offered by a given country are generally counter balanced by similar moves by other competing countries. Thus investment incentives may matter only when other conditions are roughly similar as between alternative host countries. In keeping with this received view, an attempt is made in this section to provide an overview of Sri Lanka's investment climate over the past three decades, paying attention to both investment incentives and the general business environment.

During the first decade or so after independence in 1948, Sri Lanka continued as an open trading economy with only relatively minor trade or exchange restriction, and liberal domestic policies. In line with this general policy stance, an extremely liberal policy was pursued in connection with the approval of FDI. This policy configuration paved the way for many MNEs to set up affiliates in Sri Lanka to undertake domestic production of goods which had previously been supplied from overseas production centres

As in many other developing countries, import restriction was the major factor which triggered the entry of MNEs into Sri Lankan manufacturing. In response to a deteriorating balance of payments situation, Sri Lanka moved rapidly into a regime of stringent import and exchange restrictions in the early 1960s, but the foreign investment policy continued to remain liberal until the mid-1960s. When their market shares were threatened by these restrictions, many MNEs set up affiliates within Sri Lanka to undertake the domestic production of items which had previously been supplied from overseas production centres. This move was greatly facilitated by the extremely liberal foreign investment approval policy pursued by the government at the time as part of its import-substitution industrialisation (ISI) strategy (Fernando 1971, 1972).

As the ISI strategy was reaching a crisis point by the mid-1960s, the view (which was widely held among development economists at the time) that 'import-substituting MNEs worsen countries' balance of payments' (Little 1982:185) began to dominate Sri Lanka's policy towards FDI. This view

resulted in a dualistic foreign investment policy characterised by stringent restrictions on import-substitution projects and favoured treatments for export-oriented ventures. A White Paper on the treatment of foreign investment issued in 1966 emphasised the important role that MNEs can play in the process of manufactured export expansion by providing easy access to foreign markets and bringing in experience and expertise in many complex facets of product development and international marketing. On these grounds, the White Paper introduced various tax concessions for export-oriented foreign ventures and relaxed foreign exchange restrictions on the remittance of dividends, interest and profit originating in such ventures. The government's commitment to the promotion of EOFDI was reaffirmed and further production and tax incentives were introduced by the *Five-Year Plan, 1972–77*.

These attempts to entice EOFDI were, however, made in an overall policy and political context which was highly unfavourable to private sector activities in general and export production in particular. Reflecting the cumulative impact of stringent trade controls, high export taxes and the overvalued exchange rate, the overall incentive structure of the economy was characterised by a significant 'anti-export bias' throughout this period (Cuthbertson and Athukorala 1990, Chapter 4). There was an import duty rebate scheme (designed to provide export-oriented manufacturers with access to global inputs at border prices) in operation since 1964. But, because of stringent performance requirements and bureaucratic red tape in operation, the scheme virtually played no role in removing the anti-export bias of the restrictive trade regime (Athukorala and Jayasuriya 1994). Moreover, during the period from 1970 to 1977, widespread nationalisation attempts, coupled with various economic controls, effectively marginalised the private sector in the economy.

With the change in government in 1977 there was a marked shift in Sri Lanka's development policy. The new right-of-centre government chose export-oriented industrialisation within the framework of a liberalised trade regime as the centre piece of its economic policy. In this context, the promotion of foreign investment, particularly in export-oriented manufacturing turned out to be a pivotal element in the new policy (Chapter 2). The key elements of the new foreign investment promotion strategy included the setting up of Export Processing Zones (EPZs) with a very attractive incentive package, entering into Investment Protection Agreements and Double Taxation Relief Agreements with the major investing countries, and guarantee against nationalisation of foreign assets without compensation under Article 157 of the new Constitution of Sri Lanka adopted in 1978. In addition to these specific investment promotion initiatives, various elements of the overall economic liberalisation package were improving the general investment climate in the country for export-oriented production by both local and foreign firms outside EPZs. These elements included the removal of most quantitative

restrictions on import trade, considerable relaxation of controls on capital and profit repatriation, exchange rate depreciation, a wide range of schemes pitched at export promotion and an all-encompassing duty rebate scheme and manufacture-in-bond scheme.

In addition to these policy initiatives, which foreign investors generally found highly attractive,[5] the political climate of the country during the first six years or so after the 1977 election was also much in line with investor expectation. After the crushing election defeat in 1977, the traditional opposition was in disarray, and the decline of the left-wing parties was accompanied by a weakening of the trade unions. In July 1980, the government crushed a major public sector strike using emergency powers and the armed forces, and no major trade union challenge emerged in subsequent years. All these developments, coupled with the restructuring of the political system along Gaullist lines created a strong sense of 'political stability'.[6] In sum, during the immediate post-1977 years Sri Lanka scored very well on various factors relevant to the foreign investors' perception; the international news media soon dubbed Sri Lanka 'the new investment centre of Asia' (*Far Eastern Economic Review*, 23 October 1978).[7]

The investment climate, however, did not remain highly favourable for long. Signs of policy instability and policy uncertainty resulting from internal power struggle of the ruling party were to emerge by 1982 (Manor 1984). In a context where two (or three) groups were tussling for ascendancy within the ruling-party hierarchy, political expediency gained priority over policy commitment required for the pursuance of an export-led growth strategy. Priority given to the implementation of a number of large (politically attractive) public investment projects aggravated the fiscal imbalance, increased inflationary pressures in the economy and generated macroeconomic instability which adversely affected the incentives for export industries (Athukorala and Jayasuriya 1994). The major blow, however, came with the escalation in 1983 of the long-standing political rivalry between the two major ethnic groups in the country (the majority Sinhala and the minority Tamil communities). There were subsequent attempts by the Sri Lankan government to resolve the conflict by providing the traditional Tamil provinces of north and north-east with some limited self-rule. This constitutional reform proved to be the catalyst for the eruption of a widespread insurrection launched by radical Sinhala extremists in the southern Sinhalese-dominated areas in the country. Thus, during most of the latter half of the 1980s the entire country was in turmoil and crisis.

By the end of 1989, the government had managed to crush the southern rebellion and to contain the ethnic confine mostly within the northern and north-eastern provinces. This was followed by a significant move towards further market-oriented policy reforms. This 'second-wave' liberalisation included an ambitious privatisation programme, further tariff cuts and simplification of the tariff structure and removing exchange controls on current

account transactions in successive stages culminating in the abolition of the foreign exchange surrender requirement on export transactions in March 1993. A new Investment Policy Statement announced in 1990 introduced several important changes to the foreign investment policy framework in line with the increased outward orientation of the economy. The new policies included abolition of various restrictions on the ownership structures of jointventure projects outside EPZs, providing free-trade-zone status to export-oriented foreign ventures in all parts of the country (in addition to in the area demarcated by the original GCEC Act) and the setting up of a new Board of Investment (BOI) in order to facilitate and speed up investment approval within a unified policy framework applicable to both import-substituting and export-oriented investors.

The year 1994 was a watershed in Sri Lanka's economic history. For the first time in the post-independence era the change of government did not result in a shift in the basic thrust of national development policy. In the light of the course of events under the new government since November 1994, it is clear that commitment to an outer-oriented development policy, which places emphasis on FDI participation in the economy, is now bipartisan policy.

These favourable developments notwithstanding, Sri Lanka still falls short of regaining the 'investment centre in Asia' image that prevailed in the aftermath of the 1977 policy reforms. There is still no end in sight to the ethnic conflict. The northern province and large parts of the eastern province (which together account for one-third of Sri Lanka's total land area) remain cut off from the national economy. Even in the rest of the country, prospects for attracting foreign investment, particularly in long-term ventures, is hampered by the lingering fear of resurrection of communal violence and sporadic attacks by the Tamil secessionists.

Trends and patterns of EOFDI

Trends

Like many other DCs, Sri Lanka does not maintain systematic records of FDI stocks and flows. The only data available for the analysis of overall trends in FDI come from the Central Bank's balance of payments recording system, and records of investment approvals maintained by the foreign investment approval agencies (FIAC and GCEC up to 1992 and BOI since then). According to the balance of payments data, the response of foreign investors to the 1977 policy reform was swift and remarkable. Total net capital inflow increased from US$ 0.2 million in 1970–77 to US$ 41 million in 1978–83, recorded a modest decline (to US$35 million) during the turbulent years of 1984–89, and then increased to US$129 million during 1990–94 (Table 6.2). The relative contribution of FDI to private sector fixed capital formation in the country increased from a mere 0.1%

Table 6.2 Sri Lanka: Net foreign direct investment flows, 1970–1992

Year	*Millions of US$*	*As a percentage of*	
		NFRI	*PFCF*
1970	−0.3	−0.6	−0.2
1971	0.3	0.4	0.3
1972	0.4	1.6	0.1
1973	0.5	1.1	0.2
1974	1.3	0.8	0.5
1975	0.1	—	—
1976	0.2	—	—
1977	1.2	−1.4	0.3
1978	1.5	0.7	0.6
1979	46.9	1.4	10.6
1980	43.0	6.0	7.8
1981	49.3	6.9	8.6
1982	63.6	7.2	9.1
1983	37.8	4.9	5.4
1984	32.6	2.9	4.5
1985	24.8	3.4	3.8
1986	29.2	3.9	4.0
1987	58.2	8.7	8.2
1988	46.6	6.2	5.7
1989	17.6	2.3	2.3
1990	42.5	6.3	2.9
1991	100.0	14.4	5.6
1992	119.2	12.0	9.4
1993	183.8	16.8	2.4
1994	158.2	10.2	1.8
1995	16.2	1.1	1.7
1996	86.3	6.0	0.8
Summary*			
1970–77	0.2	0.2	0.1
1978–82	40.9	4.4	7.3
1983–89	35.3	4.6	4.8
1990–92	87.2	10.9	6.0

Source: Compiled from Central Bank, Annual Report (various issues)

Notes
—Insignificant (less than 0.05 per cent) * Annual averages
NFRI=Net foreign resource inflow (=sign-reversed balance of the goods and services accounts in the balance of payments)
PFCF=Private fixed capital formation

during 1970–77 to over 7 per cent during 1978–94 (10% when the years 1984–89 are excluded). There was a marked decline in FDI flows, both in absolute terms and in relation to fixed capital formation following the

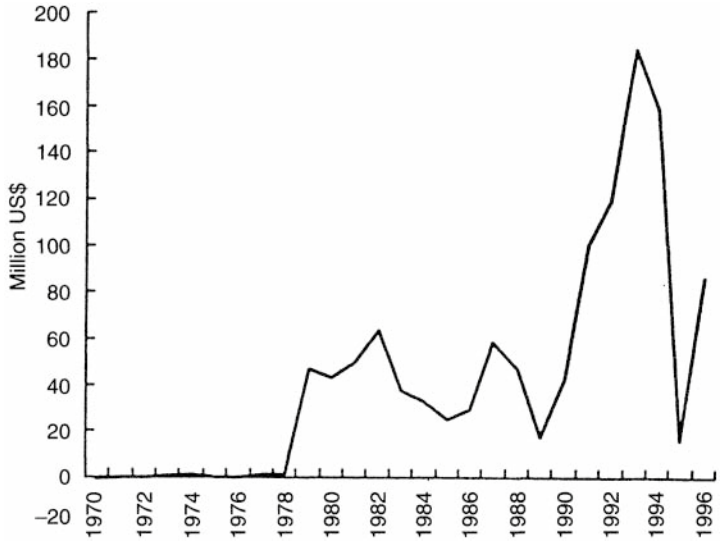

Figure 6.1: Sri Lanka: Net FDI inflows, 1970–1996 (million US$)
Source: Table 6.2

change in political leadership in 1994. The figures for 1996, however, pointed to a beginning of a recovery as the fear of a policy turnaround gradually dissipated.

In an international comparison for the 1980s, Sri Lanka's performance record in attracting FDI appears impressive (UNCTAD 1996). The share of global FDI going to developing countries declined from about 25 per cent in the early 1980s to about 17 per cent in the early 1990s. Many countries, particularly those belonging to the IMF country grouping of 'low-income countries' (which includes Sri Lanka), in fact experienced a decline even in absolute terms. In the late 1980s, FDI accounted for well under 1 per cent of gross domestic investment in all but seven low-income countries.

During 1967–77, a total of eighty-two foreign firms were set up in Sri Lanka manufacturing. Of these, only thirteen were export-oriented ventures (garments 9; gem cutting 2; ceramic-ware 1; wall-tiles 1). By contrast, during 1978–95, the BOI (formerly the Greater Colombo Economic Commission, GCEC) signed contracts under FTZ provisions for setting up 1,136 fully export-oriented foreign firms of which 835 had foreign capital participation. Of these contracted 'foreign projects' 368 were in commercial operation, 104 under construction and twenty waiting production by the end of 1995. (Henceforth, these firms are referred to as 'FTZ firms'.) Firms set up under general incentive provisions and tax laws ('non-FTZ firms') during this period

numbered over 670. Over 350 of these firms were in operation by the end of 1995. Around 35 per cent of them were in export-oriented manufacturing, 22 per cent import-substituting manufacturing, 18 per cent in agriculture and 25 per cent in services.[8]

Export performance

By the time of policy reforms in 1977, Sri Lanka's export structure was characterised by an extremely heavy reliance on a limited range of primary commodities. The share of manufactured goods (excluding petroleum products) in total merchandise exports during 1975–77 was only 4 per cent. Since then, manufactured exports have expanded rapidly and their share in total exports (in gross terms) had increased to over 72 per cent by the mid-1950s (Chapter 2).

The important role played by EOFDI in this transformation of the export structure is clearly brought out by the data reported in Table 6.3. The share of foreign firms in total exports of manufactures increased from 23 per cent in 1975–77 to over 76 per cent in 1993–95. The contribution of foreign firms to total increment in manufactured exports increased from 46 per cent between 1978 and 1985 to 85 per cent between 1985 and 1995. While both FTZ and non-FTZ foreign firms have performed better than local firms, the relative

Table 6.3 Sri Lanka: Foreign firms' contribution to manufactured export expansion, 1976–92 (three-year averages)

	Manufactured exports		*Foreign firms' contribution to manufactured exports*	
	Share in total US$ Millions	*All foreign firms[a] (%)*	*Merchandise exports (%)*	*GCEC firms (%)*
1975–77	24.8	4.0	23.2	n.a.
1978–80	102.7	10.4	30.2	n.a.
1981–83	234.9	22.1	43.7	30.6
1984–86	421.2	31.9	47.4	35.5
1987–89	653.5	44.2	58.2	43.5
1990–92	1083.1	56.6	65.8	47.6
1993–95	2280.9	71.8	76.3	68.5

Sources: Total manufacturing and merchandise exports: Central Bank, *Annual Report* and *Review of the Economy* (various years). Exports by GCEC firms: compiled from Board of Investment records. Exports by non-GCEC foreign firms: data for 1975 and 1976 are from Lakshman and Athukorala (1986) and other years, Export Development Board, *Annual Review of Export Performance* (various issues)

Notes
a Combined export share of FTZ and non-FTZ foreign firms
n.a.=not applicable

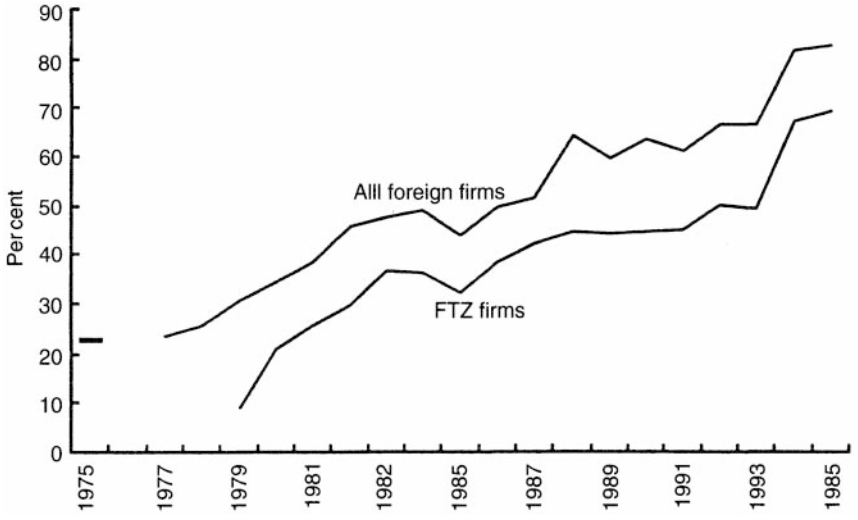

Figure 6.2 Contribution of foreign-owned firms to manufactured exports, 1976–1994
Source: As for Table 6.3

performance of the FTZ firms has been more impressive than that of non-FTZ firms.

Industry profile

Industry profile of export-oriented firms based on the typology developed earlier in this chapter is given for 1982 and 1991 in Table 6.4. As anticipated, we found no instances of foreign firms engaged in the production of differentiated final goods (Category 4). Out of the other three product categories, standardised consumer goods (Category 2) dominate the scene (in terms of both the number of firms and the share of total exports) with domestic resource-based products (Category 1) and component production assembly (3) occupying second and third positions respectively.

Sri Lanka's ability to attract EODFI into resource-based manufacturing is generally limited, given the very nature of the domestic resource endowment. Most of the firms in the resource-based product category are involved in activities making extensive use of the major primary agricultural products exported from Sri Lanka (tea, rubber and coconut fibre). Import duties in developed countries on most of the products exported by these firms are much higher than import duties on the related primary product. The location of production in Sri Lanka is, however, still profitable because of the labour-intensive nature of the manufacturing process and various export incentives

Table 6.4 Sri Lanka: Sectoral distribution export-oriented foreign manufacturing firms,[a] 1982 and 1991

Industry	*1982*		*1991*	
	No. of firms	*Export share (%)*	*No. of firms*	*Export share (%)*
1. Resource-based products	4	3.3	29	11.5
1.1 Processed food (311)[b]	—	—	2	—
1.2 Tobacco (312)	—	—	2	5.2
1.3 Rubber products (3550)[c]	1	2.8	8	3.2
1.4 Ceramic/granite products (3510)	1	0.2	8	2.3
1.5 Coir products (3909)	1	0.3	2	0.6
1.6 Gem cutting (3610)	—	—	7	0.2
2. Standardised consumer goods	27	94.9	81	79.6
2.1 Hand-looms and textiles goods (3211–2)	—	—	8	8.1
2.2 Knitting mills (3213)	3	1.1	5	9.5
2.3 Garments (3220)	18	85.8	36	42.0
2.4 Leather goods (3233)	1	—	6	3.0
2.5 Plastic goods (3560)	1	0.4	6	2.8
2.6 Footwear (3240)	2	1.0	4	2.5
2.7 Sports goods (3909)	—	—	10	2.8
2.8 Diamond cutting and jewellery (3901)	2	6.6	6	8.9
3. Component production and assembly	3	1.8	21	8.9
3.1 Electronics and electrical products (3931–3)	1	1.6	13	4.2
3.2 Other[d]	2	0.2	8	4.7
TOTAL	34	100	131	100
(US$ millions)		(129)		(506)

Source: Compiled using official records of the Board of Investment, Colombo

Notes

a Firms approved under FTZ provisions which were in operation at the end of given year. International Standard Industry Classification (ISIC) code is given in brackets

b Fruit canning, cashew nut oil, spice oil and tea bags

c Rubber bands, gloves, and heavy-duty tyres

d Parts for winches and cranes, steel fasteners, precision mould, steel mould and dies and motor vehicle spare parts

offered. An added reason for the location decision of gem cutting and polishing firms has been the restriction imposed by the government on the export of uncut/unpolished gems. Until 1991, export duties levied on tea, rubber and coir fibre artificially lowered their domestic user price for any manufacturing

activity using them as raw materials. This also acted as an added incentive for the entry of foreign firms into such product areas.[9]

In the area of standardised consumer goods the garment industry (Item 2.3, Table 6.4) has continued to be the major area of attraction to foreign investors.[10] However, since the late 1980s there has been a noticeable increase in the number of foreign firms entering into other labour-intensive product areas such as leather goods, footwear, toys, plastic products and diamond cutting and jewellery. At the early stage, the dominant factor behind the surge of FDI in garment industry was the quota restrictions imposed by ICs on garment imports from 'traditional' DC producers in East Asia under the Multi-fibre Arrangement (MFA). This is clearly evident from the predominance of firms from Hong Kong (the major developing country exporter of garments) in Sri Lanka's export-oriented garment industry (Table 6.4). By about 1983, garment exports from Sri Lanka too had come under stringent quota restrictions. Since then most of the new ventures in the garment industry are involved in the production of items that are not subject to MFA quotas. These investors as well as investors in other product areas have come to Sri Lanka because of its attractiveness as a lower-cost export base in terms of both the availability of cheap and trainable labour and the nature of the investment climate.

Sri Lanka's overseas investment promotion campaign has placed heavy emphasis on courting assembly producers in high-tech industries. Moreover, the government has even taken steps as far-reaching as the abolition of the International Labour Organisation (ILO) convention of banning night-work for women specifically to accommodate the requirements of prospective investors in this sphere. The outcome has, however, been rather poor. Until the late 1980s, there were only two electronics assembly firms of 'significant' size operating in the KEPZ—a German firm (with an employment capacity of 225 workers) and a Japanese firm (275 workers). Since then, a number of Japanese, Korean, Swiss and Taiwanese firms (each with an employment potential of over 200) have been set up. However, as yet Sri Lanka has not been successful in attracting any of the major electronics multinationals (such as Siemens, National Semiconductors, Motorola, Hitachi, Seagate and Nixdorf).

The usual explanation of this lack-lustre outcome is that the timing of Sri Lanka's policy initiative was out of line with basic developments in the world economy (Manor 1984). According to this view, the relocation of labour-intensive assembly operations in low-cost countries had lost momentum by the late 1970s because of the slowing down of post-war growth dynamism and moves towards assembly automation in ICs. This reasoning, however, fails to withstand empirical evidence relating to overall trends and geographic distribution of world-wide assembly operations. Assembly exports from DCs have, in fact, grown much faster than their total manufactured exports throughout (UNCTC 1992).

Some commentators have identified lack of skilled labour and potential joint-venture partners as another reason. This view reflects a lack of understanding about the nature of production processes and ownership practices of MNEs involved in assembly production. The labour skills required for these processes are not very different from that required in the production of light manufactures such as garments or soft toys. As regards the availability of local partners, full foreign ownership, rather than joint-venture operation, is the usual practice in setting up foreign production plants in this product category. A comparison of the Indian experience with that of Malaysia in courting EOFDI in this area supports these points. Though India is better endowed with low-wage, relatively high-skilled manpower and managerial talents than Malaysia, India's export processing zones, unlike those in Malaysia, have a dismal record in attracting electronic MNEs (Kumar 1989, Worthy 1989).

A more plausible explanation seems to lie in the nature of the investment climate in the country. Despite the government s continued commitment to outward-oriented policy and further strengthening of general incentives for EOFDI over the years, political and policy instability has been a major deterrent to FDI since the early 1980s. Foreign firms involved in vertically integrated assembly industries, unlike those involved in light consumer goods industries such as garments, usually view country risk and the other elements in the investment climate from a long-term perspective. In particular, electronics is generally thought of as a mobile industry which is highly sensitive to the risk of production disruption (Grunwald and Flamm 1985, Wheeler and Mody 1992).

Two major electronics multinationals, Motorola and Harris Corporation, had in fact finalised plans to establish plants in KEPZ by the time the political climate began to deteriorate in the early 1980s. Motorola incorporated a fully owned subsidiary in October 1980 to establish an assembly plant with an initial employment capacity of 2,624 workers. It appears that this locational decision was motivated by Sri Lanka's attractive incentive package which handsomely counterbalanced the inherent locational disadvantage of the country (Weigand 1983:147), and the 'perceived' political stability of the country at the time (see note 5). The project was subsequently shifted to a Malaysian location. Harris Corporation even started building a plant with an initial employment capacity of 1,850 workers and withdrew in 1984, leaving the plant half built. In the global electronics industry, agglomeration economies (benefits from co-location by economic units) are a dominant influence on investor calculations.

In the site-selection process of electronic MNEs, there is something akin to 'herd psychology', particularly if the first-comer is a major player in the industry (Helleiner 1973:34).[11] A major firm's early decision to invest in a particular country (for a variety of reasons, including an 'accident of history'), therefore, lead to a 'big reward for the winner of a locational tournament'

(Wheeler and Mody 1992). Considering this, one can surmise that if the two projects of Motorola and Harris were successful, then many other MNEs would have followed suit giving a major boost to the expansion of assembly exports from Sri Lanka (as it has happened in Malaysia (Worthy 1989:130)).

Source-country composition of EOFDI

Data relating to the source-country composition of EOFDI are reported in Table 6.5. Slightly more than a half of the export-oriented firms set up during 1978–92 have developing-country parentage. Such firms account for about 60 per cent of total manufactured exports by all GCEC firms with foreign capital participation. Among the developing-country investors, Hong Kong, which is also the largest DC investor at the global level (Chen 1990), is by far the largest. As noted, Hong Kong's dominance has emanated mostly from her quota-hopping investment in the garment industry. Until the mid-1985s,

Table 6.5 Sri Lanka: Source-country profile of export-oriented foreign manufacturing firms, 1991[a]

Country/country group	*Number of firms*	*Export share (%)*
Industrialised countries	58	41.1
Belgium/Luxembourg	7	6.4
Germany	8	4.5
Switzerland	9	1.0
Japan	5	1.8
UK	4	2.4
USA	4	8.1
Holland	3	6.2
Australia	3	0.1
Other[b]	15	10.6
Developing countries	62	55.9
Hong Kong	23	22.9
Korea	18	16.2
Taiwan	5	4.3
India	3	0.2
Singapore	4	3.5
Other	10	8.8
Other[b]	11	3.0
Total	131	100

Source: Compiled using unpublished data provided by the Board of Investment, Colombo

Notes

a Firms in operation as at end 1991

b Firms with foreign capital participation by IC and DC investors

there were only three Korean manufacturing firms operating in Sri Lanka, and the number increased significantly following Korea's removal of restrictions on outward investment in 1984. According to recent investment approval records of BOI, the relative importance of Korea and Taiwan as sources of EOFDI for Sri Lanka is bound to increase significantly in the near future.

The IC firms in the BOI list are not generally subsidiaries of well-known MNEs. Except for a few large-scale British and German firms in the garment industry, a medium-sized producer of heavy-duty tyres from Belgium and two medium-sized electronics assembly firms from Switzerland, others are smaller firms, often only beginning to expand their international operations. An interesting feature of the source country profile is the unimportance of Japan, compared to south-east Asia, where it is enormously important (Hill 1990). Presumably a major reason for this difference is the mismatch between the nature of Sri Lanka's attractiveness as an investment site and the pattern of Japanese overseas investment during this period. While Sri Lanka's attractiveness as an investment lay basically in the area of labour-intensive consumer goods production, by the late 1970s Japanese overseas investment had shifted from these product lines to assembly activities in high-tech industries and mature-technology final products. Moreover, as Japan was not a signatory to the MFA, seeking quota rents through the production of garments in Sri Lanka for the home county (Japanese) market was not a motivating factor for Japanese firms (unlike for firms from other ICs).

When individual firms are cross-tabulated by home-country and product category, developing-country firms show a greater concentration in standardised consumer goods production than developed country firms—a pattern postulated by the typology developed in Section 3. Contrary to the usual expectation (Wells 1986a, Chen 1990) the average IC firm is only marginally larger (in terms of average total investment) than its DC counterpart (Rupees 16 million compared to 14 million). This is, however, not surprising because the industry composition is dominated by labour-intensive (standardised) consumer goods where DC investors have a comparative advantage. In this product category, the average DC firm is relatively larger (Rs 17 million) than the average developed country firm.

As noted, 100 per cent foreign ownership is an added privilege offered under the FTZ law in Sri Lanka. However, partnership, rather than full foreign ownership, is the general pattern observable across firms in operation. At the disaggregated level, joint-ventures are however common only in low-technology light manufactured goods industries, and in most of these cases the foreign partners are from other developing countries. Firms involved in component assembly industries, both from developed and developing countries, are generally fully-owned subsidiaries.

Conclusion

Our analysis of both global patterns and the Sri Lankan experience supports the view that EOFDI is not a homogeneous, but a complicated and finely differentiated, means of gloabalisation of production. The opportunities available to a given country in this sphere depend crucially on relevant typological characteristics and the investment environment of the country and the changing pattern of internationalisation of production in a global context. It is therefore hazardous to generalise from the NIC experience in considering opportunities available to the NECs.

Traditional labour-intensive manufactures and component production/assembly within vertically integrated high-tech industries are the key product areas where countries like Sri Lanka seem to have opportunities for harnessing FDI in their export drive. With regard to the former area, our findings point to the important role that investors from the East Asian NICs play in leading other DCs in the region into international markets. With continual structural changes in NICs, this role may become increasingly important in years to come. The latter area is generally characterised by the dominance of MNEs from developed countries which usually place a greater emphasis on political and policy stability in their site-selection process. A notable development in this sphere, which is bound to have immense implications in the years to come for Sri Lanka and other NECs in the region, is the rapid regional spread of electronics producers from Korea and Taiwan who seem to place relatively less weight on political and policy instability.

The Sri Lankan experience with EOFDI promotion clearly suggests that the overall investment climate is more important in attracting foreign investors than the mere availability of investment incentives, no matter how attractive such incentives are. Generous tax incentives for EOFDI have been a feature of the country's tax system since the mid-1960s. Yet the foreign investor response to these incentives was lack-lustre until the significant overall policy reorientation in 1977. The most relevant aspect of government policy seems to have been the creation of an environment conducive to the exploitation of international comparative advantage of the country.

Notes

1 An expanded version of, 'Foreign Direct Investment and Manufacturing for Export in a New Exporting Country: The Case of Sri Lanka', *World Economy*, 18(4), 1995, pp. 543–64.

2 In line with usual practice in this area of study, the multinational enterprise (MNE) is defined here as an enterprise that owns and controls business ventures in more than two countries (including its home country). When this definition is adopted the bulk (if not all) of FDI in a given host country can be considered as MNE investment. The terms 'foreign firm' and MNE are used interchangeably.

3 This term refers to the DCs which are now shifting gradually from primary commodity specialisation into labour-intensive manufactured exports. Alternative terms are 'second-tier exporting countries' and 'next NICs'.

4 For a comprehensive synthesis of the relevant literature see Helleiner 1989:1472–74.

5 'I don't see what more an investor could want than Sri Lanka has to offer', Mr G.W.Bell, Managing Director of Lehman Brothers (*Asia Wall Street Journal*, 23 September, 1980). Also a survey in *Far Eastern Economic Review* (October 1981) identified Sri Lanka's incentive package as 'More than attractive'.

6 On the occasion of signing the investment agreement with the GCEC to establish a semi-conductor processing plant in the KEPZ in 1980, Mr. W.D.Douglas, a vice-president of Motorola Corporation stated: 'Political stability is number one on our list wherever we go' (as quoted in Wijesinghe 1982).

7 *Asian Wall Street Journal* (23 September 1980) reported the Managing Director of Lehman Brothers as saying, 'I do not see what more an investor could want than Sri Lanka has to offer'. In a comparison of relative labour productivity (which combined both efficiency and wage cost) of Asian workers appeared in *Business Asia* (2 June, 1978), Sri Lanka (42) was placed ahead of the Philippines (41), Taiwan (34), Korea (21) and India (12), and only next to Singapore (47).

8 Interestingly, among non-GCEC firms there is a sharp distinction between export-oriented firms and those which serve the domestic market. Even though the investment approval procedure treats any firm which has the potential for exporting at least 50% of its output as an 'export-oriented' venture, in practice every export-oriented firm in full commercial operation seems to export over 90 per cent of its output (FIAC 1988). It appears that given the small domestic market and scale-economy considerations underpinning successful export market penetration, foreign subsidiaries are set up in small DCs like Sri Lanka either to serve the domestic market or to export exclusively (see Chapter 7).

9 When all export duties were abolished in 1991, the EDB had to introduce a direct cash subsidy (to compensate for the implicit export duty subsidy which existed until then) in order to maintain the profitability of these foreign firms.

10 The prominence of garments in the early stage of EOFDI participation is a common experience in developing countries. However, the degree of reliance of Sri Lanka on this single product line is indeed striking. This partly reflects Sri Lanka's failure in attracting EOFDI into other product areas. Another possible explanation seems to lie in Sri Lanka's attempt to use MFA quota allocation procedure as an inducement for foreign investors. Sri Lanka has continued to allocate 50 per cent of its lucrative US quota to EPZ firms. At the same time, foreign joint-venture firms operating outside the EPZs are treated equally with local firms in allocating other quotas.

11 This is probably because agglomeration economies (benefits from co-location by economic units) are a dominant influence on investor calculations in this industry (Wheeler and Mody 1992).

7

MULTINATIONALS AND EXPORT PERFORMANCE: ANALYTICAL ISSUES AND EMPIRICAL EVIDENCE[1]

In a given host-country environment, are the affiliates of multinational enterprises (MNEs) more export-oriented than the wholly domestically controlled firm? In recent years this issue has acquired a further dimension with the development of the so-called third-world multinational enterprises (TWMNEs) whose industrial performance differs in important respects from the developed country MNEs (DCMNEs). Given the desire of many developing countries to achieve rapid economic growth through the promotion of manufactured exports, this has become a subject of much policy interest with implications for policies towards foreign direct investment (FDI). It has also generated considerable academic debate.[2] However, no clear conclusions emerge from the relatively small number of empirical studies on this issue. Further, even these studies suffer from important methodological flaws in their statistical analysis. In this chapter we draw attention to some of the key methodological flaws of the earlier studies, present a more appropriate econometric procedure and provide new empirical evidence on the issue based on an analysis of data from Sri Lanka. Further, to our knowledge, for the first time in the literature, a distinction is drawn between DCMNEs and TWMNEs in the analysis of export orientation.

A key methodological weakness of previous published studies (with the exception of the study by Natke and Newfarmer (1985) for Brazil) is that they are based on the simple comparison of two sub-samples (foreign and local) of firms or the application of the Wilcoxen signed-rank test to 'matched' pairs of firms.[3] The findings of these studies cannot be considered conclusive as they do not control for the large number of other firm- or industry-level factors which may account for differences in export orientation; the observed differences (or lack of them) may have stemmed from the impact of these excluded factors.

The study of Natke and Newfarmer (1985) does not suffer from this flaw; they include foreign ownership alongside a list of other variables (based on the received theories of industrial organisation and international trade) in multiple regression analysis to explain inter-firm variation in export

propensities of a sample of over 500 firms in Brazilian manufacturing.[4] However, the authors exclude firms which had no reported exports from the sample 'to avoid estimation problems caused by a large group of observations having the same value for the dependent variable' (p. 21). This arbitrary sample-selection procedure creates serious problems. It imparts well-known 'selectivity bias' ('Heckman bias') to the analysis and thus poses a question over the econometric results (Maddala, 1983:258–59).[5] Further, when the 'zero-export' firms are excluded, the remaining sample is representative of only the export sector, not the manufacturing sector as a whole. Export orientation in such a context refers to the level of exports of exporting firms.

In this study we employ, for the first time in this area of research, a simultaneous-equation estimation technique due to Lee and Maddala (1985) which enables a multi-variate analytical approach to be used while avoiding the sample-selection bias mentioned above. In applying this procedure, we consider the export behaviour of the firm as comprising two interdependent decisions, whether to export or not and, if the decision is made to export, what proportion of output to be exported. The underlying hypothesis is that in a developing country with a small domestic market, such as Sri Lanka, a sharp distinction exists between firms which are exporters and those which serve the domestic market. As Caves put it:

> 'given scale economies and the very small domestic markets of most Developing countries, a foreign subsidiary will locate there either to serve the domestic market or to export exclusively, but it will not serve the domestic market and export a little.... Accordingly, generalisations that span the export and domestic market are somewhat suspect'.
>
> (1982:253–54)

It is also important to note that, as regards the nature and degree of export orientation, foreign firms operating in developing countries tend to divide into two distinct categories. The first category, which we dub 'pure exporters', comprises firms which have been approved by the host-country government exclusively for export production ('exporters by decree')[6] and/or firms set up for offshore assembly operation as a part of the global production process of MNEs (e.g. assembly affiliates of electronic multinationals). The second category comprises firms which have the 'freedom' to sell in both domestic and overseas markets. Whether some types of firms have a greater propensity to export as compared with local firms becomes a meaningful issue with regard to the latter category only; the relative export propensity of the former category needs no explanation. As Helleiner (1988:136) has noted, much of the confusion surrounding the relative export propensity debate seems to have arisen from mixing these two categories of firms. In our analysis, we clearly distinguish between these two categories and focus on the former.

Sri Lanka provides an interesting subject for the study of the issue at hand. Since the late 1960s, the country has actively encouraged the participation of MNEs in the export expansion process. Following the extensive market-orientated economic policy reforms initiated in 1977, manufactured goods have emerged as the most dynamic element in the export structure of the economy and DFI has been the major driving force behind this export expansion (Chapters 2 and 6).

The remainder of the chapter is organised in the following form. In the following section the conventional view on the relative export orientation of MNE affiliates in a host-country setting is briefly discussed in order to provide groundwork for the ensuing empirical analysis in context. The next section describes the econometric methodology, sets out the two-equation simultaneous equation model and describes the data base, followed by the main results and conclusions.

Theory and hypotheses

It has become increasingly recognised that traditional trade theories which focus on country-specific variables alone are inadequate to explain actual trade patterns; this has led to a switch of emphasis to firm- and market-specific characteristics (Dunning *et al.*, 1990). Unfortunately there is no fully developed theory or a standard model which explains differences in inter-firm trade behaviour. However, a range of firm-specific factors has been identified as key determinants of such behaviour. Among these factors are differential access to factor markets, international market linkages and different technological and organisational capabilities. The importance of firm ownership has arisen in this context, given the hypothesised relationship between such firm-specific attributes and the nature of ownership. MNEs are considered to possess competitive advantages over domestic firms in many of them; hence there has been a common presumption that they would tend to be more export oriented. However, theoretical analysis of multinational corporations, as expounded in the well-known eclectic theory of foreign investment by Dunning (1988), suggests a multitude of factors which influence the foreign investment decisions of MNEs. These include portfolio diversification motives, perceived opportunities to exploit firm-specific advantages such as technological and marketing capabilities, locational advantages of particular countries, the potential for lowering transaction costs and overcoming trade barriers. Clearly, while some of these motives can enhance export propensity, others may not necessarily do so; indeed, some factors may even be negative.

On the positive side, the affiliates of MNEs, as part of the parent company's total global network, have marketing channels in place, have better knowledge of foreign markets, possess experience and expertise in the many complex facets of product development and international marketing and are well placed

to take advantage of inter-country differences in cost of production. Also, foreign subsidiaries produce goods with internationally well-known brand names and trade marks. Moreover, MNEs may be better able to resist protectionist pressure in their home countries in such a way as to favour imports from their affiliates (Helleiner, 1988:142).

On the negative side, first, MNEs generally plan their international operations on a world-wide scale and allocate markets among the subsidiaries in the interest of global profits. In this context, the parent company may discourage export activities of subsidiaries if such exports are perceived to be competitive with existing, more profitable operations in other locations. There is ample evidence about corporate restrictions, both formal and (mostly) informal, on affiliates' exports, particularly for those goods embodying high technology (Lall and Streeten, 1977:136–37, Newfarmer, 1985:180). Second, as the theory of international investment predicts, the monopolistic advantages of MNEs over local firms lie mostly in product areas where technology is least standardised, scale economies are present and marketing entry barriers are high. By contrast, at the initial stage of export expansion, the typical developing country has market niches mostly in light manufactured goods produced with standardised and diffused technology. In such product areas, a foreign firm is unlikely to have the technological capacity to outperform the local firms, even though they may have an edge over local firms through their access to marketing channels in the developed countries. In this context, the activities of foreign buyers who provide marketing services to local firms may acquire considerable significance and lead to the erosion of the advantage possessed by MNEs. Purely indigenous firms in these areas may be able to achieve comparable or even better performance utilising marketing services provided by such foreign buyers (Hone 1974:146; Keesing 1983:338, Helleiner 1988:130). Third, policy factors and economic conditions peculiar to the given host-country environment may exert a strong discriminatory influence on the relative export performance of foreign firms. For instance, factors such as difficult labour conditions, poor infrastructure, administrative delays and restrictions on profit remissions may suppress the export potential of foreign firms. These conditions may not affect local firms to the same degree (Lall and Mohammed, 1983:58).

What we have outlined above pertains to the relative export performance of the 'traditional', developed country multinational enterprises (DCMNEs). The fledgling literature on the new phenomenon of third-world multinationals (TWMNEs),[7] however, suggests that such conditions may not be directly applicable to the affiliates of TWMNEs operating in other developing countries. According to this literature, TWMNEs possess a number of unique characteristics which distinguish them from DCMNEs. One such difference relates to a 'special contribution' they may make to export expansion in (other) developing countries. The technology of TWMNEs, which reflects peculiarities of the factor market conditions in

their home countries, may be more appropriate to the relative factor price configurations in the host developing countries. Moreover, in these new locations, TWMNEs have a strong competitive advantage over local firms because of their product expertise, long-established links with foreign buyers and better access to input-supply sources in their home countries. Also, given their familiarity with developing-country situations, the discriminatory impact of host-country environment on their export orientation may be smaller. These considerations may lead one to postulate a greater export propensity for TWMNE affiliates as compared with affiliates of DCMNEs as well as local firms.

However, the differences in export behaviour are influenced not only by ownership differences. They are significantly conditioned by industry characteristics and government policies. It is important that these factors are incorporated in any empirical investigation of the importance of nationality of ownership. For example, there can be large differences among different industries in the nature of technology, such as factor intensity, which can influence comparative advantage. Furthermore, firm size also can be an important determinant of export orientation where scale or size economies exist. Exporting is a costly and risky activity, and smaller firms on their own may be at a disadvantage in gathering market information, launching overseas salespromotion campaigns, bearing exchange rate and other risks and adapting their products to foreign markets. Therefore reaching an adequate size may be important for achieving success in export markets. However, as Glejser *et al.* (1980) argue, if large firms exercise market power at home, they may prefer the easier life of selling domestically to the troublesome one of exporting. In such a context, smaller firms may have a greater incentive to look abroad for less monopolised markets. Furthermore, if the purpose of exporting is to achieve scale economies, then large firms, after a certain threshold, may have a smaller incentive to increase exports as compared to small ones (Lall and Kumar, 1981). Clearly, government policies can influence firms' export behaviour. For example, anti-export bias embodied in the incentive structure of the economy should encourage firms to sell in the domestic market at the expense of exporting.

Methodology and data

Econometric procedure

The export behaviour of the firm is considered to involve two decisions, whether to export and what proportion of output is to be exported. This two-part decision-making process (yes/no and if yes, how much?) is common in many areas of decision making in economics and, in the econometric literature, is known as the sample-selection (or selectivity) model (Maddala, 1983). Various econometric representations of this model have been specified,

each based on different assumptions concerning the relationship between the decisions and the range of the 'amount' variable (in our case, the export level or propensity variable). The specification due to Lee and Maddala (1985)[8] provides for the application of the maximum likelihood estimation technique for the general two-part decision model which recognises the inter-dependence of the two decisions and the non-negativity of potential 'amount'. Given that the decision to export or not and the decision on the proportion of exports might be inter-related and that the amount of potential exports must be non-negative, this is an appropriate model which permits multi-variate analysis while avoiding the selectivity bias.

The general model is:

$$E_i^* = Z_i\alpha - \epsilon_i,\ \epsilon_I \tilde{N}\ (0,1),$$
$$A_i^* = x_i\beta + u_i^*,\ A_i^* > 0. \tag{1}$$

where Z_i and X_i represent regressors, α and β represent parameters, E_i^* represents the difference of the indirect 'utilities' between the decision to export or not and A_i^* represents the potential (non-negative) amount (degree of export propensity). Note that the potential amount of export is a latent variable which is truncated to be non-negative; we assume that $u_i^* N(0, \sigma^2)$ but truncated at $-x_i\beta$. For convenience, define $u = u_i^*/\sigma$ as the corresponding standard normal truncated variate. Without loss of generality, the variance of the 'eligibility' equation is set to unity as with the standard probit model. To capture the possible interdependence of decisions, we permit $\rho = cor(\epsilon_i, u_i^*/\sigma) = cor(\epsilon_i, u_i)$ to be non-zero.

The observed level of exports A_i is related to equation (1) as follows:

$$A_j = X\beta + u_j^* \text{ if } Z_j\ \alpha \geq \epsilon_i \text{ and } I_j = 1,$$
$$A_j = 0 \text{ if } Z_j\alpha\pi\epsilon_i \text{ and } I_j = 1 \tag{2}$$

if the decision was made to export (I_i=1), then the observed level of exports equals the potential level of exports. On the other hand, if the decision was not to export (I_i=0) then, the potential level of exports is not observed.

To derive the joint distribution for ϵ_i and u_i the truncated normal variable u_i transformed into a standard normal variate. Then the likelihood function is formed assuming standard bivariate normality. The log-likelihood function for the model defined by (1) and (2) can be written as:

$$L = \sum_{i=1}^{n} [I_i [\ln \left[\frac{1/\sigma\phi\{(A_i - X_i\beta)/\sigma\}}{\phi\{X_i\beta/\sigma\}} \right] + \ln\phi \left[\frac{Z_i\alpha - (\rho\{A_i X_i\beta)/\sigma\}/\phi\{X_i\beta/\sigma\})}{(1-\rho^2)^{1/2}} \right]] + (1 - I_i)\ln[\phi(-Z_i\alpha]] \quad (3)$$

To gain maximum likelihood estimates, (3) is maximised with respect to the unknown parameters by a numerical optimisation algorithm.

Model

Our model contains two equations each explaining the decision to export (*ED*) and the decision on the level of exports (*EL*). *ED* is measured in terms of a binary variable which take values 0 for non-exporting firms and 1 for exporting firms. *EL* is measured as the ratio of exports to total sales. On the basis of the previous discussion, the same set of explanatory variables has been used to explain both the decision to export and the level of exports. The model is:

ED=ED(KL, SZ, DCF, TWF, DGM, AEB)

EL=EL(KL, SZ, DCF, TWF, DGM, AEB)

Where the explanatory variables, with the expected signs in parenthesis, are as listed and defined below.

KL(-)	Capital intensity, defined as the value of machinery and equipment.
SZ(+)	Firm size, represented by gross output.
TWF(+ Or -)	A dummy variable which is 1 if the firm is an affiliate of a TWMNE and 0 otherwise.
DCF(+ or -)	A dummy variable which is 1 if the firm is an affiliate of a DCMNE and 0 otherwise.
DGM (+)=	A dummy variable which is 1 if the firm is in the garment industry and 0 otherwise.
AEB(-)	Anti-export incentive bias index represented by the effective protection coefficient for production for the domestic market.

In specifying the nationality-of-ownership (parentage) dummies (TWF and DCF), we have treated local ownership as the base dummy. Therefore, the estimate coefficients of TWF and DCF variables are expected to indicate the difference in export propensity of affiliates of DCMNEs and TWMNEs in relation to local firms. According to the theoretical considerations discussed

earlier, the estimated coefficients of these variables can be either positive or negative.

KL represents physical capital intensity of production. In the context of a semi-skilled and unskilled labour rich and capital scarce economy, like Sri Lanka, conventional trade theory predicts a negative sign for the coefficient of this variable. Firm size (SZ) is widely used in econometric analysis of firm-level export performance as an indicator of scale economies or competitive power (Hirsch and Adler 1974, Glejser *et al.* 1980, Lall and Kumar 1981). For the reasons given earlier, the sign of the coefficient of SZ can be expected to be positive in the export-decision (ED) equation, but need not necessarily be so in the export-level (EL) equation.[9] The sign expected for the coefficient of AEB is negative.

Finally, DGM is included in the model to capture the 'special circumstances' faced by the firms in the garment industry, the major export-orientated manufacturing industry in Sri Lanka. The spectacular growth of garment exports from Sri Lanka since the late 1970s has mostly been a spillover effect of restrictions imposed by developed countries under the Multi-fibre Arrangement (MFA) on 'traditional' developing-country exporters, notably East Asian Exporters. Many garment-producing firms from these countries established plants in Sri Lanka to circumvent such restrictions. This led many international buying groups linked to major retail stores in Europe and North America, which had long-established links with such firms, to set up buying offices in the country. However, once established in the country, these buying groups provided an avenue for local firms, too, to enter the export market. Subsequently, garment exports from Sri Lanka, too, were subjected to quota restrictions, thus providing quota-receiving firms, irrespective of nationality, an incentive to export. It is possible that the quota-allocation processes may have favoured domestic firms.[10]

Data

All the data series, except the one for the export-bias index, were compiled using firm-level data from the Sri Lankan Survey of Manufacturing in 1981. The identification of MNE affiliates for the purpose of data compilation was based on the list of firms prepared by Lakshman and Athukorala (1986). This list covers all the firms with foreign capital participation which were in operation in Sri Lanka's manufacturing industry as at the end of 1981. Initially, data was obtained for all private sector firms employing more than ten workers for all industries (at the 4–digit level of the International Standard Industry Classification, ISIC) each of which contained at least one foreign firm. Firms for which data relevant for the study were missing were excluded from the list. The list at this stage contained 132 firms. From the list, 21 free-trdae-zone firms were excluded as they are legally compelled to export their entire output.

The data series for the export-bias index was provided by the Presidential Tariff Commision (PTC). This measure incorporates both explicit subsidies and taxes, and the protection premium arising from non-tariff restrictions on imports. The data represents average rates for 4–digit industries. For the purpose of this study, each firm in the sample was assigned the rate for the 4–digit industry to which it belonged. The distribution of sample firms (111) by the degree of export propensity and ownership is presented in Table 7.1. In 1981 these firms together accounted for 75 per cent of total private sector manufacturing output and 82 per cent of total manufactured exports by firms located outside the export-promotion zone.

Table 7.1 Distribution of sample firms by export level and ownership

Export level[a]	*DCMNEs*	*TWMNEs*	*Local firms*	*Total*
0	17	4	53	74
0–5	3	1	0	4
5–10	1	0	0	1
10–20	1	0	0	1
20–30	1	1	0	2
30–50	1	1	3	2
50–80	3	0	8	11
Over 80	5	5	3	13
Total	32	12	67	111
Weighted-average export level				
a[b]	17.2	35.6	27.8	27.3
b[c]	87.2	86.5	82.3	83.4

Source: Compiled from returns to the *Survey of Manufacturing—1981*, Department of Census and Statistics, Colombo

Notes

a Exports as a percentage of sales

b Exports as a percentage of sales of all firms

c Exports as a percentage of sales of *exporting firms* only

Results and conclusions

To obtain estimates of the model, the log-likelihood function (3) was maximised with respect to the unknown parameters using the Davidson–Fletcher-Powell (DFP) algorithm.[11] Conventional probit estimates (for ED equation) and OLS estimates (for the EL equation) were employed as starting values for numerical optimisation.

Maximum likelihood estimates for the log-linear version of the model are reported in Table 7.2.[12] Overall, there was good explanatory power for the *export-decision equation* as indicated by the summary statistics PRO and SCC (see notes to Table 7.2 for a description of the summary statistics and

Table 7.2 Maximum likelihood estimates of the model[a]

Explanatory variables	*Export-decision equation*	*Export-level equation*
Constant	4.62 (2.11)*	3.61 (1.67)*
KL	0.19 (1.72)*	−0.05 (−0.31)
SZ	0.20 (1.54)*	−0.05 (−0.43)
DCF	0.18 (0.43)	−0.56 (−1.22)
TWF	1.58 (3.03)***	0.22 (0.41)
GDM	5.56 (4.48)***	0.49 (0.66)
AEB	−1.17 (−2.26)**	0.08 (0.17)

$\sigma = 1.04(8.72)$
$\rho = 0.04(0.34)$
PRO = 0.81
SCC = 0.41
Trun = $R^2 = 0.21$

Likelihood ratio (LR) tests:
$LR_1 = 55.85(\chi^2(8) = 15.51^{***})$
$LR_2 = 63.07(\chi^2(13) = 22.37^{***})$

Source: Author's estimates based on data sources discussed in the text

Notes:

a t-ratios in parentheses. The level of statistical signficance (one-tailed test) is denoted as, * 10 per cent, ** 5 per cent, and *** 1 per cent.

PRO = proportion of correct predictions for the probit (export decision) equation (Amemiya, 1981:1503)

SCC = Squared correlation coefficient for the Probit equation (Amemiya, 1981:1504)

Trun R^2 = Squared correlation coefficient for the non-truncated observations recognising the truncation (Dhrymes, 1984:1603)

LR_1 = Test for the Tobit specification, $H_o : \alpha_i = \beta_i/\sigma$ *and* $\rho = 0, i = 1,\ldots 7$; $H_1 : \alpha_1 \neq \beta_1/\sigma$ *and* $\sigma \neq 0$

LR_2 = Test of overall explanatory power, H_o: $\alpha_i = \beta_i = \rho = 0$ for all except the intercept; $H_i : \alpha_i \neq \beta_i \neq 0$

LR_2 = Test of overall explanatory power, $H_o : \alpha = \beta_{ii}/\sigma$

likelihood ratio tests). The coefficients of all explanatory variables, except that of the dummy variable for DCMNEs, are statistically significant at least at the 10 per cent level.[13] The result for the anti-export bias variable lends strong support to the view that firms in protected industries tend to be strongly home-market oriented. On the other hand, the garment industry dummy is positive and significant as expected. The results provide an interesting insight into the export orientation of different types of multinational. While there appears to be no significant differences between domestic firms and DCMNEs (once controlled for other characteristics), the affiliates of TWMNEs perform significantly better. This lends support to the hypothesis that TWMNEs may indeed be able to make a 'special contribution' to manufactured export growth

of other developing countries. While the level of statistical significance of the coefficients of firm-size and capital-intensity variables are somewhat lower, they nevertheless suggest that these variables may be of some importance in explaining the export decision. The sign of the capital-intensity variable is positive which contradicts *a priori* expectation. However, this result is not surprising in the context of an economy like Sri Lanka's where factors such as subsidies on capital and wage rigidities have distorted the incentive structure of manufacturing industries. In fact, when the garment industry is excluded, detailed factor-content estimates show no clear labour-intensity bias in the structure of manufactured exports (Athukorala 1989).[14]

The export-level equation performed poorly and none of the coefficients were statistically significant. Furthermore, the correlation coefficient between the error terms of the export-level and export-decision equations was close to zero and statistically insignificant, indicating no support for the hypothesis that the two decisions were interdependent. These results lend empirical support for the proposition that, in the developing countries with small domestic markets, a sharp distinction exists between firms which are exporters and those which serve the domestic market (Caves 1982:253–54). Industry characteristics are crucial in determining whether firms would be exporters or not; once a firm decides to be an 'exporting firm', it exports most of its output. It is rare to find firms which attempt to supply both markets in a systematic way. It is especially interesting to note that the export-incentive bias variable cannot help explain inter-firm variations in levels of exports but it strongly influences the decision to export or not. As Krueger (1978) suggested, firms located in industries which have a generally strong anti-export bias appear not to respond to mere variations in the degree of that bias.

Our results, therefore, do not support the findings of other studies cited earlier which have suggested strong links between some of the firm-specific characteristics (such as ownership, firm size and efficiency) and the level of exports. On the other hand, these characteristics are important determinants of whether a firm is an exporter or not. While these differences may be due to difference in the economic environment and/or the peculiarities of the Sri Lankan setting during the study period, the possibility cannot be discounted that they may be, at least partly, due to biases arising from the methodological approaches. In particular, it should be noted that in developing countries with relatively large domestic markets such as Brazil and India, the decisions on exporting and the export level may be more closely related. Obviously there is a clear need for further careful empirical investigations covering a variety of country situations. But our results have implications which certainly cast doubt on the efficacy of the currently fashionable policy emphasis on provision of special incentives to entice foreign firms involved in import-substitution production to become export oriented. Industry characteristics and the trade policy regimes are probably more important than the nationality

of firms in determining inter-firm differences in export propensity of manufacturing output.

Notes

1 First published as 'Multinational Firms and Export Performance in Developing Countries: Some Analytical Issues and Empirical Evidence' (co-authors, S.K. Jayasuriya and E.Oczkowski), *Journal of Development Economics*, 46(1), 1995, pp. 109–22. Slightly expanded.

2 For general surveys of the related literature, see Caves (1982) Newfarmer (1985) and Casson and Pearce (1987). See Wells (1983, 1986a) for discussions of the TWMNEs.

3 Studies which have taken the simple comparison approach include, Lall and Streeten (1977) for India and Colombia, de la Torre (1977) for Colombia, Jenkins (1979) for Maxico, Cohen (1975) for South Korea, Taiwan and Singapore, IIFT (1981) for India and Newfarmer and Marsh (1981) for Mexico. Studies by Willmore (1976) for Costa Rica, Willmore (1986) for Brazil, Riedel (1975) for Taiwan have employed the Wilcoxen matched pair test. The latter approach is an improvement over the former, but it does not go far enough; there are many variables, other than the one against which the firms are matched (mostly firm size or industry), which affect inter-firm variation in export orientation.

4 Lall and Mohammed (1983) employ multiple regression analysis to examine the independent influence of foreign presence on the degree of export orientation in the large-firm sector in Indian manufacturing. This study cannot be considered as a conclusive test of the relative propensity of foreign firms as the analysis is based on aggregated industry (3–digit ISIC) level data rather than on firm-level data.

5 Here the term 'selectivity bias' refers to the fact that if the export propensity equation is estimated by OLS, based on the observations for which we have export propensity figures, we get inconsistent estimates of the parameters.

6 Firms set up in free-trade zones are a prime example.

7 A striking development in the scenario of internationalisation of economic activity that dates from about the late 1960s is the emergence of multinational enterprises from the more industrialised of the developing countries. For a useful synthesis of the existing knowledge on the subject and a listing of relevant literature, see Wells (1983, 1986a) and Athukorala and Jayasuriya (1988).

8 The conventional sample-selection model recognises the dependent nature of the two decisions, but leaves the amount variable unrestricted. The method proposed by Cragg (1971) provides for the non-negativity of the amount variable, but ignores the dependent nature of the two decisions. The specification by Lee and Maddala (1985) combines the two approaches.

9 In experimental runs, we also included industry interaction dummies (at 4–digit ISIC level) for SZ to test whether the impact of firm size on export performance is industry-specific. The interaction dummies turned out to be statistically insignificant in all cases.

10 We tried industry dummies (in addition to *GDM*) in experimental runs to test the hypothesis that 'industry-specific' features not captured by the other

explana-tory variables might have influenced the export behaviour of firms. These dummies were finally omitted as they were not statistically significant.

11 Goldfeld and Quandt's (SQQPT4) FORTRAN program was employed with numerical derivatives.

12 Linear specifications of the model performed poorly in terms of the goodness of fit statistics and statistical significance of parameter values.

13 We decided to retain this statistically insignificant variable for comparative purposes with the earlier literature. By employing the F-test for variable deletion, we found that the results relating to the statistically significant variables were remarkably resilient to the presence of this variable (F(l,104)=1.125).

14 The export structure has however changed significantly over the past decade or so. See Chapter 2.

8

MULTINATIONALS, EMPLOYMENT AND REAL WAGES IN MALAYSIAN MANUFACTURING

The implications of the involvement of multinational enterprises (MNEs) in domestic manufacturing for domestic employment and real wages have long been a source of controversy in developing countries. A common ground for attack on MNEs involved in import-substitution production is that the technology introduced by them is highly capital intensive, and therefore tends to reduce the employment potential of industrialisation. It is also alleged that MNEs pay abnormally high wages to local workers leading to further intensification of the overall capital-intensity bias in industry and unequitable distribution of gains from industrialisation. By reverse reasoning, MNEs involved in export-oriented industries are expected to yield a favourable labour market outcome as their choice of technology and wage policy tend to be much in line with the comparative advantage in international production of the given host country. This perception is reflected in the new conventional wisdom that export-oriented foreign direct investment (EOFDI) deserves significant encouragement in developing countries.

The critics of MNEs are, however, not sanguine about the desirability of this policy advocacy. They argue that, while global-sourcing activities of MNEs may generate new jobs in host countries, there are some untoward effects of MNE participation in export-oriented industries which lead to unequal distribution of gains from such activities between host and home countries.[1] One such alleged adverse effect relates to the perceived tendency of export-oriented MNEs to restrain real wage growth in a given production location compared to their import-substituting (domestic-market oriented) counterparts and indigenous firms. Export-oriented MNE affiliates in developing countries, because of their use of labour-intensive production techniques, tend to be more sensitive to changes in the wage bill and expectations about relative wage cost of producing in different locations. Furthermore, they have the flexibility to transfer production facilities from one country to another in response to changing labour market conditions, in sharp contrast to the difficulties of such a move for the import-substitution

MNEs which are essentially 'location bound'. The critics argue that these two factors—the greater sensitivity to wage changes and the prowess in labour relations emanating from the ability to relocate production—make the demand for labour by export-oriented MNEs more elastic and more resistant to workers' wage demands. Thus, under given labour supply conditions, workers employed in these ventures are likely to experience slower real wage growth compared to their counterparts in domestic market-oriented MNE affiliates and indigenous firms (Caves 1996, 132).

The defenders of MNEs contend that the wage restraint critique is based on imprecise and largely non-economic considerations. In particular, they argue that the characterisation of export-oriented MNEs as *footloose ventures* whose locational decisions are based largely on unit labour costs is inconsistent with the corporate behaviour in the context of the ongoing process of internationalisation of production. New communication technologies and more competitive international markets are causing MNEs to distribute their activities more aggressively across countries through global assembly and marketing networks as part of their business strategy. In this endeavour, they have little room to take a short-term view of the host-country labour market conditions. Moreover, the wage restraint hypothesis is based crucially on the rather restrictive presumption that *alternative investment locations are available in abundance*. This is far from the reality because low-wage countries are *not* the same thing as good locations for investment. While labour cost is important, other factors such as the presence of strong (or potentially strong) indigenous supply capabilities, good infrastructure, political stability and the relevant government policies usually figure prominently in the international investor's locational decisions. This is the simple reason why, despite widespread attempts to entice MNE participation in export-oriented industries, so far only a handful of countries have been able to establish themselves as investment locations favoured by MNEs in international production.

Given the contending views, the impact of export-oriented MNEs on real wages in DC manufacturing remains very much an empirical issue. The present study aims to contribute to the debate through a time-profile analysis of MNE behaviour in Malaysian manufacturing industry. Malaysia provides an excellent case study of the subject at hand for the following reasons. First, given the long-standing government policy in favour of FDI participation in the economy, Malaysia has a well-established and diversified foreign presence in the manufacturing industry. More importantly, there has been a clear shift in the presence of MNEs in manufacturing away from import-substituting production and toward export production. Second, the labour market conditions in Malaysia are also ideally suited for examining the wage-setting behaviour of MNEs. Historically the government has maintained a remarkably passive attitude on labour market conditions and the wage-setting behaviour of export-oriented firms has not been conditioned by minimum wage

legislation. Third, Malaysia is one of a handful of developing countries for which data of reasonable quality required for an empirical investigation of this nature are available.

The next section sets the stage for the ensuing empirical analysis by providing an overview of MNE participation in Malaysian manufacturing with emphasis on employment implications. This is followed by a discussion on wage trends by nationality of ownership for total manufacturing and highlights the limitations of inferences drawn from such aggregate analysis. The wage-restraint hypothesis is tested in the next section by estimating an inter-industry wage growth regression. The final section offers concluding comments.

Multinationals and employment: an overview

Malaysia is among the few DCs that have successfully mobilised foreign direct investment to achieve economic growth through export-led industrialisation. The Malaysian policy emphasis on the promotion of export-oriented foreign direct investment (EOFDI) dates back to the late 1960s when specific incentives were offered to export-oriented ventures under the Industrial Incentives Act of 1968 (Lim 1992). This policy received added importance under the New Economic Policy (NEP) launched in 1970. The rich assortment of incentives offered by the Free Trade Zone (FTZ) Act, which was enacted in 1971 as a key element of NEP, included duty-free imports of raw material and capital equipment, streamlined customs formalities, subsidised infrastructure facilities and company income tax incentives. By the mid-1980s, there was a growing conviction among the Malaysian policy circles that certain elements of the ethnicity-based affirmative action policy of the NEP were inconsistent with the national economic goal of achieving greater integration of the Malaysian economy with the global economy. These policy inconsistencies were redressed and further incentives for foreign investors were introduced under the Promotion of Investment Act passed in 1986 (Athukorala and Menon 1996).

These policy initiatives—coupled with a highly favourable investment climate characterised by political stability, policy continuity, macroeconomic stability and a long-standing open trade policy regime—set the stage for a surge of MNE participation in the Malaysian economy (see Chapter 3). Malaysia had already established a name as a favoured location for assembly activities in the global electronics industry by the early 1970s. The subsequent years witnessed a rapid expansion of MNE participation in the electronics industry and the entry of export-oriented firms from neighbouring newly industrialised countries (NIEs) into light consumer goods industries (Grunwald and Flamm 1985, On 1989, Ariff 1991). The timing of the investment liberalisation in 1985–86 coincided with economic changes in Japan and the East-Asian NIEs (the post-Plaza Accord appreciation of exchange rates, the

loss of General System of Preferences (GSP) privileges and rising domestic wages) that caused many of their manufactures to seek low-cost production sites offshore. Consequently, the inflow of FDI has been very rapid over the past decade. Between 1987 and 1995, FDI inflows increased by almost twelve-fold and during 1990–95 the annual volume of FDI flowing to Malaysia has remained higher than to any of the other ASEAN countries.[2]

Until the late 1960s, MNEs in Malaysian manufacturing were largely concentrated in import-substitution production in areas such as food and beverages, chemical and pharmaceutical. Their involvement in export production was limited to some processing activities linked to primary product sectors. The rapid expansion of EOFDI flows since the early 1970s has brought about a dramatic transformation in the product structure of MNE participation. From about the mid-1980s, production for the domestic market has become secondary to using Malaysia as a base for manufacturing for the global market. The share of projects with an export orientation of 50 per cent or more increased from 24 per cent of total approved projects in 1984–85 to over 85 per cent by the mid-1990s. This structural shift in MNE participation is clearly evident in the data on the output and employment composition of foreign production reported in Table 8.1. For instance, the share of semiconductors and electronics alone in total value added by manufacturing amounted to over 35 per cent, up from 13 per cent in 1970. There has also been a significant increase in the relative importance of new product areas such as non-electrical machinery, consumer electronics, and professional and scientific equipment. By contrast, value-added shares of traditional import-substitution product sectors such as food, beverages, tobacco, iron and steel and chemicals have declined over the years.

The growing presence of MNEs in export-oriented manufacturing has dramatically transformed Malysia's export structure which was historically characterised by a heavy reliance on a limited range of primary commodities. In the early 1970s, the share of manufactures[3] in total merchandise exports amounted to only about 10 per cent. Since then, manufactured exports have emerged as the most dynamic element in the export structure. In 1994, with a manufacturing share of about 78 per cent, Malaysia was the developing world's sixth largest exporter of manufactures, after the Four Dragons of East Asia and China. There are no direct estimates of the share of foreign firms in exports. However, a simple comparison of data on export and output shares of foreign firms show that they provided over three-quarters of total manufactured exports by the mid-1990s (Lall 1995). The electronics industry (which is almost completely foreign owned (Table 8.2)) alone contributed to over 60 per cent of total manufactured exports in 1995.

The employment outcome of export-led industrialisation has been impressive. By the mid-1980s, the unemployment rate in Malaysia was as high as 8 per cent. Since then it began to decline falling to only 2.8 per cent by 1995. Most of the new employment opportunities have come from the

Table 8.1 Composition of value added and employment of MNE affiliates in Malaysian manufacturing (%)

ISIC code		*Value added*			*Employment*		
		1974	*1988*	*1992*	*1974*	*1988*	*1992*
31	Food, beverages and tobacco	25.1	18.5	7.0	10.7	6.0	2.9
32	Textiles, clothing and footwear	2.9	7.1	6.1	14.4	12.6	10.1
33	Wood products	1.6	1.6	2.6	3.0	3.8	5.0
34	Paper and paper products	3.1	1.0	1.1	3.1	1.1	1.0
351–54	Chemicals	11.6	6.8	5.9	7.0	2.5	1.9
355–56	Rubber and plastic goods	18.4	11.0	7.6	15.9	8.8	8.3
36	Non-metallic mineral products	3.1	2.1	1.8	2.9	2.2	1.5
37	Basic metal	4.7	1.7	1.8	2.8	1.1	1.7
381	Fabricated metal products	4.9	1.5	2.5	6.9	1.5	2.7
382	Non-electrical machinery	4.9	4.5	7.0	6.3	2.4	4.4
383	Electrical machinery	19.3	38.7	51.7	26.5	50.0	52.8
38329	Semiconductors and electronics	19.3	29.7	34.9	26.5	32.6	33.1
384	Transport equipment	0.4	1.1	0.7	0.5	0.5	0.8
385	Professional and scientific	0.0	2.4	2.7	0.0	3.7	3.9
390	Other manufactures	0.0	1.8	1.4	0.0	3.9	3.0
3	Total	100	100	100	100	100	100
		1477[a]	5764[a]	15193[a]	99.2[b]	216.6[b]	470.1[b]

Source: Compiled from Department of Statistics, Malaysia, *Survey of Manufacturing Industries—1974, 1988* and *1992*. Data for 1974 are from the published survey report and unpublished data for 1988 and 1992 were provided the Department
Notes ISIC=International Standard Industry Classification
a US$ million
b Number ('000)

rapidly expanding manufacturing sector. The *direct* contribution of manufacturing to total employment increment between 1987 and 1994 was as high as 60 per cent. MNE affiliates have played a pivotal role in this impressive employment outcome (Figure 8.1). The share of MNEs in total manufacturing employment varied in the narrow range of 29–35 per cent during 1968–80. It then declined to an average level of 28 per cent in the first half of the 1980s reflecting the state-led heavy industrialisation push during

Table 8.2 Contribution of MNE affiliates to total manufacturing production and employment (percentage shares)

ISIC code	*Industry*	*Value added*			*Employment*		
		1974	*1988*	*1992*	*1974*	*1988*	*1992*
31	Food, beverages and tobacco	45.5	32.8	28.9	18.6	14.6	15.6
32	Textiles, clothing and footwear	23.3	38.5	44.8	31.2	34.5	39.7
33	Wood products	6.1	8.5	17.8	5.9	10.7	17.3
34	Paper and paper products	21.2	8.1	10.2	14.3	7.8	11.4
351–54	Chemicals	71.7	16.7	22.7	52.8	28.2	30.9
355–56	Rubber and plastic goods	54.2	37.8	40.9	37.2	28.4	34.3
36	Non-metallic mineral products	20.1	73.4	14.2	11.7	66.1	17.4
37	Basic metal	57.2	18.2	21.4	32.6	18.7	32.7
381	Fabricated metal products	46.2	17.2	25.4	38.1	13.5	27.9
382	Non-electrical machinery	50.1	56.7	69.7	34.2	32.5	56.3
383	Electrical machinery	88.0	82.3	87.1	80.7	82.2	86.7
38329	Semiconductors and electronics	88.0	87.9	90.5	80.7	85.7	89.5
384	Transport equipment	5.4	11.0	6.5	4.2	6.9	11.7
385	Professional and scientific	0.0	100.0	99.4	0.0	100.0	98.8
390	Other manufactures	0.0	78.4	45.1	0.0	74.5	66.6
3	Total	42.9	37.3	44.5	28.2	37.2	45.4

Source: Compiled from Department of Statistics, Malaysia, *Survey of Manufacturing Industries—1974, 1988* and *1992*. Data for 1974 are from the published survey report and unpublished data for 1988 and 1992 were provided the Department

Note ISIC=International Standard Industry Classification

this period and the imposition of employment quotas for *Bumiputras* (native Malays). Since the mid-1980s the employment share has increased consistently reaching a level of over 45 per cent by 1992.[4] With the rapid expansion of export-oriented manufacturing, the structure of manufacturing production associated with MNEs has become more labour intensive over the years. Reflecting this development the share of MNEs in total manufacturing employment has been much faster than the increase in the share of output of these firms (Table 8.2). This pattern is particularly noticeable in nonmetallic minerals, basic metal products, fabricated metal products and miscellaneous manufacturing.

Overall wage trends

Figure 8.2 depicts wage patterns in Malaysian manufacturing by nationality of ownership during the period 1968–92. The wage data refer to the average

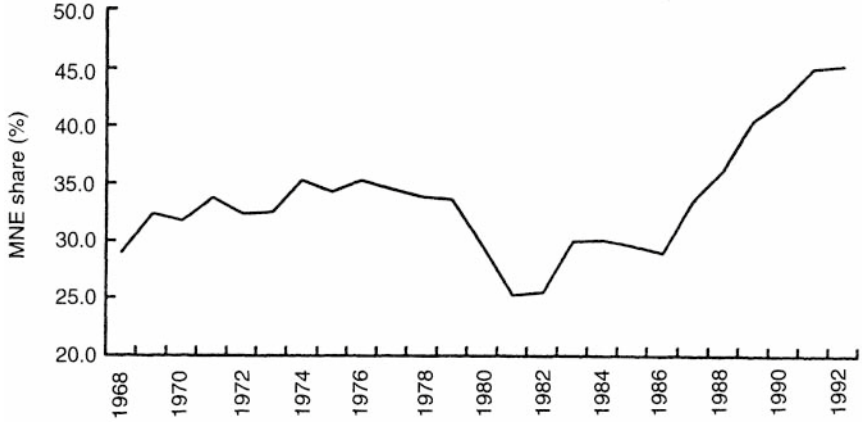

Figure 8.1 Malaysia: Contribution of MNE affiliates to total manufacturing employment, 1968–92 (%)

Source: See Data Appendix

gross money earnings with include both regular pay and various pecuniary benefits.[5] Foreign firms (MNE affiliates) are defined as those firms with 50 per cent or more of foreign equity ownership

It is evident that overall the growth of real wages of workers employed in MNE affiliates has lagged behind that of local firms. The compound annual growth rate of MNE real wage during 1968–92 was 1.52 per cent compared to 3.78 per cent for local firms. Interestingly, the growing labour market pressure in the economy as it was approaching full employment is not reflected in the MNE wage index. The compound growth rate for the period 1968–86 (2.38 per cent) is significantly higher than that for the overall period (1.51 per cent). With the increase in MNE share in total manufacturing employment, the time patterns of the overall wage index have tended be dominated by that of the MNE index.

In the early 1970s, when MNE affiliates were involved predominantly in import-substitution production, the average wage of the workers in these firms was about 60 per cent higher than their counterparts in local firms (Figure 8.3). Reflecting slower growth of MNE wages this gap has tended to narrow over time. By the late 1980s, the difference between average wages of the two ownership groups had virtually disappeared.

All in all, the aggregate wage data suggest that increased presence of MNEs in export-oriented production has coincided with a remarkable slowing down of real wage growth in the foreign-owned segment of Malaysian manufacturing. Given the continuous increase in MNE presence in the manufacturing sector, the decline in MNE wages has in turn brought about a slowing down in aggregate real wage levels. This evidence is often drawn

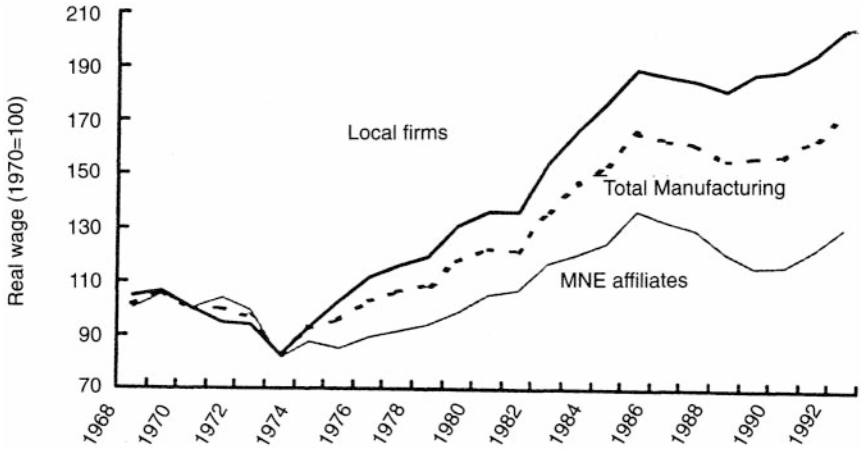

Figure 8.2 Malaysia: Real wages in manufacturing by nationality of ownership (1970=100)[a]

Source: See Appendix.

Note

[a] Annual compound growth rates estimated by fitting a logarithmic trend line are given below. (All growth rates are statistically significant at the one-per cent level in terms of the standard t-test)

	1968–86	*1968–92*
Local firms	5.05	3.78
MNE affiliates	2.38	1.52
Total manufacturing	3.89	2.91

upon in the Malaysian policy debate to support the view that the reliance of EOFDI as the vehicle for rapid industrialisation leads to an unequal distribution of gains from export-led industrialisation.

The problem with this interpretation is that the differences observed in a comparison of average wages for the two ownership groups may simply reflect wage differentials emanating from various influences operating at the individual industry level and/or compositional changes within the aggregate, rather than possible ownership-specific influences. To delineate the latter it is necessary to control for the former using an appropriate econometric procedure. This is the purpose of the next section.

MNEs and real wage growth

In this section, an attempt is made to delineate the postulated wage restraining effect of export-oriented MNEs by controlling for labour market and industry

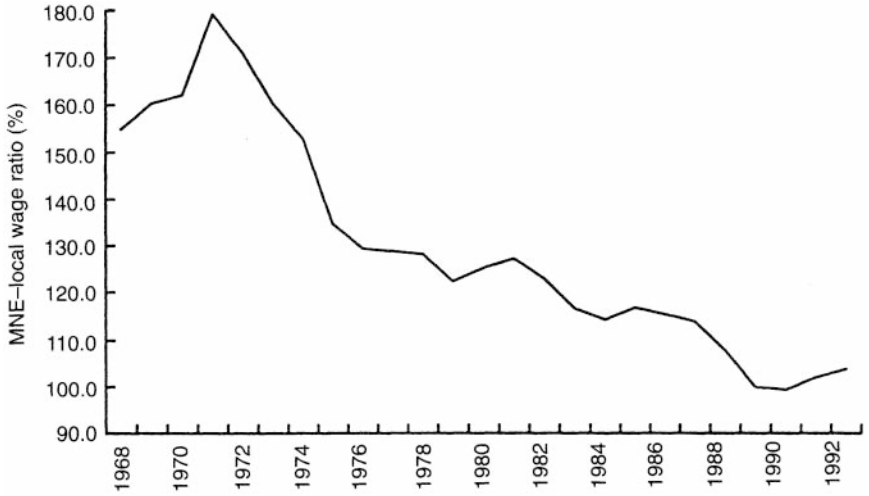

Figure 8.3 MNE Affiliate-local firm nominal wage ratio, 1968–92
Source: See Appendix

characteristics which have been identified in the literature as causing systematic inter-industry variations in real wage growth. Our methodology is to estimate a fully specified inter-industry wage growth regression which incorporates foreign ownership, both separately and interactively with export orientation. The control variables used in the regression specification are standard to the empirical analysis of inter-industry wage growth differentials (e.g. Brown and Medoff 1989, Globerman *et al.* 1994). The regression specification is given below followed by a discussion of variable choices and measurement.

$$RWG = F(FOW, EO, FOW*EO, INSWG, EMG, FMSH, SIZE, CONC, CAPI, WGSH, PSE, UNION)$$

The variables (with the expected signs for the regression coefficient in bracket) are:

RWG	Growth of real wages
FOW (+)	Foreign ownership
EO (-)	Export orientation
*FOW*EO* (-)	An interaction term for foreign ownership and export orientation
INSWG	Initial wages
EMG (+)	Employment growth
FMSH (-)	Female share in the workforce

SIZE (+)	Plant size
CONC (+)	Industry concentration
CAPI (+)	Capital intensity of production
WGSH (-)	Wage share in production cost
PSE (+)	Public-sector ownership
UNION (+)	Union density

FOW and *FOW*EO* are the two variables which are directly related to the issue at hand. As noted, a widely held view of MNE affiliates involved in import-substitution production in developing countries is that they have a tendency to pay higher wages than their domestically owned counterparts. Such difference may reflect MNEs' willingness to pay wages that are more in line with what they pay in their home countries, and/or simply their desire to maintain an image of good corporate citizens in the host country (Lim 1977). According to this view greater foreign presence in a given industry should be reflected both in higher wages and wage growth. The critics of export-oriented MNEs, by contrast, perceive wage repression as an operational aspect of these firms (see Section 1). According to this view, these firms are not only very sensitive to wage increases but also they have prowess to resist wage demand in a given production location through credible threats to relocate elsewhere. To delineate the wage repression effect of EOMNEs we include a foreign presence—export-orientation interaction variable (FOW*EO) in the regression specification. According to the wage-restraint hypothesis, the estimated coefficient on this variable is expected to be negative.

Export-oriented firms generally operate under greater market pressure compared to domestic market-oriented firms which enjoy both policy-induced and natural protection.[6] This may be particularly true for exporting firms in a small exporting economy like Malaysia, given the nature of the export mix (which is dominated by standardised consumer goods and components assembly in vertically integrated industries) and the small share in world supply in most (if not all) product lines (Currie and Vines 1995, Riedel and Athukorala 1995). To the extent that MNEs tend to be relatively more concentrated in export industries, the wage restraining effect of export orientation can be reflected in slow wage growth compared to their local counterparts. For these reasons, *EO* is included as an additional explicator in the regression.

Among the other explanatory variables, wage at the start of the period (initial wage, *INSWG*) is included to allow for a widely observed regularity in the evolution of inter-industry wage structure in market-oriented economies, namely the compression of inter-industry wage differentials (or, the levelling of the wage structure) over time. The levelling of the wage structure, whenever it occurs, is normally the result of large absolute increases in the industries paying lower wages in the initial period than in those paying higher wages

then. If this pattern holds for the Malaysian wage structure, then the estimated coefficient of *INSWAG* should carry a negative sign.

Employment growth (*EMG*) is included to capture the impact of demand pressure in the labour market on sectoral wage growth. If labour markets are generally competitive and if each industry faces a roughly similar less than perfectly elastic supply curve of labour, then industries wishing to expand their labour force would have to pay higher than average wages. This reasoning suggests a positive relationship between percentage employment growth and wage growth, other things remaining unchanged.

The choice of establishment size (*SIZE*) and capital intensity (*CAPI*) is suggested by the efficiency wage literature (Brown and Medoff 1989, Oi 1990). All other things constant, large firms may pay higher wages than smaller firms, presumably because shirking is harder to monitor in larger firms. The tendency for shirking might be greater in large firms because employees' discontent with the job is likely to correlate positively with the firm size. By similar reasoning, one can postulate that higher capital intensity encourages firms to pay efficient wages, since it is more costly for capital-intensive firms to suffer employee shirking or absenteeism. Apart from this efficiency consideration, one can also expect firms in capital-intensive industries to concede to higher wage increases because their wage bills would typically account for a relatively small proportion of production cost. Put simply, firms in capital-intensive product lines may not be so cost conscious with respect to wages.

The share of the wage bill in total cost of production (*WAGSH*) is an indicator of the relative importance of wages in the firm's profitability calculations. An inverse relationship is, therefore, expected between this variable and *RWG*. As noted, the capital intensity variable (*CAPI*) also captures the impact on wage growth of an industry's capacity (or willingness) to concede to wage increases. However, capital intensity is only a partial measure of the willingness to pay higher wages. This is because it does not capture the relative importance of material inputs in the cost structure. This is a significant omission particularly when it comes to export-oriented assembly activities. This reasoning justifies the use of *WGSH* as an additional variable.

The sex mix of the workforce (female share, *FMSH*) is usually considered an important explicator of industry wage differential on grounds of sex discrimination in employment, the tendency on the part of employers to pay less to women workers for the same job. Should this be the case, then the female presence in the workforce has a direct negative impact on average industry wage. At the same time in industries where substitution possibilities exist between female and male workers, a high proportion of female employment may also serve to depress the level of male earnings. For these reasons, a negative coefficient is hypothesised for *FMSH*. It is important to note that a negative relationship between *FMSH* and *RWG* can also emanate from two other factors; the low level of unionisation found in female-intensive

industries and the concentration of female employment in unskilled jobs. We control for the former effect by the inclusion of *UNION* as a separate explanatory variable. Unfortunately we do not have data on the skill mix of the workforce to explicitly allow for the latter impact. Thus the coefficient of *FMSH* may be capturing the impact of both sex discrimination and skill mix.

Industry concentration (*CONC*) (measured by the four-firm concentration ratio) is included to capture the impact of market power of a given industry on wage growth. The hypothesis is that since greater market power translates into excess profits, firms in monopolistic or oligopolistic industries insulated from market pressure may pursue a policy of paying highly competitive wages. Public-sector ownership (*PSE*) is included to allow for the possibility that public sector firms may be more accommodative to wage demands on political grounds. Finally union density (*UNION*), measured as the share of union members in total workforce, is included to allow for the possibility that the activities of the unions distort the competitive working of the labour market and lead to higher wage growth in industries with active union participation.

The model is estimated using cross-sectional data for 45 industries at the 5-digit level of the International Standard Industry Classification (ISIC). The dependent variable (*RWG*) is measured as the average compound growth of real wage during the period 1976–95. The definition and measurement of other variables and the data sources used are explained in the Appendix at p. 165–67. On finding (using the Wu-Hauesman test) that endogeniety does not pose a problem for any of the explanatory variables, the simple OLS was used as the estimation method. *SIZE, INSWG, CAPTW* are measured in natural logarithms, while the other variables are in ratios/percentage form. Thus the estimated coefficients can be as elasticities.

The regression results, together with standard test statistics relating to the OLS error process, are reported in Table 8.3. The correlation matrix of the variables is given in Table 8.4, to aid the interpretation of the results. The full model is reported as Equation 1 in Table 8.3. The equation is statistically significant at the 1 per cent level (in terms of the standard F-test) and it performs well by all diagnostic tests on the OLS error process. The coefficients on foreign ownership (*FOW*) and *FOW*EO* (and three other variables) fail to attain statistical significance. The deletion of these variables is supported by the variable deletion F-test (Equation 2) and the coefficient estimates for the remaining variables are remarkably resilient to this variable deletion. Thus, our results suggest that when other relevant influences are appropriately taken into account, neither foreign ownership (FOW) nor the MNE presence in export-oriented industries (*FOW*EO*) are significant explicators of inter-industry differences in wage growth in Malaysian manufacturing.

There is a strong correlation between *EO* and *FOW*EO* (Table 8.4), which is to be expected given the strong foreign presence in export-oriented industries. To test if this intercorrelation influences the regression results, we re-estimated

Table 8.3 Malaysia: Determinants of inter-industry wage growth differentials in manufacturing: regression results[a]
(Dependent variable RWG, Sample size 45)

Regressor	*Equation 1*	*Equation 2*	*Equation 3*	*Equation 4*	*Equation 5*
Constant	17.38	15.50	10.57	14.99	18.07
	(4.15)	(4.40)	(3.24)	(4.13)	(5.04)
FOW	0.01		0.00		
	(0.69)		(0.27)		
EO	−1.79	−1.24		−1.26	−1.48
	(2.29)**	(2.23)**		(2.20)**	(2.63)***
*FOW*EO*	0.01		−0.01		
	(0.82)		(0.63)		
INSWG	−2.62***	−2.51	−2.05	−2.52	−2.36
	(4.60)	(4.99)***	(3.81)***	(4.85)***	(4.81)***
EMG	−0.06	−0.05	−0.04		−0.06
	(1.72)**	(1.89)**	(1.27)*		(2.34)**
FMSH	0.04	0.04	0.03	0.04	0.03
	(2.95)***	(3.90)***	(2.72)***	(3.77)***	(2.76)***
SIZE	0.12				0.32
	(0.60)				(2.22)**
CONC	0.02	0.02	0.01	0.02	0.02
	(2.17)**	(2.28)**	(1.40)*	(2.08)**	(2.01)**
CAPI	0.43	0.61	0.65	0.64	
	(1.43)*	(2.78)***	(2.74)***	(2.85)***	
WGSH	−0.01				
	(0.16)				
PSE	0.40				
	(0.80)				
UNION	0.01	0.01	0.02	0.02	0.16
	(1.42)*	(1.48)*	(2.36)**	(1.65)*	(1.64)*
Test statistics					
R^2	0.46	0.49	0.41	0.46	0.47
F	4.08***	7.06***	4.92***	7.16***	5.97***
SE	0.90	0.87	0.93	0.90	0.88
FVD	–	0.53	3.68**	1.00	1.58
RESET	0.37	0.61	1.20	0.42	0.39
JBN	0.03	0.77	3.95	0.50	0.23
HET	0.82	0.09	0.24	0.06	0.37

Source: Author's estimates based on data sources discussed in the text
Notes a t-ratios of individual coefficients are given in brackets. The test statistics are: *FVD*= Variable deletion (*F*) test conducted against equation 1 , *RESET*=Ramsey test for functional form misspecification, JBN=Jarque-Berra test for the normality of residuals, and *HET*= White test for heteroskedasticity. *RESET* and *HET* statistics are based on the F-distribution, while the JBN statistic is based on the *?*[2] -distribution. Statistical significance is denoted as: *=10 %; **=5 % and ***=1%

Table 8.4 Correlation matrix of the variables used in regression analysis

FOW	0.08											
EO	−0.03	0.29										
*FOW*EO*	−0.09	0.55	0.81									
INWG	−0.44	0.13	−0.47	−0.21								
EMG	−0.26	0.38	0.15	0.34	−0.09							
FMSH	0.31	0.48	0.61	0.60	−0.25	0.05						
SIZE	0.10	0.28	0.15	0.31	0.33	0.11	0.21					
CONC	0.04	0.08	0.08	−0.10	0.46	0.01	−0.28	0.23				
CAPI	0.06	−0.15	−0.50	−0.38	0.65	−0.13	−0.43	0.48	0.40			
WGSH	0.03	0.08	0.10	−0.04	−0.22	−0.10	−0.26	−0.48	−0.19	−0.43		
PSE	0.09	−0.29	−0.20	−0.16	0.29	−0.01	−0.27	0.08	0.30	−0.37	−0.08	
UNI	0.09	−0.02	−0.44	−0.39	0.35	−0.17	0.00	−0.15	0.28	0.24	0.17	0.27
	RWG	*FOW*	*EO*	*FOW*EO*	*INWG*	*EMG*	*FMSH*	*SIZE*	*CONC*	*CAPI*	*WGSH*	*PSE*

Source: Author's estimates based on data sources discussed in the text

the model by replacing *EO* with *FOW* and *FOW*EO* (Equation 3). The coefficients on these two variables are still statistically insignificant in this alternative specification. Moreover the specification is statistically unacceptable in terms of the variable deletion test conducted against Equation 1 (which is the 'maintained hypothesis'). Thus, our inference that, when other relevant factors are appropriately taken into account, *FOW* and *FOW*EO* are not significant explicators of inter-industry wage growth differentials is remarkably resilient to the intercorrelation between *EO* and *FOW*EO*.

Among the control variables, *INWG* has a negatively signed coefficient which is significant at the 1 per cent level in all specifications. Thus there is strong statistical support for the hypothesis that wage differentials have been compressed over time. This result is consistent with the general pattern observed relating to changes over time in the inter-industry distribution of wages using the coefficient of variation as the index of relative dispersion. In an analysis of annual wage data for 3-digit ISIC industries Richardson and Ying (1990) have noted a continuous decline in the coefficient of variation between the mid-1970s and 1985. The data for our sample of 45 industries points to a continuation of this trend into the 1990s. The coefficient of variation of industry wages declined from 0.47 in 1986 to 0.38 in 1995.

The coefficient of *EO* is statistically significant at 5 per cent or better with the expected (negative sign). Thus there is statistical support for the hypothesis that greater export orientation is related with slower real wage growth. There appears to be a compromise between achieving rapid employment growth and real wage growth under export-led industrialisation.

The coefficient of the employment growth variable (*EMG*) is statistically significant, but carries the (unexpected) negative sign. A similar result that has been found for Malaysia in two previous studies (Richardson and Ying 1990, p. 12 (Table 11), Mazumdar 1993).[7] While Richardson and Ying discard the result as 'counter intuitive', Mazumdar comes up with an interesting explanation of this 'odd behaviour of wages' (1993:371). A prevalent employment practice in Malaysian manufacturing is to attach value to senior workers both in wage policy and labour shedding. Given this practice it is highly plausible, so argues Mazumdar, that structurally weak industries with slow (or negative) employment growth tend to exhibit relatively higher wage growth compared to dynamic (mostly export-oriented) industries. (Note that the real wage index is based on *average* annual earnings). In any case, the results for the other variables are remarkably resilient to the deletion of *EMG* from the set of regressors (see Equation 4).

The results suggest that greater presence of female workers in the workforce leads to higher (not lower) real wage growth. This result, which runs counter to our theoretical postulate, seems plausible in the Malaysian context (On 1989, Richardson and Ying 1990). The recent rapid expansion in employment in Malaysia has come largely from industries characterised

by a large proportion of women workers in the labour force. And there is evidence that most of these dynamic product lines, in particular, assembly activities in the electronics industry, require skills specific to female workers. At the same time as the economy reaches virtual full employment, female labour has become a relatively more scarce factor compared to male labour. This is because the reliance on labour migration is predominantly an option available only for meeting labour shortages relating to male workers (Pillai 1995). The increased participation of females in higher education would also have resulted in a contraction of the supply of unskilled female workers. These labour market developments imply that the supply of female labour has become relatively less elastic compared to that of male labour. Thus a negative coefficient on *FMSH* is highly plausible. This result is also consistent with the findings of Richardson and Ying (1990:68) on the behaviour of gender-related wage differentials. On an examination of male-female earnings ratio for broad occupational categories in five industries with a large representation of women workers,[8] they found that, across the board, gender-related wage differentials had moved in favour of female workers.

Of the remaining variables, capital intensity (*CAPI*) carries a statistically significant and positive coefficient supporting the hypothesis that, other things remaining equal, capital-intensive industries tend to experience higher wage growth. In the overall regression, the firm-size variable (*SIZE*) has the expected (positive) sign, but fails to achieve statistical significance because of the intercorrelation with CAPI. In a specification which excluded CAPI, the coefficient of *SIZE* attains statistical significance (Equation 5). Finally, there is some weak statistical support for the hypothesis that the involvement of trade unions in wage setting contributes to inter-industry wage differentials.

Conclusion

In this chapter we have taken a critical look at the proposition that export-oriented growth achieved through the involvement of MNEs leads to the suppression of real wage growth in developing countries, leading to an unequal distribution of gains from the internationalisation of production. When allowance is made for various other determinants of manufacturing wage growth at the individual industry level, there is little evidence to suggest that MNEs use their prowess to restrain real wage growth. Our results are consistent with the pro-MNE view that under the current process of internationalisation of production it is not correct to consider export-oriented MNE affiliates as footloose ventures.

How can one explain the relatively slow wage growth of foreign firms compared to that of domestic firms (and the consequent narrowing of the wage gap between MNE affiliates and local firms) which is clearly visible in available aggregate wage data (Section 3)? Our regression analysis comes up

with three possible explanations. First, there is strong evidence that greater export orientation is associated with slower wage growth. This would have been reflected in a relatively slow growth of MNE wages because, since the mid-1980s, there has been a palpable shift in the structure of foreign presence in Malaysian manufacturing, away from home market-oriented activities and towards export-oriented production. Second, there has been a strong process of wage convergence under way in which low-wage industries (which are generally characterised by greater indigenous ownership) are catching up with high wage industries as part of the process of rapid economic transformation. Third, the increase in labour intensity of production as part of the process of greater internationalisation production may have constrained relative wage growth of MNE affiliates, but our result on this is inconclusive because of the overlap between the capital-intensity and establishment-size variables used in the regression analysis.

Notes

1 For useful syntheses of the contending view on the employment implications of the involvement of MNEs in DC manufacturing see Caves (1996:110–23) and Dunning (1992, Chapter 7).
2 For details on the Malaysian experience with attracting FDI see Athukorala and Menon (1996) and the work cited therein.
3 Manufacturing is defined to include all product sectors belonging to section 3 of the International Standard Industry Classification (ISIC) except petroleum refining.
4 The latest year for which data on employment by nationality of ownership are available is 1992. Sectoral employment data reported in the Monthly Manufacturing Statistics (Department of Statistics) suggest that the MNE employment share would have surpassed the 50 per cent mark by 1995. The employment in the foreign-dominated electrical machinery industry alone recorded a 40 per cent increase between 1992 and 1995.
5 The two terms, wages and earnings, are used interchangeably in the analysis.
6 Despite significant trade liberalisation over the years, Malaysia still has a substantial degree of effective protection (33 per cent in the mid-1980s) (World Bank 1994). In addition to this domestic market-oriented firms enjoy natural protection because of their closeness to the end-markets, familiarity with the local situations and they produce goods specifically modified to domestic market conditions.
7 The result of Richardson and Ying (1990) is based on an estimated regression of wage growth on the initial average earning and percentage change in employment for the period 1968–85. Mazumdar (1993) observes a similar relationship in a time series comparison of employment and real wages.
8 These industries (with the ISIC number in brackets) are: (1) natural fibre spinning and weaving mills (32111), (2) clothing factories (32201), (3) printing, publishing and allied industries (34200), (4) Radio and TV sets, sound recording and recording equipment (38321), (5) semiconductors and other electronic components (38329).

Appendix

Data source

The data series used in this study have been compiled from the following publications:

1 Bank Ngara Malaysia, *Quarterly Bulletin* (various issues), Kuala Lumpur.
2 Department of Statistics, Malaysia, *Survey of Manufacturing Industries* (1968–92), Kuala Lumpur.
3 Department of Statistics, Malaysia, *Monthly Manufacturing Statistics* (1976–95), Kuala Lumpur.
4 Ministry of Labour, Malaysia, *Occupational Wage Survey in the Manufacturing Sector* (1976, 1986, 1992), Kuala Lumpur.
5 Ministry of Labour, Malaysia *Annual Report of the Registrar of Trade Unions* (1976, 1986, 1992), Kuala Lumpur.

Variable definition and construction

Data on employment and wages for total manufacturing for the period 1968–70 used in Section 3 are compiled from (2). The price deflator used for constructing the real wage index is the consumer price index obtained from (1). Wages include both regular wage/salary and other pecuniary benefits paid by the employer. A firm is classified as foreign (a MNE affiliate) if more than 50 per cent of equity capital is foreign owned.

The regression analysis covers 45 industries at the 5–digit level of the International Standard Industry Classification for which employment and wage data are available in (3) for the period 1976–95. The industries are listed in Table 8A-1. These industries account for over 80 per cent of total output in Malaysian manufacturing (excluding petroleum refining).

Real wage growth (*RWG*) series is derived using average annual earning indices compiled from data from total employment and total earnings from (3) and the consumer price index from (1). Employment growth (*EMG*) is estimated from employment data from (3). Both *RWG* and *EMG* are annual compound growth rates estimated over the period 1976–95 by fitting a logarithmic trend line.

Export orientation (*EO*) is measured using a dummy variable which takes value 1 for export-oriented industries and 0 otherwise. The ideal measure of *EO* is of course the average export propensity (export-output ratio) estimated at individual industry level. Average export propensities can be calculated by linking production data (from (2)) with trade data (from the UN trade data system). But these estimates tend to overstate export propensity (and the magnitude of the error varies over time) for two reasons. First, output data are incomplete in coverage; in the survey some industries (at the 5–digit ISIC

Table 8A-1 Industries covered in the regression analysis

Serial number	*ISIC code*	*Product*
1	31129	Dairy products
2	31131	Pineapple canning
3	31140	Canning and preserving of fish
4	31151	Manufacture of coconut oil
5	31159	Other vegetable and animal oils and facts
6	31162	Rice milling
7	31163	Flour milling
8	31171	Biscuits
9	31180	Sugar
10	31190	Chocolate and sugar confectionary
11	31220	Prepared animal feed
12	31340	Soft drinks and carbonated water
13	31400	Tobacco manufactures
14	32111	Textiles
15	32130	Knitting mills
16	32201	Clothing
17	33112	Plywood, hardboard etc.
18	33113	Wood products except furniture
19	34120	Containers and boxes
20	34200	Printing and punishing
21	35120	Fertiliser and pesticides
22	35210	Paints and varnishes
23	35220	Drugs and medicine
24	35231	Soap and cleaning
25	35290	Other chemicals
26	35510	Tyres and tubes
27	35599	Other rubber goods
28	35600	Plastic products
29	36910	Structural clay products
30	36921	Hydraulic cements
31	36991	Cement and concrete
32	37101	Primary iron and steel
33	37109	Other iron and steel
34	38130	Structural metal
35	38191	Tin cans and metal boxes
36	38192	Wire and wire products
37	38193	Brass, copper and aluminium products
38	38199	Other fabricated metal products
39	38291	Refrigerators and air conditioning machines
40	8321	Radio, TVs and sound recording and recording equipment
41	38329	Semiconductors and other electronic components

42	38391	Cables and wire
43	38432	Manufacture and assembly of motor vehicles
44	38439	Motor vehicle parts and accessories
45	38441	Manufacture and assembly of motorcycles and scooters

Source: Author's estimates based on data sources discussed in the text

level) are fully covered while establishments with less than ten full-time workers are excluded in most industries. Second, production data are in producers' prices, while export data also include costs of transportation to the border and other costs incurred by intermediaries such as wholesalers. To identify export-oriented industries we use the classification used by the Malaysian Department of Statistics in compiling the index of manufacturing production. We believe that the use of a dummy variable to represent export orientation is not unsatisfactory because in Malaysia, like in other small export-oriented economies, there is a clear dichotomy between domestic market-oriented and export-oriented industries. Export-oriented industries generally export an overwhelming proportion (80 per cent or more) of their output, and there are no industries whose activities significantly span both the export and domestic markets.

Union density (*UNION*) is defined as the fraction of workforce registered as members of trade unions. The data series used is the average of the estimates for 1976, 1986 and 1992 compiled from (5). *FMSH* is measured in the same way using data from (4). In each data series, industries for which data are not available at the required 5–digit level are represented using the related 3–digit level estimates.

The industry concentration (*CONC*) is measured using the four-establishment concentration ratio. Foreign ownership *(FOW)* is measured using the share of foreign firms (defined as those with 50 per cent or more foreign equity ownership) in total employment. (Results are invariant to the use of output or value-added share as alternative measures). Plant size (*SIZE*) is the average plant size (sales volume is derived by the number of reporting firms). Capital intensity (CAPI) is measured as fixed assets per worker. The data related to 1988, approximate middle year of the study period. We also used estimates for 1992 (the latest year) as well as the average for the two years, to find that the results are resilient to the choice of a particular year. All the variables listed in this paragraph are compiled from unpublished returns to (2) for 1988 provided by the Department of Statistics. The earliest year for which data are readily available in computer-readable form is 1988 and we consider it as an appropriate representative year for the purpose at hand. In a comparison between 1988 and 1992 we found no significant rank reversal for any of these measures (and the results are invariant to the use of 1992 data).

Part III

EXPORT ORIENTATION AND THE WORLD ECONOMY

9

DEMAND AND SUPPLY FACTORS IN AGRICULTURAL EXPORTS[1]

In the design of export policy in agricultural exporting developing countries, a key issue is the relative emphasis given to the continued development of agricultural exports and the promotion of labour-intensive manufactured exports. In many countries it has become fashionable to place overwhelming emphasis on the latter while neglecting or paying inadequate attention to opportunities for continued development and diversification of agricultural (and other primary) exports. This policy choice is born mostly out of the long-standing primary export pessimism—the view that export prospects for agricultural products are determined predominantly by the long-term pattern of world demand leaving little room for supply-side policies to achieve export success.[2]

The purpose of this chapter is to assess this pessimistic view through a comparative case study of the export experience of seven traditional agricultural exporting countries in Asia—Malaysia, Thailand, the Philippines, Indonesia, India, Pakistan and Sri Lanka—over the period 1960–86. The key hypothesis is that, while adverse changes in world demand do impede export performance, superior export performance for individual countries comes mostly from active supply-side policies. The hypothesis is tested both by comparison of export performance of the sample countries with emphasis on differences in policy orientation, and by econometric analysis of time series data for each country. Our country sample provides an ideal setting for studying the issue at hand. These countries are broadly similar as regards the relatively favourable endowment of natural resources and the important role that has been played by agricultural exports in their historical economic transformation. Yet, over the years, there have been marked differences among them in terms of export performance as well as overall economic growth, presumably reflecting the impact of divergent economic policies.

While the relative importance of national policies and external market conditions in the expansion of agricultural exports from developing countries has been widely debated in the literature, much of this debate hinges on the adequacy of empirical evidence. The few variable empirical studies (e.g. World

Bank 1987, Islam 1988, Balassa 1989a, Islam and Subramanian 1989, Koester *et al.* 1989, MacBean 1989) have taken a global approach, focusing on total agricultural exports and/or exports of given commodities from all (or broad groups of) developing countries. Given considerable differences among countries with respect to the nature of national incentive systems, structures of production and other relevant supply-side factors, the aggregate evidence alone is not adequate for a proper discussion of this issue. There is certainly a need for systematic comparative analyses of the export behaviour of individual countries linking their varied domestic supply conditions with external market situations. The present study is an attempt in this direction.

The remainder of the chapter is arranged as follows. We begin with a survey of the evolution of export policy and other related economy-wide policies of the sample countries. This is done with a view to identifying the key policy shifts over time in individual countries and similarities and differences in policy across countries. In the next section, the growth and pattern of agricultural exports are examined within the context of the choice of trade regime and developments in external market conditions. The analysis at this stage provides a subjective assessment of the relative importance of external market conditions and internal factors in determining export performance. This is followed by a formal econometric analysis of the relative importance of these factors. A concluding section summarises the results and draws out policy implications. The commodity classification system employed in the study, the data sources and the method of data compilation are described in the Appendix.

Policy context

The economies of the seven Asian countries under study, as they evolved during the colonial era, were highly specialised in the production of primary commodities which they exported in exchange for manufactured imports from the developed countries.[3] During the early post-war years, the new political leadership of these countries shared a common interest in restructuring their economies with the aim of breaking away from this colonial economic pattern. The strategy commonly chosen was industrialisation based on deliberate import substitution. This policy choice essentially created an incentive bias against export production. This anti-export bias has, on balance, continued to be an important characteristic of the incentive structures of these countries (Findlay, 1984:37). However, over the years, the countries have tended to differ in the comprehensiveness and intensity of import-substitution policies adopted, the emphasis placed on the promotion of traditional exports industries, and, therefore, the degree of policy bias against export production.

Policy regimes of Thailand and Malaysia have clearly been much more favourable to export producers throughout, compared to that of the other sample countries (Myint 1967 and 1984, Akrasanee 1981, Lim 1981). Even

in the early years of heavy emphasis on import substitution, the governments of these countries opted for only a mild form of import substitution, and there were no attempts to move beyond the promotion of light manufacturing industries. Domestic industries were usually protected through moderate tariffs rather than quantitative restrictions (QRs) and exchange controls. These features of the trade regime coupled with prudent macroeconomic management were instrumental in avoiding significant exchange rate misalignment with deleterious effects on tradable production. Moreover, the choice of tariff rather than QRs as the means of protection meant that the domestic-incentive structure was not significantly insulated from changes in world market prices.

After an initial policy choice in favour of industrialisation, both countries seemed to have sensed early that, given the basic conditions of their economies, the key to economic growth and development was to be found in expanding their exports, both old and new. Thus, Malaysia took initiative in the modernisation of its rubber industry through a massive government-funded scheme for replanting with high-yielding varieties, and also encouraged export producers through economic incentives and infrastructure development to switch into new lines of agricultural exports such as palm oil. Given the crucial role played by foreign-owned companies in the production and marketing of plantation crops, the Malaysian government took care to pursue a favourable and unambiguous policy stance toward direct foreign investment.[4]

Economic policies in Thailand since the late 1950s paved the way for the development of a dynamic peasant export economy. These policies were aimed at not only the expansion of rice (the main export crop) production, but also diversification, in line with changing world market conditions, into new export crops, such as maize, sugar and tapioca. The Thai government, after a few years of experimentation with rice monopoly, liberalised rice trade and permitted and encouraged a network of private middlemen to handle the marketing and processing of rice and the other peasant products. Through this policy, Thailand has been able to avoid the deleterious effects on export growth of the state marketing board system found in other peasant export economies in Africa and Asia (MacBean 1989).

Both Thai and Malaysian governments have continued to rely on taxation of major agricultural exports to finance public expenditure outside these sectors. However, the degree of disincentive effects of taxation and other government intervention seems to be relatively low as compared with that in the other sample countries (Table 9.1). Moreover, in both countries, the authorities have pursued an active policy of lowering export rates in times of adverse price movements in the world market with a view to preserving exporters' profit margin. Since about the early 1970s, both countries have begun to place a greater policy emphasis on the promotion of manufactured exports. This has been reflected in a clear manufacturing bias in export incentives (Ariff and Semudram 1990, Chunanuntathum *et al.* 1990).

Table 9.1 Direct, indirect and total nominal protection rates for exported products

Country	*Product*	*1975–79*			*1980–84*		
		Direct	*Indirect*	*Total*	*Direct*	*Indirect*	*Total*
Malaysia	Rubber	−25	−4	−29	−18	−10	−28
Pakistan	Cotton	−12	−48	−60	−7	−35	−42
Philippines	Copra	−11	−27	−38	−26	−28	−54
Sri Lanka	Rubber	−29	−35	−64	−31	−31	−62
Thailand	Rice	−29	−15	−43	−15	−19	−34

Source: Krueger *et al.* (1988)

Note The direct nominal protection rate is defined as the difference between the total and the indirect nominal protection rates, or equivalently, as the ratio of (1) the difference between the relative producer price and the relative border price, and (2) the relative adjusted border price measured at the equilibrium exchange rate and in the absence of all trade policies

However, given the overall economic environment that is in general conducive for export activities and the nature of resource endowment, there is no conceivable adverse effects of this policy shift on agricultural export producers.

India provides an example of a country whose policy regime during the post-war period has consistently been characterised by a significant antiexport bias (World Bank 1987:82–83). Since the early 1950s, the overriding aim of development policy has been across the board import substitution in the context of a foreign trade regime which relies extensively on QRs (Bhagwati and Srinivasan 1975, Wolf 1982, Riedel *et al.* 1984). As a reaction to the foreign exchange constraint on economic growth, export promotion was recognised as a policy goal in the late 1960s, but exports in general and agricultural exports in particular continued to be constrained fundamentally by 'the inward-looking framework in which exports are treated essentially as an after thought' (Wolf 1982:12). Also, the export incentives granted are concentrated on a few manufacturing sectors, and most agricultural exports are not eligible for these incentives. By contrast, most of the latter exports are subjected to export duties at varying rates. On the basis of an extensive analysis of India's export taxation in the 1970s, Wolf (1982:108) observes that, 'in conjunction with the effect of the trade regime on the exchange rate, the taxation of exports was excessive from the point of view of the optimal monopoly tax'. There have been some trade policy reforms since 1973, including progressive loosening of import controls and increase in incentives to manufactured exports, but in the absence of significant policy initiatives to redress exchange rate overvaluation and to reform export taxation, the policy bias against agricultural and other primary exports has remained virtually unchanged (Joshi and Little 1994).

The remaining four countries have undergone significant policy shifts, both towards more outward orientation as well as in the opposite direction, during

the period under study. For instance, the policy regime of Pakistan was strikingly similar to that of India until about the late 1960s (Islam 1981, Adams and Iqbal 1983). Stringent QRs on imports produced a highly overvalued rupee that discouraged exports. Moreover, the commitment to a fixed exchange rate (until 1972) coupled with relatively high domestic inflation as against world inflation distorted resource allocation against tradable production (Islam 1981, Chapter 6). Beginning in the late 1960s, there has been slow but steady progress in trade liberalisation which may have reduced the incentive bias against export producers as against import-competing producers (Guisinger and Scully 1990). Since the early 1970s, exchange rate adjustment has become an active policy tool, and this has reflected in a significant improvement in the real exchange rate for exports. The overall policy regime has, however, continued to discriminate against primary exports *vis-à-vis* exports of manufactured goods through significant export taxes (Table 9.1) and monopolistic state control of export trade (Bautista 1990, 119, Guisinger and Scully 1990:257).

In Sri Lanka, most of the post-independence decade (1948–58) turned out to be a time of liberal trade regime with just a few low taxes on imports and exports (Cuthbertson and Athukorala 1990:322–25). In the early 1960s, the economy swiftly moved into a highly restrictive trade regime in response to an aggravating balance of payments situation. At the same time taxes on the three major export crops were continuously increased and a number of minor agricultural exports were brought under taxation in order to finance large social expenditures of the government. From the late 1950s, foreign-owned enterprises which controlled about 60 per cent of the tea, 30 per cent of rubber and about 10 per cent of coconut plantations operated under a state of uncertainty as the nationalisation of plantations became an accepted policy of one of the two major political parties. The plantations were finally nationalised and placed under the management of state corporations in the first half of the 1970s. Even though replanting subsidy schemes for the three export crops were initiated in the 1950s, their achievements have continued to be lacklustre given the uncertainty created by the nationalisation policy and unattractive producer prices for the export crops which resulted from overvalued exchange rate and heavy export taxation (Athukorala 1984:75–77). Export promotion through selective incentives became an element of the policy agenda in the late 1960s. Yet, reflecting the cumulative impact of import controls, overvalued exchange rate and high export taxes, the trade policy mix was, on balance, anti-export throughout. In 1977, the Sri Lankan government introduced a sweeping set of liberalisation measures, including the replacement of most QRs with tariffs, removal of domestic price controls, adoption of a floating exchange rate regime against an initial substantially devalued rate. However, the promising start to removing the biases in the incentive structure soon lost momentum because of poor macroeconomic management and deteriorating external conditions. Instead of further rounds

of across-the-board tariff reductions and the maintenance of a realistic exchange rate, the government resorted to ad hoc changes to import duties and selective export incentives. Estimates of trade bias (Cuthbertson and Athukorala 1990, Table 5.5) suggest that the trade regime continued to favour import substitution over export production after 1977, with a significant bias against both major and minor agricultural exports compared to manufactured exports and import-competing production. Despite initial promises to reduce the role of the government in the economy and to promote private sector activity, the plantation sector has continued to suffer under highly inefficient public sector management.[5]

Unlike the other six countries, Indonesia inherited from the colonial era a highly restrictive trade regime. Post-colonial years up to the mid-1960s saw the country moving towards further state control of trade, prices and production (Pitt 1990, Chapter 2). Private foreign investment which had played a key role in the expansion of export production and export trade was severely discouraged both by a series of nationalisation measures against existing enterprises and by restrictions on new investment (Myint 1984:43). After nationalisation, the plantations and other export industries suffered under highly inefficient state management. In the presence of stringent import controls and detailed bureaucratic controls on the domestic economy, there was little room for private sector initiative. Under Soeharto's 'new order' policy reforms initiated in 1967, policies towards foreign investment were greatly liberalised. However, the old restrictionist stance persisted in the policies towards international trade and domestic economy. The structure of effective protection continued to favour import-competing industries against export producers. This incentive bias was intensified with the onset of the oil export boom in the mid-1970s which inflicted 'Dutch disease' upon the Indonesian economy (Warr 1986). The massive appreciation in the real exchange rate resulting from increased oil revenues continued to the 1980s despite the 1978 currency devaluation. However, during the first half of the 1980s, Indonesian authorities succeeded in countering real exchange rate appreciation through contractionary fiscal and monetary policies and significant exchange rate devaluation in 1983 (Siamwalla and Setboonsarn, 1988).

Writing in the mid-1960s, Myint (1967) classified the Philippines together with Malaysia and Thailand as outward-oriented countries in South-East Asia. However, in the latter part of the 1960s, the country began to move towards a restrictive trade regime because of the widening balance of payments deficit (Shepherd and Alburo 1990). The anti-export bias generated by this move was further aggregated by the introduction of duties on traditional exports. Selective incentives to non-traditional exports (both agricultural products and manufactured goods) were introduced between 1967 to 1973, but the subsidy element involved in these incentives was rather insignificant as compared with the degree of anti-export bias in the overall trade policy

regime (Shepherd and Alburo 1990, p. 161). Pervasive government controls over marketing of exportable products, heavy quota protection given to import-competing industries and the overvalued peso continued to discriminate against export production (Bautista 1990). A major programme of tariff reform and trade liberalisation was designed in 1980, but this was completely derailed in 1983 when full control of foreign exchange was reintroduced. Liberalisation attempts were resumed in 1985 and a significant amount of QRs were removed between 1986 and 1988. The impact of these reforms on the incentive structure of the economy has not yet been assessed.

Export performance

In this section we briefly survey the export experience of sample countries during 1960–86 in order to identify whether differences in policy regimes are reflected in inter-country differences in export performance. Data on growth of agricultural exports and their share in total commodity exports are summarised in Table 9.2. Growth rates are reported for the total sample period (1960–86) as well as for the two subperiods 1960–72 and 1973–86, in order to shed light on possible effects on export performance of the slowing down of economic growth in developed countries during the latter period. For Indonesia, Malaysia, and the Philippines data are reported for total agricultural exports as well as agricultural exports excluding forestry products (timber). We focus only on the latter figures, as the importance of timber exports in the export structure of a country depends mostly on the availability and gradual depletion of forestry resources rather than on domestic economic policy.

The picture of comparative export performance that emerges from Table 9.2 generally supports the view that the nature of domestic policy orientation is important in explaining intercountry differences of export performance. Thailand and Malaysia, the two sample countries which have, on balance, maintained relatively favourable policy regimes for export production throughout the sample period, have recorded both higher and steadier real export growth. In terms of constant (1980) prices, Thai agricultural exports increased almost by five-fold (from $1,176 million to $5,750 million) between 1960–62 and 1984–86. Exports from Malaysia showed a three-fold increase between these two periods starting from a relatively higher base figure (from $1,643 million to $4,853 million). At the other extreme, Sri Lanka provides a clear example of export stagnation propelled by a persistent anti-export bias in the incentive structure, and direct state intervention in export production and marketing. It is the only country in the sample whose real exports remained virtually stagnant during the period under study. The export experience of the other countries has been mixed, with significant changes in annual average growth between the two sub-periods. It is interesting to note that, despite slower world income growth, export growth rates of all countries

Table 9.2 Agricultural export performance of sample countries,[a] 1960–86

	Export value US$ mns (at 1980 price)			*Annual compound growth (%)[b] (at 1980 price)*			*Agricultural share in total merchandise exports (%)[c]*		
	1960–62	*1970–72*	*1984–86*	*1960–72*	*1973–86*	*1960–86*	*1960–62*	*1970–92*	*1984–86*
India	1465	1731	3285	1.13*	3.80	3.04	47.7	35.5	32.5
Indonesia	1227	1600	3481	2.09	5.14	4.78	83.7	63.3	46.3
	(1227)	(2188)	(39.3)	(5.02)	(2.03)	(6.16)	(83.7)	(84.9)	(50.8)
Malaysia	1643	26.9	4853	4.90	5.55	5.70	53.3	49.1	38.7
	(1975)	(3625)	(7202)	(6.50)	(5.92)	(6.02)	(59.0)	(67.3)	(57.0)
Pakistan	354	605	1319	3.06	4.47	4.24	60.6	50.3	36.0
Philippines	1057	1313	1756	0.91	1.74*	2.80	72.7	50.4	29.7
	(1531)	(2110)	(1962)	(2.65)	(0.15)	(1.00)	(84.3)	(71.0)	(32.8)
Sri Lanka	737	805	714	0.77*	−0.26*	−0.58*	98.4	94.8	55.6
Thailand	1176	1926	5750	4.38	8.35	7.14	86.8	71.6	55.54

Source: See Appendix

Notes

a For Indonesia, Malaysia and the Philippines, non-bracketed and bracketed figures relate to agricultural exports excluding timber (SITC 247+248) and including timber respectively

b Estimated by fitting a least-squares trend line to logarithmic export series. All coefficients except those denoted by * are statistically significant at least at 5 per cent level

c For Indonesia and Malaysia the share has been estimated using non-oil exports

except Sri Lanka are higher for the 1973–86 period as compared with those for 1970–72. This pattern is consistent with the greater outward orientation in trade policies of these countries since the early 1970s.

In all countries, the agricultural share in total non-oil commodity exports has declined over the years. The usual explanation of this pattern is the growing importance of labour-intensive manufactured exports.[6] However, a close look at data suggests that relatively poor performance in agricultural exports may also have been a contributory factor. For instance, it is mainly the countries with relatively poor agricultural export growth such as India, the Philippines and Sri Lanka that have indicated the sharpest erosion in the agricultural share. In Malaysia and Thailand the share has declined at a slower rate.[7] The experience of these two countries, in fact, suggests that the emphasis on manufactured export expansion is not inconsistent with further exploitation of agricultural export potential.

Under given world market conditions for its traditional exports, an individual country can achieve higher export growth as compared with the other countries by improving upon its market share in these exports ('competitiveness factor' in Kravis's (1970a and 1970b) terminology) and/or by diversifying its commodity mix into new product lines ('diversification factor'). A simple way of identifying the relative importance of domestic supply-related factors as against external demand factors in export expansion is therefore to examine the association between relative export growth on the one hand, and changes in market shares of traditional exports and the changes in commodity composition on the other. If supply conditions rather than external demand are the major determinant of export success, then we should find that successful exporters increased shares in world market traditional exports and/or diversified the commodity composition of their exports.

Table 9.3 sets out data on export market shares of principal (traditional)[8] agricultural commodities exported by the sample countries. For each country, all commodities which accounted for at least 1 per cent of total agricultural exports during 1960–62 are defined as principal commodities. A comparison of data in Tables 9.2 and 9.3 generally supports the view that superior export performance is associated with market share gains in principal exports. For instance Thailand has significantly improved upon its world export shares in all five commodities listed in Table 9.3. Malaysia shows rather impressive performance in palm oil exports with an increase in its world market share from 17.9 per cent in 1960–62 to 72 per cent in 1984–86. As MacBean (1989:133–35) has noted, Malaysia's success in promoting palm oil exports during this period was further aided by inappropriate agricultural and economy-wide policies of traditional palm oil exporting countries in Africa. Despite 'resource pull' effects emanating from rapid structural changes in the economy (Barlow and Jayasuriya, 1987), Malaysia has managed to maintain its share in world natural rubber exports. Pakistan's above-average export

Table 9.3 Export market share of major agricultural exports of sample countries, 1960–86[a]

	1960–62	*1970–72*	*1984–86*
India			
Tea (074)	39.7	32.0	29.8
Cotton (263)	1.5	0.7	0.2
Coffee (071)	0.8	1.0	2.0
Sugar (061)	0.1	0.1	0.5
Tobacco (121)	3.4	4.7	5.2
Indonesia			
Rubber (232)	15.9	16.0	19.6
Tea (074)	3.7	4.1	8.6
Coffee (071)	0.7	2.0	5.6
Fixed vegetable oil (424)	5.7	6.3	3.4
Palm Oil (4222)	18.4	18.1	7.6
Malaysia			
Rubber (232)	34.7	36.3	35.3
Fixed vegetable oil (424)	8.0	18.3	47.5
Palm Oil (4222)	17.9	65.1	72.0
Pakistan			
Rice (042)	2.3	5.2	11.4
Cotton (263)	1.9	2.6	6.7
Philippines			
Sugar (061)	7.8	6.6	2.0
Tobacco (121)	0.9	0.8	0.5
Fixed vegetable oil (424)	8.8	14.3	12.3
Coconut Oil (4243)	62.1	55.8	54.1
Sri Lanka			
Tea (074)	35.6	30.6	25.2
Rubber (232)	4.2	4.2	2.6
Fixed vegetable oil (424)	5.8	3.1	0.7
Coconut Oil (4243)	3.2	2.3	2.7
Spices (075)	1.6	2.8	2.1
Thailand			
Rice (042)	20.4	16.9	33.2
Rubber (232)	5.6	7.2	13.4
Maize (044)	3.5	5.3	4.4
Sugar (061)	0.3	1.0	2.8
Tobacco (121)	0.1	1.0	1.7

Source: See Appendix

Note a: SITC classification numbers are given in brackets

Table 9.4 Commodity composition of agricultural exports (%), 1960–86

	1960–62	*1970–72*	*1984–86*
India	100	100	100
Food (0)	70.10	73.6	75.6
Tea (074)	41.80	26.3	16.1
Coffee (071)	2.6	4.1	8.4
Sugar (061)	3.9	4.2	2.4
Other	21.8	39.0	48.7
Beverages and tobacco (1)	5.4	7.7	8.9
Agricultural raw material (2–27–28)	24.5	18.7	15.5
Cotton (263)	5.2	3.4	4.2
Other	19.3	15.3	11.3
Indonesia	100	100	100
Food (0)	15.8	26.2	48.9
Tea (074)	2.9	10.1	21.0
Coffee (071)	4.2	3.4	4.8
Spices	5.3	3.9	5.1
Other	3.4	8.8	18.0
Beverages and tobacco	4.2	2.4	1.7
Agricultural raw material (2–27–28)	74.0	63.8	41.0
Rubber (232)	55.0	34.6	25.8
Wood (247 + 248)	8.2	4.8	10.6
Other	10.8	4.4	4.6
Oil and fat (4)	6.0	7.6	8.4
Palm oil (4243)	4.6	6.5	3.6
Other	1.4	1.1	4.8
Malaysia	100	100	100
Food (0)	7.6	11.7	9.8
Cocoa (072)	0	0.3	2.4
Other	7.6	11.4	7.4
Beverages and tobacco (1)	1.1	1.2	0.3
Agricultural raw material (2–27–28)	87.4	75.8	58.4
Rubber (232)	75.2	47.3	24.8
Wood (247 + 248)	9.6	27.1	31.6
Other	2.6	0.6	2.0
Oil and fat (4)	3.9	12.1	31.5
Palm oil (4243)	3.8	11.8	29.9
Pakistan	100	100	100
Food (0)	22.8	36.3	57.6
Rice (042)	18.4	23.5	32.0
Other	4.4	12.8	25.6
Beverages and tobacco (1)	1.2	1.9	1.4
Agricultural raw material (2–27–28)	75.9	61.8	41.0
Cotton (263)	49.1	47.8	35.1

Table 9.4 (contd.)

	1960–62	*1970–72*	*1984–86*
Wool (268)	3.2	2.7	1.9
Other	23.6	11.3	4.0
Philippines	100	100	100
Food (0)	35.1	39.8	55.3
Fruit, fresh and dried (057)	2.7	4.2	13.9
Fruit, preserved (058)	2.1	3.3	8.2
Sugar (061)	28.2	25.1	12.1
Other	2.1	7.2	21.1
Beverages and tobacco (1)	2.0	2.3	1.9
Agricultural raw material (2–27–28)	56.5	45.3	16.1
Copra (223)	16.2	13.4	0.7
Coconut fibre (245)	3.7	1.9	2.1
Wood (247 + 248)	19.6	28.4	9.2
Other	17.0	1.6	4.1
Oil and fat (4)	6.4	12.6	26.7
Coconut oil (4243)	6.1	12.5	26.6
Sri Lanka	100	100	100
Food (0)	70.2	70.5	77.3
Tea (074)	65.3	61.9	61.6
Fruit (057)[a]	3.4	5.0	6.4
Spices (075)	1.1	2.5	3.4
Other	0.4	1.1	5.9
Agricultural raw material (2–27–28)	24.0	22.8	19.1
Rubber (232)	17.6	18.2	14.4
Coconut fibre (265)	1.9	2.9	2.3
Oil and fat (4)	5.8	6.7	3.6
Thailand	100	100	100
Food (0)	51.8	67.5	82.1
Rice (042)	35.2	25.0	20.9
Maize (044)	6.2	15.8	8.1
Sugar (061)	1.4	4.6	6.4
Other	9.0	22.6	52.7
Beverages and tobacco (1)	0.3	1.9	1.5
Agricultural raw material (2–27–28)	47.7	30.6	16.4
Rubber (232)	20.5	15.8	12.5
Other	27.2	14.8	3.9

Source: See Appendix

Notes

SITC classification numbers are given in brackets

[a] Mainly desiccated coconut

growth is also associated with an increase in market shares of the two principal exports, rice and cotton. Market share gains in tea, rubber and coffee exports lay behind Indonesia's relatively favourable export performance during the latter part of the sample period. By contrast, India, Sri Lanka and the Philippines have recorded significant market share losses in their principal exports throughout the period.

As regards achievements in the area of product diversification too, Thailand stands out to be the super-performer (Table 9.4). The shares of rice, maize, sugar, rubber and tobacco in Thai agricultural exports have declined throughout, reflecting the growing importance of new export items. The most noteworthy development in the recent export experience of this country is the growing importance of processed food items such as fish products, canned and fresh fruit and vegetables (shown as 'other food' in Table 9.4). Their share in total agricultural exports increased from 9 per cent in the early 1960s to about 53 per cent in 1984–86. These are high-value commodities with higher income elasticity of demand (Islam 1988, Islam and Subramanian 1989). The emerging export pattern therefore suggests that, through successful diversification, Thailand would have achieved terms of trade gains while reducing the severity of the external demand constraint on export growth. Unlike Thailand, Malaysia has continued to depend on a small number of export items. Nonetheless, the export structure of this country has undergone a remarkable transformation from the heavy dependence on a single commodity with less favourable market prospects (rubber) through the successful expansion of palm oil exports. The dependence of Pakistan on rice and cotton as the two key commodities has increased during this period. For the remaining countries the diversification pattern is less clear. In India, Sri Lanka and the Philippines, shares of traditional export commodities have mostly declined over time, but, as the export market share data in Table 9.3 suggest, this is more of a reflection of poor performance of these exports than of success in the development of new products.

Determinants of exports: an econometric analysis

The survey of export performance in the previous section suggested that, under given external demand conditions, relative export success of a country depends on domestic supply conditions, and that domestic supply conditions which influence export performance through the country's ability to maintain its competitiveness in traditional products and to diversify into new product lines. In this section we proceed to test the relative importance of external demand conditions on the one hand and competitiveness and commodity diversification on the other in determining export success. For reasons already discussed in the previous section, the latter two variables are expected to capture the net effect of supply-side factors on export performance.

The conventional approach to the decomposition of these influences in trade performance is to apply the constant market share analysis (CMSA). CMSA, despite its greater attraction to researchers given its less demanding data requirements, has at least two major limitations (Yotopoulos and Nugent 1976, 315–16). First, the results are sensitive to the choice of the final or the initial year of the sample period as the 'base year' of the analysis. Second, only the demand influence is directly calculated, and the other influences are estimated as residuals on the basis of the restrictive assumption that export performance is entirely accounted for by the three factors. Given these limitations of CMSA, an alternative approach is adopted here. We measure the three factors separately using specific indices and then use them as explanatory variables in a time series regression model to explain changes in real exports.[9] The model is:

$$XV_t = f(WD_t, CM_t, DV_t)$$

$$f_1 \geqslant 1, f_2 \geqslant 1, f_3 \leqslant 1$$

whereXV=volume of exports, *WD*=world demand for traditional exports, *CM*=competitiveness in traditional exports, *DV*=export diversification, and *t*=time.

World demand (export market potential) for the set of traditional export commodities (WD) is measured in terms of a weigh ted-average index of constant price world exports of relevant commodities:

$$WD_t = \sum_{i=1}^{n} \alpha_{it} \mathrm{WX_{it}}$$

where, a_{it} is the share of commodity i in country's total agricultural exports, WX_{it} is an index of constant price world export of commodity i, and n is the number of commodities.

The index of competitiveness in traditional exports is constructed as the ratio of actual (observed) exports to hypothetical exports. The latter is estimated by assuming that the country had maintained its 'initial' market shares in the exports of these commodities:

$$CM_t = 100\left[\sum_{i=1}^{n} XP_{it} / \sum \beta_i XW_{it}\right]$$

where, for each i-th principal commodity, *XP* is export earnings of the given country, XW represents world export earnings and ß is the initial period world market share (1960–62 annual average).

Export diversification (DV) is measured using the Gini-Hirschman coefficient:

$$DV_t = 100\sqrt{\sum_{i=1}^{n}\left(X_{it}/\sum_{i-1}^{n}X_{it}\right)^2}$$

where X is value of exports of the given commodity. DV is an indirect (direct) measure of diversification (concentration). Its highest possible value is 100 which occurs when total export is composed of only one commodity. The increase in the number of goods exported and/or more even distribution of export among these goods is reflected in a lower value of DV.

The coefficients of WD and CM are hypothesised to be positive. Since DV is an inverse measure of diversification, the sign expected for its coefficient is negative. If external market conditions are the dominant factor in determining export performance, WD should bear the brunt of explaining XV. On the contrary, if domestic supply factors are relatively more important, XV should be largely explained by CM and DV.

It is important to note that the two supply-side variables used in the model potentially capture the influence not only of domestic policy but also of various other spontaneous (non-policy) factors operating on the supply side. For instance, factors such as adverse 'resource-pull' effects on the agricultural sector emanating from rapid industrialisation and the exhaustion of possibilities of extending cultivation into the unused hinterland might reduce the international competitiveness in traditional agricultural commodities and constrain diversification into new product lines. However, the existing comparative studies on trade policy and economic performance in developing countries[10] provide strong evidence that correlates market share gains in traditional exports and export diversification with the nature of domestic policy orientation over and above the influence of these non-policy factors. In the light of this evidence, we expect DV and CM to capture the net impact of domestic policy on export performance. Of course a more appropriate approach would have been to use variables representing domestic policy influences in place of CM and DV in the model. There are, however, formidable conceptual and data problems that prevent us from adopting this approach. For instance, many components of overall incentives to export are not directly measurable (Bhagwati and Srinivasan 1975, Riedel *et al.* 1984). Furthermore, in addition to direct financial incentives, various other supply-side initiatives by the government such as infrastructure development, and agricultural research and extension services are important in determining export success. When these influences are not adequately captured in the model, the world demand variable tends to 'pick up' the influence of these missing effects. The upshot is an exaggeration of the demand effect in the final results.[11] Given these problems, we consider our approach of representing the net impact of supplyside factors in terms of CM and DV as more appropriate in delineating the relative impact of demand and supply factors on export performance.

The model was estimated for each sample country using annual time series data covering the period 1960–86. WD and DV series were constructed using data disaggregated at the 3–digit level of SITC. For the purpose of constructing the CM series, the commodities which accounted for 1 per cent or more of total agricultural exports during 1960–62 were selected as traditional exports. All variables were measured as indexes with the 1960–62 annual average as the base value and used in logarithmic form in estimation.

Table 9.5 Unit root test for variables used in the analysis

		Dickey–Fuller statistic (DF)[a]
India	XV	−2.02
	WD	−4.37*
	CM	−3.05
	DV	−3.20*
Indonesia	XV	−3.85*
	WD	−1.86
	CM	−3.32*
	DV	−4.58*
Malaysia	XV	−4.02*
	WD	−2.99*
	CM	−2.85
	DV	−3.43*
Pakistan	XV	−4.12*
	WD	−2.20
	CM	−3.03*
	DV	−4.12*
Philippines	XV	−2.54
	WD	−2.35
	CM	−2.03
	DV	−3.21*
Sri Lanka	XV	−3.98*
	WD	3.21*
	CM	−4.08*
	DV	−4.28*
Thailand	XV	−2.13
	WD	−2.58
	CM	−2.75
	DV	−3.52*

Source: Author's estimates based on data sources discussed in the text
Note a t -statistic on g in the OLS regression $DY_t=a+gY_{t-1}+e_t$ estimated for each variable. In all cases residual whiteness was achieved without augmenting the regression by lagged DY_ts. Approximate 5 per cent critical value (sample size=50) for DF is -2.93. An asterisk indicates the rejection of the null hypothesis that the variable is integrated process of order 1

Prior to estimation, we tested for non-stationarity of (or the presence of a unit root) in each of the data series, employing the Dickey-Fuller procedure (Table 9.5). The tests suggested that, for all sample countries except Sri Lanka, the violation of the assumption of stationarity in data series was sufficiently important to impart bias to the regression estimates (Maddala1989, 212–16). Guided by this finding, we used data in level (original) form for Sri Lanka, and in first-difference form for the other countries.[12] After finding that in all cases the regressors were not asymptotically correlated with the contemporaneous disturbance term (in terms of the Wu-Hauesman test), the model was estimated by OLS. The Chows parameter stability test was used to test if the slowing down of world demand growth since 1973 has had a significant impact on the hypothesised relationship.

The regression results, together with relevant test statistics, are reported in Table 9.6. Note that since all variables have been used in logarithmic form, the estimated coefficients can be directly interpreted as elasticities. For all countries, results are reported only for the total sample period, as the Chow test failed to detect a significant break in the observed relationship between 1960–72 and 1973–86. All the regressions pass the F-test for overall statistical significance, and Ramsey's RESET test for the appropriateness of the functional form chosen at the 1 per cent level. The basic assumptions relating to the OLS error process are overwhelmingly supported by various tests. As can be inferred from Table 9.7, intercorrelation among the explanatory variables (multicollinearity) does not seem to cause problems in our inference about the individual regression coefficients. In all regressions the overall degree of multiple correlation (R) is higher relative to the degree of multiple correlation among the explanatory variables (R_i) suggesting that the OLS method can meaningfully disentangle the separate effects of each of the explanatory variables on the dependent variable (Maddala 1989:224–27).

The coefficient of the world demand variable (WD) is statistically significant (at least at the 9 per cent level) with the expected sign for all countries. Thus, the results suggest that, overall, world demand is an important determinant of export performance. The elasticity of individual country real exports with respect to change in world demand varies from 28 per cent for India to 91 per cent for Malaysia, suggesting a weighted average elasticity coefficient of 62 per cent[13] for the whole sample. However, in an overall assessment of the results for the three explanatory variables, the pessimistic view that export prospects are predominantly determined by world demand leaving little room for supply-side policies receives no empirical support. The coefficients of the competitiveness and diversification variables (CM and DV),[14] which capture the net impact of supply-side influences, are statistically significant (with the expected sign) at the 5 per cent level or better in all cases. In terms of the F-test for equality of regression parameters (reported in the last 2 rows in Table 9.6), the magnitude of the coefficient attached to each of these two supply-side variables is at least comparable to or perhaps greater than the magnitude

Table 9.6 Determinants of agricultural exports: Regression results for $XV=a+b_1\ WD+b_2CM-b_3DV$

	India	*Indonesia*	*Malaysia*	*Pakistan*	*Philippines*	*Sri Lanka*	*Thailand*
Coefficient[a]							
A	0.02	0.00	0.00	0.00	0.00	0.38	0.02
	(1.97)***	(0.19)	(1.35)	(0.22)	(0.27)	(0.60)	(1.44)
b_1	0.28	0.58	0.91	0.84	0.89	0.69	0.52
	(1.79)***	(1.76)***	(8.7)*	(10.36)*	(8.34)*	(9.90)*	(2.48)**
b_2	0.72	0.79	0.93	0.90	0.89	0.71	0.71
	(7.76)*	(6.35)*	(6.54)*	(15.61)*	(9.00)*	(13.06)*	(5.82)*
b_3	−0.40	−0.53	−0.80	−1.11	−0.91	−0.55	−0.61
	(2.41)**	(2.62)**	(5.68)*	(6.33)*	(3.42)*	(3.60)*	(2.22)**
Test statistics							
R^2	0.85	0.63	0.82	0.92	0.78	0.90	0.62
F (3.1, 4.8)	22.25	15.48	38.56	98.66	30.15	80.40	14.85
SE	0.03	0.07	0.03	0.06	0.08	0.03	0.07
DW (du 1.7, 1.5)	2.05	1.53	1.88	1.47	2.63	2.56	1.91
LMSC (4.3, 8.0)	0.25	0.04	0.16	0.23	4.18	2.79	0.03
JBN (6.0, 9.2)	1.51	3.62	1.37	3.50	0.73	5.33	5.61
RESET (4.3, 8.0)	0.05	1.08	1.21	0.45	3.25	6.47	0.00
ARCH (4.3, 7.3)	0.06	0.52	2.44	1.34	0.12	0.54	0.05
CHOW (2.9, 4.3)	2.73	0.83	3.46	1.48	0.79	1.27	0.38
F-test for parameter Equality (4.3, 7.8)							
$b_1 = b_2$	7.75	2.97	0.19	0.02	0.00	0.01	5.64
$b_1 = b_3$	3.07	0.32	3.15	0.47	0.57	0.56	0.58

Source: Author's estimates based on data sources discussed in the text

Notes

a t-ratios are given in brackets with significance levels (one-tailed test) denoted as: * 1%; **=5%; and ***=10%

b Figures in brackets are critical values (5%, 1%) of the test statistics. LMSC, Lagrange multiplier test of residual autocorrelation; JBN, Jarque-Bera test for the normality of residuals RESET, Ramsey's test for functional form mis-specification; ARCH, Engle's autoregressive conditional heteroscedasticity test; CHOW, Chow test of stability of the regression coefficients (between 1960–72 and 1973–86)

Table 9.7 Multiple correlation matrix[a]

	R	R_{WD}	R_{CM}	R_{DV}
India	0.94	0.26	0.16	0.26
Indonesia	0.82	0.05	0.22	0.21
Malaysia	0.92	0.47	0.32	0.31
Pakistan	0.96	0.76	0.74	0.78
Philippines	0.90	0.75	0.76	0.22
Sri Lanka	0.95	0.88	0.91	0.74
Thailand	0.89	0.01	0.02	0.06

Source: Author's estimates based on data sources discussed in the text
Note
a R=multiple correlation coefficient from the regression of XV on WD, CM and DV. R_i (i=WD, CM, DV)=multiple correlation coefficient from a regression of each explanatory variable on the other two explanatory variables

of the coefficient of WD. This comparison suggests that the cumulative net impact of supply-side influences (as shown by the sum of the coefficients of CM and DV) is about twice that of the influence of changes in world demand. There is, thus, ample support for the hypothesis that, while world market conditions do influence export levels in general, countries can still achieve superior export performance through active supply-side policies. The results of the Chow test for the stability of regression parameters between 1960–72 and 1973–86 provides further empirical support to the hypothesis. For no sample country is there any evidence of a statistically significant break in the observed relationship between the two sub-periods.[15]

Conclusion

In this chapter we have examined the relative importance of external demand conditions and internal supply factors in agricultural export performance, drawing upon the experience of India, Indonesia, Malaysia, Pakistan, the Philippines, Sri Lanka and Thailand over the period 1960–86. The results run counter to the conventional view that growth of agricultural exports from developing countries depends predominantly on the world market factors over which they have no control. While external demand certainly plays an important role, a country can expand its exports under given world market conditions by improving upon its market share in its traditional exports and diversifying into new export lines, provided it pursues appropriate domestic economic policies. As regards prospects for export diversification, our analysis of the comparative export performance of sample countries clearly demonstrates that countries which maintain open-type economies with flexible adjustments to changing world market conditions are able to switch from one line of agricultural exports to another. Thus, the conventional prac-tice

of assessing prospects for agricultural exports from a given country solely in terms of the outlook for its traditional commodities seems misleading. All in all, our results support the view that relative export success of individual countries emanates mostly from active supply-side policies as against passive acceptance of external demand conditions.

It is now widely accepted by the mainstream development economists that, in terms of key criteria such as the rate of labour absorption, better distribution of income, linkage effects on the other sectors of the economy and the net balance of payments impact, primary export-led growth strategy is comparable with, or perhaps superior to, a growth strategy based on labour-intensive manufactured export expansion (Lewis 1989). At the same time, a growing body of literature on the industrialisation process in primary producing countries has convincingly argued that in the long run primary exporting countries may well become industrialised economies without going through the costly import-substitution phase, provided they pursue appropriate domestic policies (Findlay 1985, Teitel 1989). The key message of this literature is that the relationship between primary commodities and industrial exports is best looked upon not as a dichotomy, but as a continuum in the development process. In this context, in an important recent paper on trade and development experience in Asian countries, Findlay (1984:40) argues that the emphasis on labour-intensive manufactured exports, which was the only viable strategy open to the four Asian NICs, should be treated as only one element in the overall development strategies in resource-rich countries. The appropriate strategy for the latter countries, so Findlay argues, is 'balanced export-oriented growth' which pays attention to both labour-intensive manufactures and agricultural (and other primary) exports. Findlay, however, stops short of addressing the long-standing primary export pessimism that lay behind the present policy bias in these countries against agricultural exports and towards manufactured exports. The present study supports Findlay's policy advocacy by demonstrating that external demand constraint is not a valid criterion in determining the relative emphasis placed on agriculture and manufacturing in the formulation of development policy in traditional agricultural exporting economies.

Notes

1 First published as 'An Analysis of Demand and Supply Factors in Agricultural Exports from Developing Asian Countries', *Weltwirtschaftliches Archiv*, 127(4), 1991, pp. 764–91.

2 During the early post-war years, the policy bias against primary exports was also based on the alleged unfavourable effects of such exports on the structure and long-run productive efficiency of the domestic economy, contrasted with the growth spill-over effects from the manufacturing industry. This view was subsequently dispelled by a number of in-depth analyses of the growth process in primary

exporting countries. See Myint (1979) and Lewis (1989) for useful surveys of the relevant literature.

3 Thailand did not experience colonial rule, but its economy was greatly influenced by the pattern of colonial trade in the region.

4 Transferring a progressively large share of these companies to the nationals was a declared policy. But the government always made it clear that the transfer of ownership would be through formal share trading rather than through arbitrary expropriation.

5 Export duties on all plantation products were removed with effect from December 1992, thus correcting a long-standing anomaly in the taxation of traditional exports *vis-à-vis* non-traditional exports. In the same year, steps were taken to turn the management of plantation companies over to private sector companies. For details on recent changes in Sri Lanka's agricultural trade policy see Athukorala and Kelegama (forthcoming).

6 For a recent comprehensive analysis of Asian export performance see James *et al.* (1989, Chapters 4 and 5).

7 It should be mentioned that export shares estimated using gross export data tend to show an exaggerated picture as to the diminishing role of agricultural exports. This is because much of the manufactured exports from these countries consist of assembly-type products with the value added by domestic factors being much smaller per unit of export than in agricultural (and other primary) products. Athukorala and Bandara (1989) have illustrated this point drawing upon the Sri Lankan experience.

8 Henceforth the two terms 'principal exports' and 'traditional exports' are used interchangeably.

9 The methodology is adapted from Kravis (1970b). See also Love (1984), for a similar approach.

10 See, in particular, Kravis (1970a, 1970b), Balassa (1978), Krueger (1978, Chapter 12), Chenery and Keesing (1981), and Michaely *et al.* (1991, Chapters 11 and 12).

11 This point can be illustrated by using the empirical results reported in Balassa (1989b). This study attempts to explain agricultural exports of developing countries using a regression model which has real exchange rate (to represent the supply-side influences) and world income as the two explanatory variables. The regression coefficient of the real incentive variable is positive and statistically significant leading to the interpretation that 'domestic policy matters'. However, the coefficient of the income variable is significant and much larger in magnitude suggesting that external demand is the binding constraint. We suspect that this result is a statistical artefact representing the missing influences of supply-side developments.

12 In all cases we were able to achieve stationarity through first differencing.

13 Weighted average of individual country coefficients obtained using each country's share in total agricultural exports of sample countries in 1980.

14 In this discussion we ignore the sign on the coefficient of DV and interpret the coefficient as a direct measure of the impact of export diversification.

15 As an alternative way of detecting the impact of slow economic growth in developed countries on export performance, we tested further an intercept dummy (in the form of D*WD, where D=1 for 1973 to 1986 and 0 otherwise) on WD in alternative regression runs. The coefficient of this variable was not statistically different from 0 in all cases.

Appendix

For the purpose of this study, agricultural exports are defined to include commodities in Section 0 (food and live animals), Section 1 (beverages and tobacco) less 122 (manufactured tobacco), Section 2 (inedible crude material) less Divisions 27 and 28 (minerals and crude fertiliser) and Section 4 in the Standard International Trade Classification (SITC), Rev. 2 of the United Nations.

Export data for Thailand and Sri Lanka were directly compiled from country sources (Thailand: Central Bank of Thailand, *Quarterly Bulletin of Statistics*; Sri Lanka: Department of Census and Statistics, *Statistical Abstract* supplemented with Central Bank of Sri Lanka, *Monthly Bulletin*). Export data for all other countries and data relating to total world export of principal commodities exported from all seven countries were compiled from various issues of UN, *Yearbook of Trade Statistics* (for the period 1966–86) and FAO, *Trade Yearbook* (for the period 1960–65), supplemented with individual country sources as required to fill gaps. Export data for Pakistan for the period 1960–73 comes from the unpublished data appendix to Guisinger and Scully (1990) which is available from the Brazil Department, World Bank, Washington, DC. Fiscal-year data reported in this source were converted onto a calendar-year base on pro-rata basis to link with the UN data. For Sri Lanka, data for the 1970–73 period are from *Sri Lanka Customs Returns*. For India data for the period 1982–86 were compiled from the *Statistical Yearbook of India*.

Export growth rates, export earning indices and commodity concentration coefficients used in the empirical analysis are based on constant (1980) price export data. In the absence of published export price (or unit value) indexes at the required level of disaggregation, the following procedure was adopted in deflating current price export series. For Thailand and Sri Lanka export unit value indexes were compiled using the disaggregated data obtained from the country sources mentioned above. For other countries world market price indexes were obtained from UN, *Monthly Bulletin of Statistics* and FAO, *Production Yearbook* (for the period 1960–73) were used throughout. The export prices of major primary commodities were used directly to deflate export value series of individual commodities of each of these five countries when such direct matching was possible. For the remaining commodities, world price indices for relevant 2-digit items (or SITC 2–digit items after the subtraction of major export goods included therein) were used. The use of world prices as deflators for individual countries is essentially based on the law of one-price assumption. There is evidence that this assumption is not too restrictive as far as internationally traded primary commodities are concerned (Dornbusch 1988).

10

THE DEMAND FOR NIC EXPORTS: DOES THE SMALL COUNTRY ASSUMPTION HOLD?[1]

The rapid growth of manufactured exports from the newly industrialised countries (NICs) in Asia has been one of the most significant features of the changing pattern of world trade in the post-war period. A large and growing body of literature has attempted to explain this growth and to derive policy guidance from the NIC experience for other developing countries. An issue at the centre of this literature is the relative importance of external demand and domestic supply factors in determining this export success. The parameter values of export demand and supply elasticities are crucial to this debate.

Most available studies have suggested that price elasticities of demand for NIC exports (or for that matter, for exports from other developed and developing countries alike) are low while income elasticities are high.[2] The 'export pessimists' frequently draw upon these estimates to argue that developing countries (DCs) have limited capacity to expand exports without adversely impacting on the terms of trade. But, are these elasticity estimates reliable enough to warrant such strong policy inference? Riedel (1988) raised this issue using the export experience of Hong Kong as a case study; he argued that the conventional (quantity-dependent) specification of the export demand function generally rules out 'small country' econometric evidence. When the price-dependent (small country) version was used instead, the Hong Kong export experience supported the view that export volumes had no significant effect on their world price and export volumes are supply constrained. Athukorala and Riedel (1991) presented similar results for Korean exports of machinery and transport equipment.[3]

This new empirical evidence of price-taking behaviour in NIC export markets was subsequently challenged vigorously by Muscatelli, Srinivasan and Vines (MSV) (1992 and 1994), Faini, Clavijo and Senhandji-Semlali (FCS) (1992) and Muscatelli (1995). MSV (1992) examined the robustness of Riedel's findings for Hong Kong by applying a superior econometric procedure (the Phillips-Hansen cointegration method) to Riedel's data, and concluded that price elasticities of demand are indeed low, while income elasticities are

high. They also claimed that the 'normalisation paradox' effectively disappears once one allows for a more dynamic specification of demand and supply than the simple partial adjustment model sed by Riedel. In their 1994 study, MSV examined the determinants of manufactured exports from NICs using a data set covering aggregate manufactured exports of three NICs (Hong Kong, Korea and Taiwan); the results were consistent with their previous estimates for Hong Kong. FCS (1992) tested the small country (price-dependent) export demand equation (using 2SLS) separately for 23 DCs and rejected the small country assumption for the majority of countries (18).

However, these studies, too, suffer from several serious limitations. Athukorala and Riedel (1994) demonstrated that the MSV (1992) results for Hong Kong were largely dictated by the choice of coefficient restriction. When the exercise was repeated using the same Phillips-Hansen cointegration method, but with more appropriate coefficient restrictions, the earlier Riedel results were reconfirmed. The results reported in MSV (1994) and FCS (1992) also are subject to challenge on issues of data quality and model specification. The export unit value series (the key variable in the analysis) used is of dubious quality,[4] and this could have biased both elasticity estimates and the timing of export responses to price changes reported in these studies.

But perhaps the most severe weakness of these studies arises from their aggregation across different commodity groups as well as different countries. Aggregation among different commodity groups is feasible only if there are strong grounds for expecting their export demand patterns to be similar. In the case of NIC manufactured exports precisely the opposite is true. NIC exports fall into two categories, depending on whether their export markets are constrained by QRs or not. QR-constrained exports, in particular exports under the Multi-fibre Arrangement quotas, account for a significant proportion of NIC exports. The simple fact is that if export markets have binding QRs then exporters from even the smallest country will be able to influence the prices of their exports. Thus, if a well-specified export model is estimated, we would naturally expect the small country assumption to be rejected for this group of commodities. If these commodities are aggregated with non-QR exports, the resulting estimate will be biased towards rejecting the small country assumption, with the result that potential gains from export expansion in non-QR markets are completely obscured. This possibility, which was first highlighted by Orcutt (1950) in his well-known exposition of why price elasticities found in inter-war trade flow analyses were so low, seems to be of equal relevance for any analysis of demand for manufactured exports from developing countries since the late 1970s. Indeed, there is ample evidence that the presence of voluntary export restraints (VERs) have resulted in vast divergences between source country prices of exports and the market prices of the same goods in importing countries (OECD 1985, Bhagwati 1991).

Aggregation across countries, as applied in MSV (1992), suffers from both demand- and supply-side problems. On the supply side, it does not make

sense to model an aggregate supply schedule for countries operating under very different economic policy regimes. On the demand side, there are significant differences among countries relating to the commodity composition and the incidence of QRs.

In this chapter we examine two key issues relating to the elasticity debate, the implications of the existence of quantitative restrictions for trade flow modelling and the sensitivity of results to the choice of econometric procedure, using a carefully assembled data set for Korea covering the period 1977q1–1993q4.

The following section places the analytical framework of the study in the context of a discussion on methodological issues relating to the estimation of export demand and supply relationships. The next section discusses the data and the econometric methodology. The results are then presented and discussed, followed by some concluding remarks.

Analytical framework

The empirical analysis of this study is based on the conventional two-equation demand-supply system which has the following log-linear equilibrium relationships.

Export demand:

$$X = \beta_0 - \beta_1 P^x + \beta_2 P^w + \beta_3 Y \tag{1}$$

Export supply:

$$X = \alpha_0 + \alpha_1 P^x - \alpha_2 P^d - \alpha_3 C + \alpha_4 K \tag{2}$$

where,
X=volume of exports
P^x=export price
P^w=price of competing goods in the import markets
Y=real income in importing countries
P^d=price of exports in the domestic market
C=variable cost of production
K=production capacity at the beginning of the period.

The conventional formulation of the demand equation (1) which treats export quantity as demand determined, is certainly not appropriate for a small, open economy (SOE) which is a price-taker in export markets. If the country were a true price-taker, P^x and P^w would be perfectly, or at least very highly, collinear. In this case, the relative price variable (p^x-p^w) would exhibit very little, if any, variability. Therefore, for a true small country, the coefficient on the relative

price variable cannot be precisely estimated, and it may turn out relatively low (and statistically insignificant) even though its true value is high (Browne 1981, Riedel 1988, Athukorala and Riedel 1991). Thus, the small country assumption that demand is infinitely elastic with respect to price can be meaningfully tested (when using OLS) only if the demand equation is normalised on price. We therefore replace (1) with the inverse demand function:

$$P^x = \delta_0 - \delta_1 X + \delta_2 P^w + \delta_3 Y \qquad (3)$$
$$\text{where} \quad \delta_0 = \beta_0/\beta_1; \delta_1 = 1/\beta_1; \delta_2 = \beta_2/\beta_1; \delta_3 = \beta_3/\beta_1$$

Henceforth, Equations 2 and 3 taken together are called the small country (price-taker) export model to distinguish it from the conventional model (Equations 1 and 2). In estimating these models it is customary to impose long-run homogeneity with respect to prices: that is, to impose the coefficient restrictions β_1=-β α_1=α_2, and (l—δ_1)=0. The strategy adopted in this study is to start with the unrestricted models, and impose and test these restrictions as part of the estimation process, rather than imposing them at the outset. While it is true that the small country case implies a one-to-one correspondence between P^x and P^w, in practice the price homogeneity restriction should be applied with caution since it can bias the coefficient estimates of the other regressors when there are measurement errors in the two price variables (Murray and Ginman 1976, Athukorala and Riedel 1994).

Data and econometric procedure

The models are estimated for total manufactured exports from Korea (excluding ships and floating structures) (*TMF*) and for two major sub-categories therein; textiles, clothing and footwear (*TCF*) and machinery and transport equipment (*MTE*) using quarterly data for the period 1977ql to 1992q4. This disaggregation was adopted in order to shed light on the sensitivity of the estimates of trade elasticities to the presence of QRs.

The percentage shares of *MTE* and *TCF* in total Korean exports of manufactures and Korea's world market share in these two product categories at the beginning and end of our sample periods are given in Table 10.1. Korea is one of the world's leading exporter of *TCF*, yet its share in these markets is not much more than its share in the world markets for *MTE*. However, throughout the sample period, *TCF* exports from Korea have been subject to stringent QRs (voluntary export restraints, VERs) under the Multi-fibre Arrangement (MFA). It is well known that VERs under MFA, by segmenting textile and clothing markets country-by-country, create market power on behalf of exporters which would otherwise not exist (Hamilton 1985). In other words, they are likely to make the demand schedules facing

Table 10.1 MTE and TCF exports from Korea: shares in total Korean manufactured export and world trade

Commodity category	*Period*	*Share in Korean manufacturing exports (%)*	*Korea's share in world trade (%)*
Machinery and transport equipment (MTE)	1977–79	20.5	0.8
	1991–93	56.3	2.4
Textile, clothing and footwear (TCF)	1977–79	45.2	4.2
	1991–93	16.5	3.6

Source: UN, *Commodity Trade Statistics* (series D)

exporters of textiles and clothing less elastic than they would otherwise be. Korean *MTE* exports, on the other hand, have not faced significant non-tariff barriers (NTBs) during this period.[5]

The data available for this study are significantly superior to those which have been used in MSV (1992) and FCS (1992) (and the overwhelming majority, if not all, other studies of export elasticities in developing countries). In particular, the export price indices are genuine price indices, rather than unit value series which have well-known limitations as price proxies (particularly for manufactured goods (Lipsey *et al.* 1990). Also, all data series used in the study are closely comparable in terms of the level of disaggregation. For a complete listing of data sources and discussion of variable construction see the Data Appendix at p.207.

We began the estimation process by testing the time series properties of the data. Two tests for unit roots were used: the augmented Dickey-Fuller (ADF) test and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. The ADF test provides a test of the null of a unit root against the alternative of stationarity, while the KPSS test tests the null of stationarity against the alternative of a unit root. The choice of the KPSS test to supplement the widely used ADF test is based on evidence that tests designed on the basis of the null that a series is I(1) have low power in rejecting the null. Reversing the null and alternative hypotheses is helpful in overcoming this problem (Kwiatkowski *et al.* 1992).

The test results are reported in Table 10.2. In all cases, the null hypothesis of unit-root nonstationarity cannot be rejected in terms of the ADF test. The null hypothesis of stationarity is rejected only in three cases in terms of the KPSS test. Thus, in order to guard against the possibility of estimating spurious relationships, the estimation of our models needs to be undertaken with procedures that are appropriate for I(1) variables.

The technique most widely used for modelling relationships involving I(1) variables is the static OLS method proposed by Engle and Granger (1987). There have, however, been concerns expressed in recent analytical econometric

Table 10.2 Tests for unit roots in the series, (1977ql–1992q4)[a]

Data series	*ADF test of* H_0*: I(1) versus* H_i*: (0)*[b]	*KPSS test of* H_0*: I(0) versus* H_i*: I(1)*[c]
(a) Total manufactures		
P^x	−1.84 (3)	0.37 (3)
P^d	−2.14 (3)	0.13 (4)
X	−1.83 (3)	0.13 (3)
P^w	−2.02 (1)	0.32 (4)
Y	−1.84 (2)	0.48 (1)
K	−1.88 (3)	0.27 (1)
C	−1.42 (4)	0.12 (5)
(b) Textile, clothing and footwear		
P^x	−2.43 (0)	0.37 (3)
P^d	−2.16 (3)	o.19 (4)
X	−1.24 (2)	0.27 (1)
P^w	−1.79 (1)	0.35 (3)
Y	−1.86 (1)	0.53 (1)
K	−1.59 (2)	0.66 (1)
C	−0.84 (2)	0.22 (1)
(c) Machinery and transport equipment		
P^x	−1.32 (1)	0.42 (2)
P^d	−1.78 (2)	0.13 (4)
X	−1.19 (1)	0.48 (1)
P^w	−1.72 (0)	0.35 (3)
Y	−1.66 (0)	0.27 (3)
K	−1.69 (0)	0.31 (4)
C	−1.91 (0)	0.44 (3)

Source: Author's estimates based on data sources discussed in the text

Notes

a In all cases the tests were conducted 'with trend' to allow for the possibility that, for most economic time series, the usual competing alternative to the presence of a unit root is a deterministic linear trend. The critical values at 5 per cent are: DF test=2.92 and KPSS test=0.146

b Figures in parentheses indicate the number of lags on the difference variable used in the auxiliary regression to achieve residual whiteness

c Value of the lag truncation parameter used in nonparametric variance correction to account for serial correlation is given in parentheses. After examining the 'lag window' for up to 10 lags, this parameter was set at a level where the test statistic tends to settle down (Kwiatkowski *et al.*, 1992:174)

research about the robustness of the Engle-Granger procedure in its application to data samples of the size typical in economics. Some authors have stressed the fact that the OLS estimator, as it applied to non-stationary data, has an asymptotic distribution which is non-normal and depends on nuisance

parameters. This makes inference difficult since the standard *t*-statistics will not be valid asymptotically. Others are more concerned that ignoring lagged terms in the estimation process may lead to substantial bias in estimates in finite samples. As yet no one alternative method, which redresses both of these limitations, has been developed. Because the two groups of critics emphasise different aspects of the problem, they have come up with alternative methods which fall into either the category of 'dynamic regression methods' or the category of 'modified estimators'.[6] In this chapter we employ alternative techniques belonging to both categories, namely, the Phillips-Hansen fully modified OLS method (FMOLS) and the Error Correction Modelling (ECM) procedure of Hendry. Recent comparative Monte Carlo studies of cointegrating techniques (e.g. Phillips and Loretan 1991, Inder 1993) have generally favoured these two methods (in terms of small sample properties) over the competing alternatives in each category.

The Phillips-Hansen method is an optimal single-equation technique which is asymptotically equivalent to maximum likelihood. It applies a semi-parametric correction to the OLS estimator to eliminate dependency on the nuisance parameters, and to give median-unbiased *t*-statistics which follow a standard normal distribution asymptotically (and thus the label 'fully modified').[7] Under the ECM method, the long-run relationship being investigated is embedded within a sufficiently complex dynamic specification including lagged dependent and independent variables, in order to minimise the possibility of estimating spurious relationships (see the Appendix to chapter 4 on pp. 88–89).

In applying the ECM procedure, we set the initial lag length on all variables in the general autoregressive distributed lag (ADL) equation at four periods. This is the established practice in modelling with unadjusted quarterly data. The chosen lag structure itself is usually expected to allow for seasonal ity in data series. However, if the dependent variable tends to exhibit strong and persistent seasonal behaviour, seasonal effects may still be present (Harvey 1990:266). On these grounds, where appropriate, quarterly dummies were added to the model. Having achieved suitable specifications of the equations using OLS, the equations which contained current lag terms of the jointly determined variables (Equations 1.2, 3.2 and 3.3b in Table 10.3) were re-estimated using 2SLS.

A common problem with FMOLS and ECM (and other single-equation cointegration techniques) is that they ignore possible multiple cointegration among the variables under consideration. In theory, this problem may be tackled using the maximum likelihood approach to the estimation of cointegration vectors developed by Johansen (1988). However, recent applications of this technique to small samples have encountered at least two practical difficulties (Hall 1991, Banerjee *et al.* 1993). The first problem is that both the trace and determinant statistics used to determine the degree of cointegration, and the estimates of the cointegrating vector are very sensitive

Table 10.3 Phillips-Hansen estimates[a]

1. Total manufactures
Supply

1.1 $x_t = -1.28 + 1.19P_t^x - 0.36P_t^d + 1.43K_t$
(2.56)** (2.37)** (1.00) (7.92)***
$\bar{R}^2 = 0.98$ $ADF = -5.23$ $KPSS = 0.07$

Demand: conventional model

1.2 $x_t = -9.88 - 1.72(P^x - P^w)_t + 3.14Y_t$
(11.62)*** (5.34)*** (17.44)***
$\bar{R}^2 = 0.97$ $W(1) = 1.18$ $DF = -5.27$ $KPSS = 0.01$

Demand: small country model

1.3 $P_t^x = -0.72 - 0.14X_t + 0.88P_t^w * 0.42Y_t$
(0.90) (2.26)** (22.10)* (1.86)**
$\bar{R}^2 = 0.98$ $ADF = -4.23$ $KPSS = 0.10$

2. Textile, clothing and footwear
Supply

2.1 $X_t = 5.49 + 1.33P_t^x - 0.08P_t^d + 1.47K_t$
(2.68)** (1.95)** (0.01) (2.71)**
$\bar{R}^2 = 0.84$ $ADF = -4.23$ $KPSS = 0.05$

Demand: conventional model

2.2 $X_t = -6.96 - 0.94P_t^x + 1.32P_t^d + 2.034Y_t$
(5.48)*** (2.18)** (4.00)*** (2.31)**
$\bar{R}^2 = 0.91$ $ADF = -4.87$ $KPSS = 0.09$

Demand: small country model

2.3 $P_t^x = -2.21 - 0.15X_t + 1.00P_t^w + 0.65Y_t$
(3.45)*** (1.98)** (13.21)*** (3.34)***
$\bar{R}^2 = 0.98$ $ADF = -4.23$ $KPSS = 0.10$

3. Machinery and transport equipment
Supply

3.1 $X_t = 6.76 + 2.14P_t^x - 5.47P_t^d + 2.83K_t$
(0.56)* (6.71)*** (7.54)*** (23.58)***
$\bar{R}^2 = 0.97$ $ADF = -4.79$ $KPSS = 0.07$

Demand: conventional Model

3.2 $X_t = -9.84 - 1.58(P^x - P^w)_t + 5.324Y_t$
(11.46)*** (3.59)*** (14.11)***
$\bar{R}^2 = 0.98$ $W(1) = 1.26$ $ADF = -4.82$ $KPSS = 0.10$

Demand: small country model

3.3a $P_t^x = 2.27 + 0.01X_t + 0.80P_t^w - 0.40Y_t$
(1.94)* (0.30) (20.00)*** (1.16)*
$\bar{R}^2 = 0.96$ $ADF = -4.36$ $KPSS = 0.04$

3.3b $P_t^x = 1.06 \quad + 0.81P_t^w$
$\quad\quad (4.03)^{***} \quad (15.84)^{***}$
$\bar{R}^2 = 0.93 \quad W(2) = 2.18 \quad ADF = -4.79 \quad KPSS = 0.09$

Source: Author's estimates based on data described in the Appendix

Notes

a t-ratios of regression coefficients are given in brackets with significance levels (one-tailed test) denoted as: *=10%, **=5% and ***=1%
W=Wald test for price homogeneity restriction (degrees of freedom for the Chi-square test are in parentheses). ADF=Augmented Dickey-Fuller test for residual stationarity. KPSS=the Kwiatkowski-Phillips-Schmidt-Shin test for residual stationarity

to the choice of lag length for the vector autoregression (VAR). Second, severe collinearity may emerge between some of the regressors, particularly when dealing with VARs of a reasonable size. This in turn renders the point estimates of the long-run elasticities even more sensitive to the choice of lag specification. We encountered the same problems in experimental runs with the Johansen procedure in this study and, therefore, decided to use the FMOLS and ECM procedures as our preferred methodologies.

Results

The results are reported in Tables 10.3 and 10.4. The long-run (steady state) export demand and supply elasticities derived from the estimated equations are summarised in Table 10.5. Note that the cost variable (C) does not appear in the estimated supply equations. In various regression runs using both estimation methods, the inclusion of this variable generated statistically unacceptable results due to its high correlation with the domestic price variable (p^d). It was therefore omitted on the basis of a comparison between C and P^d using the standard F-test. Thus, in the reported supply equations, P^d captures the compound effect of cost and supply substitution effects in our estimated supply equations.

Interestingly, both Phillips-Hansen and ECM estimates for the conventional (quantity-dependent) export demand equation for total manufactured goods as well as those for the two sub-categories yield income and export price elasticities which are not different from estimates reported in previous studies on Korean trade elasticities (Jung and Lee 1986, Shin 1986, Balassa *et al.* 1989, Moreno 1989). Somewhat surprisingly, price elasticities for Korean exports based on this equation are generally lower than comparable figures for exports from developed countries, while income elasticities are much higher.[8]

Results for total manufactures (TMF) and for textiles, clothing and footwear (TCF) based on both techniques suggest that VERs have provided a

Table 10.4 Error-correction estimates[a]

1. Total manufactures

Supply

1.1 $\Delta_4 X_t = -0.92 + 0.78\Delta_1 P_t^x + 0.77 P_{t-4}^x - 0.61 P_{t-1}^d$
(3.31)*** (1.50)* (4.59)*** (4.07)***

$+ 0.47 K_{t-1} - 0.44 X_{t-4} + 0.51\Delta_4 X_{t-4}$
(3.05)*** (4.42)*** (5.71)***

$\bar{R}^2 = 0.64$, $SEE = 0.07$, $F(7, 51) = 13.07$, $DW = 1.88$
$GSC(4) = 6.38$, $RESET(1) = 0.88$, $NORM(2) = 5.31$, $HT(1) = 0.54$

Demand: conventional model

1.2 $\Delta_4 X_t = 2.21 - 720\Delta_1 P_t^x + 1.08\Delta_1 P^w + 0.92\Delta_1 Y_{t-1}$
(1.71)* (0.98) (2.31)** (1.68)**

$-0.84(P^x - p^w)_{t-1} + 0.78 Y_{t-1} - 0.29 X_{t-4} \quad 0.39\Delta_4 X_{t-1}$
(3.79)*** (2.09)** (2.83)*** (3.39)***

$\bar{R}^2 = 0.63, SEE = 0.07, F(8, 50) = 10.77, DW = 1.68,$,
$W - PH(1) = 1.73, GSC(4) = 8.74, RESET(1) = 2.24,$
$NORM(2) = 0.49, HT(1) = 0.01$

Demand: small country model

1.3 $\Delta_1 P_t = 0.08 + 0.34\Delta_2 P_t^w + 0.11\Delta_2 Y_{t-1}\Delta - 0.20 P_{t-t}^w$
(0.35) (4.38)* (0.97) (3.71)***

$+ 0.15 P_{t-4}^w - 0.03 X_{t-1} - 0.32 P_{t-1}^x$
(3.12)*** (1.61)* (4.76)*

$\bar{R}^2 = 0.70, SEE = 0.01, F(6, 52) = 20.65, DW = 1.93$
$GSC(4) = 8.12, RESET(1) = 0.73, NORM(2) = 1.13, HT(1) = 0.04$

2. Textile, clothing and footwear

Supply

2.1 $\Delta_4 X_t = -0.81 - 0.51 P_{t-1}^x + 0.47 K_{t-1} - 0.33 X_{t-4}$
(0.67)*** (0.95)*** (0.93) (1.71)*

$+ 0.27\Delta_4 X_{t-4}$
(2.42)**

$\bar{R}^2 = 0.40$, $SEE = 0.12$, $F(3, 53) = 7.07$, $DW = 2.00$
$GSC(4) = 5.57, RESET(1) = 1.29, NORM(2) = 5.22, HT(1) = 1.23$

Demand: conventional model

2.2. $\Delta_4 X_t = -2.53 - 3.13\Delta_1 P_t^x + 2.49\Delta_2 Y_t - 0.91(P^x - p^w)_{t-1}$
(2.06)** (2.35)** (1.52)* (2.42)**

$1.09 Y_{t-2} - 0.49 X_{t-4} + 0.23\Delta_4 X_{t-1}$
(3.00)*** (3.97)*** (1.72)*

$\bar{R}^2 = 0.31, SEE = 0.13, F(8, 50) = 3.89, DW = 1.86, W - PH(1) = 2.57,$
$GSC(4) = 1.38, RESET(1) = 1.88, NORM(2) = 0.30, HT(1) = 0.30$

Demand: small country model

2.3 $\Delta_1 P_t = -0.44 + 0.34\Delta_1 P_t^w + 0.27\Delta_4 Y_t + 0.03\Delta_1 X_{t-1}$
(2.65)** (4.88)*** (2.30)** (1.06)***

$$+ 0.20P^{w}_{t-t} \quad + 0.26Y_{t-4} \quad - 0.03X_{t-t} \quad - 0.31P^{x}_{t-1}$$
$$(4.13)^{***} \quad (4.79)^{***} \quad (1.23)^{*} \quad (5.71)^{***}$$
$$\bar{R}^2 = 0.72,\ SEE = 0.01,\ F(8,51) = 16.43,\ DW = 2.01$$
$$GSC(4) = 6.57, RESET(1) = 1.11, NORM(2) = 0.71, HT(1) = 0.06$$

3. Machinery and transport equipment

Supply

3.1 $$\Delta_4 X_t = 4.20 \quad - 3.07P^{d}_{t-1} \quad + 1.42\Delta_1 K_{t-1} \quad + 1.36P^{x}_{t-1}$$
$$(3.00)^{***} \quad (3.06)^{***} \quad (2.33)^{**} \quad (4.20)^{***}$$
$$- 3.28P^{d}_{t-1} \quad + 1.54K_{t-1} \quad - 0.53X_{t-4} \quad + 0.40\Delta_4 X_{t-4}$$
$$(4.30)^{***} \quad (4.79)^{***} \quad (4.56)^{***} \quad (3.84)^{***}$$
$$\bar{R}^2 = 0.71, SEE = 0.10, F(8,50) = 15.42, DW = 1.68$$
$$GSC(4) = 7.08, RESET(1) = 0.05, NORM(2) = 1.17, HT(1) = 1.70$$

Demand: conventional model

3.2 $$\Delta_4 X_t = -5.64 \quad - 1.24\Delta_1 P^{x}_{t} \quad + 0.67\Delta_1 Y_{t-1}$$
$$(2.47)^{*} \quad (1.62)^{*} \quad (2.69)^{**}$$
$$- 0.41(P^{x} - P^{w})_{t-1} \quad + 0.78Y_{t-2} \quad - 0.30X_{t-4} \quad + 0.53\Delta_4 X_{t-1}$$
$$(1.62)^{**} \quad (2.70)^{**} \quad (23.68)^{***} \quad (3.68)^{***}$$
$$\bar{R}^2 = 0.70, SEE = 0.10, F(7,51) = 16.68, DH = 1.86\ LM - PH(1) = 0.06$$
$$GSC(4) = 3.10, RESET(1) = 1.58, NORM(2) = 3.30, HT(1) = 1.32$$

Demand: small country model

3.3a $$\Delta_1 P^{x}_{t} = 0.53 \quad + 0.84\Delta_2 P^{w}_{t} \quad + 0.23\Delta_1 P^{w}_{t-t} \quad + 0.12P^{w}_{t-2}$$
$$(1.52)^{*} \quad (8.45)^{*} \quad (1.57)^{*} \quad (2.03)^{**}$$
$$- 0.08Y_{t-1} \quad + 0.01X_{t-t} \quad - 0.18P^{x}_{t-1} \quad + 0.46\Delta_1 P^{x}_{t-1}$$
$$(1.03) \quad (0.77) \quad (2.21)^{**} \quad (3.49)^{***}$$
$$\bar{R}^2 = 0.79, SEE = 0.01, F(8,54) = 29.46, DW = 1.97$$
$$GSC(4) = 4.67, RESET(1) = 0.06, NORM(2) = 0.58, HT(1) = 0.49$$

3.3b $$\Delta_1 P^{x}_{t} = -0.16 \quad + 0.82\Delta_1 P^{w}_{t} \quad + 0.30\Delta_1 P^{w}_{t-t} \quad + 0.07P^{w}_{t-2}$$
$$(2.37)^{**} \quad (8.68)^{*} \quad (2.34)^{*} \quad (1.96)^{**}$$
$$- 0.10P^{x}_{t-1} \quad + 0.42\Delta_1 P^{x}_{t-1}$$
$$(2.10)^{**} \quad (3.45)^{***}$$
$$\bar{R}^2 = 0.79, SEE = 0.01, F(5,56) = 41.4, DW = 1.96,$$
$$LM - VD(2) = 1.57, GSC(4) = 2.38, RESET(1) = 0.33,$$
$$NORM(2) = 0.45, HT(1) = 0.65$$

Source: Author's estimates based on data described in the Appendix

Notes

a t-ratios for regression coefficients are given in parentheses with levels of significance (one-tail test) denoted as: *=10%, **=5% and ***=1% W-PH=Wald test of the price homogeneity assumption. LM-VD=Lagrange multiplier test of the price homogeneity assumption. LM-VD (n)=Lagrange multiplier test for variable deletion (zero coefficient restriction). GSC=Godfrey's test of residual serial correlation. RESET=Ramsey's RESET test for functional form mis-specification. NORM=Jarque-Bera test for the normality of residuals. HT=Engle's autoregressive conditional heteroscedasticity test. The degrees of freedom (for the Chi-square test) are given in parentheses

Table 10.5 Estimates of long-run export demand and supply elasticities[a]

		TMF	*TCF*	*MTE*
Demand: conventional model				
Price elasticity	PH	−1.72***	−0.94**	−1.58***
	ECM	−2.87**	−1.86**	−1.36
Income elasticity	PH	3.14***	2.03**	5.32***
	ECM	2.67**	2.24*	5.13***
Demand: small country model				
Price elasticity	PH	−7.14***	−6.67**	##
	ECM	−11.11*	−11.76	##
Income elasticity	PH	3.00*	4.33***	###
	ECM	5.22**	9.78***	###
Supply				
Price elasticity	PH	1.19**	1.33**	2.14***
	ECM	1.76***	2.13*	2.55***
Capacity elasticity	PH	1.43***	#	2.83***
	ECM	1.06***	0.88	2.91***

Sources: PH estimates are directly from the equations reported in Table 3. ECM estimates (and the asymptotic t-statistics used in testing their statistical significance) are computed from the long-run (steady state) solutions to the estimated equations reported in Tabel 10.4

Notes

TMF Total manufactures TCF=Textile, clothing and footwear MTE=Machinery and transport equipment

a Statistical significance (one-tail test) of elasticity coefficients is denoted as: *=10%, **=5% and ***=1%

Perverse

Perverse (in equation 3.3a) or infinity (in equation 3.3b)

Income effect on export volume is statistically insignificant

degree of market power to Korean exporters. The results for TCF also counter Nguyen's (1989) allegation that the inverse demand equation rigs the results in favour of the small country case. Note that, in terms of the conventional specification, the price elasticity of export demand for TCF is not significantly different from that for MTE or TMF. In the Korean case the inclusion of quantitatively restricted items (TCF), whose importance in total exports has been declining over time, would clearly be a source of bias in estimating the price elasticity of export demand in aggregate.

The estimated *inverse demand function* for machinery and transport equipment exports (MTE) supports the 'small country' case, under both estimating techniques. The coefficients of world income (Y) and export volume (X) variables in the inverse demand function are statistically insignificant (with perverse signs) and the zero coefficient restriction on these variables is

data acceptable. (See equation 3.3a and 3.3b in Tables 10.3 and 10.4). Thus, the Muscatelli-Srinivasan-Vines (1992 and 1994) assertion that the 'normalisation paradox disappears' when the Phillips-Hansen and ECM methods are used in place of the conventional partial adjustment specification is not supported by our results. We observe that the results for MTE reported here are very similar to those obtained by Athukorala and Riedel (1991), by applying 2SLS to a partial adjustment specification of the export demand function for the same commodity category and for the period 1977ql–1990q4. Thus, interestingly the empirical evidence in support of the 'small country' assumption appears to be robust to the particular econometric methodology employed.

Conclusion

The results of our empirical investigation suggest that, during the period under study, Korea has been in the position of a small country in a range of commodities—though not all—that could increase its exports without depressing world prices. This inference is consistent with Korea's export performance record. Despite VERs on TCF exports, Korea maintained a spectacular export record throughout by expanding its exports of those 'small country commodities' where international demand was not a constraint. Interestingly, the available empirical evidence on pricing behaviour in Korean manufacturing is also consistent with this view. This evidence over-whelmingly supports the hypothesis that, in export pricing, Korean manufacturing firms act as price-takers (Athukorala 1991, Yang and Hwang 1994).

The findings of the study are important not only for what they suggest about the nature of demand for the kind of goods Korea exports, but also for what they imply about the methodology of estimating export demand parameters. Our results indicate that normalisation is an important issue in estimating export demand functions of small countries. So as not to rule out by procedure the small country result, our results argue powerfully for estimating the inverse, rather than the standard form of the export demand function. Our results also indicate that VERs, by segmenting export markets, grant market power to countries that would otherwise be price-takers in their export markets. These results suggest that estimates of export demand elasticities at high levels of aggregation are subject to potentially powerful biases, when the aggregate consists of categories which are subject to VERs and other quantitative restrictions. Finally our findings suggest that if proper procedures are followed, normalising the export demand function for price rather than quantity and avoiding biases from aggregating quantitatively restrained and non-restrained exports together, it is likely that the small country assumption will find far more empirical support than it has heretofore.

Notes

1 Originally published as 'Modelling NIE Exports: Aggregation, Quantitative Restrictions and Choice of Econometric Methodology', *Journal of Development Studies*, 33(1), 1996, pp. 81–98. Slightly expanded to cover more recent literature.

2 The 'consensus view' emerging from the vast empirical literature is that the price elasticity of export demand, almost everywhere, is between -0.6 to -1.0 and income elasticity is well above 1.5, and even takes values above 5 for many countries with successful export records. See Goldstein and Khan (1985), Marquez and McNeilly (1988) and Feenstra (1994) for useful surveys of this literature.

3 There are a few similar tests of some of the conditions of small countries which give results consistent with Riedel (1988) and Athukorala and Riedel (1991). See Browne (1981), Moreno (1989) and Aw (1992). In a recent assessment of the elasticity debate, Currie and Vines (1995) point out that these small-country results are consistent with 'the influence of multinational firms' location decisions on international trade flows and the ease with which they can relocate in response to variations in relative costs of production that affect supply conditions' (p. 3).

4 The unit value series which come from the IBRD World Tables are not based on the trade data of the countries concerned, but are constructed in a mechanical fashion using export unit values of partner countries reported in the UN Series D trade tapes. The quantities used to compute unit values are available only for a limited number of categories at the 4-digit SITC level of aggregation. When data are not available, as for recent years, the World Bank procedure is to apply the average rate of change of export unit values of five industrial countries to all countries including developing counties.

5 Hamilton's (1985) comprehensive inventory of non-tariff barriers (NTBs) to Korean exports contained no item from the *MTE* category. Another study reports that by the mid-1980s only about 4 per cent of total *MTE* exports from developing countries were subject to any kind of NTB (Olechowski 1987).

6 For a succinct text-book treatment of these various techniques, with emphasis on the issues that arise in the choice among alternatives see Banerjee *et al.* (1993).

7 Phillips and Hansen (1990) and Phillips and Loretan (1991) show that these corrections work effectively for sample sizes as small as 50.

8 For elasticity estimates for other countries see the works listed in note 1.

Appendix

Total manufactured exports are defined to cover all commodities in Section 3 of the International Standard Industry Classification (ISIC) excluding food, beverages and tobacco (ISIC 31). (This definition closely compares with the widely used definition of manufactures based on the Standard International Trade Classification (SITC 5 to 8 less 67 and 68)). The two subcategories are, textile, clothing and footwear (TCF): ISIC 32 less 3231, and machinery and transport equipment (MTE): ISIC 38 less 3811 to 3819. Exports of ships and floating structures are excluded since they tend to be 'lumpy' by nature and are likely to be price insensitive. All data series are indexes (seasonally

unadjusted) with the 1980 quarterly average as the base value. The data sources are:

1 Bank of Korea, *Monthly Bulletin of Statistics* (monthly), Seoul.
2 International Monetary Fund, *International Financial Statistics*, Washington, DC.
3 OECD, *Main Economic Indicators: Historical Series: 1984–1990*, Paris.
4 OECD, *Main Economic Indicators* (quarterly), Paris.
5 OECD, *Quarterly National Accounts* (quarterly), Paris.
6 United Nations, *Commodity Trade Statistics, Statistical Papers series D, 1978, 1980, 1985 and 1990*, Geneva.

The variable definitions and sources (within brackets) are:

K production capacity at the beginning of the quarter (1);
P^d domestic producer (wholesale) price index (1);
P^x export price (contract FOB) index (in won) (1);
C variable cost of production derived as the weighted average of the index of intermediate input price and the wage rate index. Weights are from the 1980 Input-Output Table (1);
X export quantum index derived by deflating export value by P^x;
P^w export-share weighted wholesale prices (in won) of Korea's four major OECD markets, USA, Japan, Germany and the UK. Weights are based on average export shares for 1977, 1980, 1985 and 1990 (2), (3), (4) and (6); and
Y weighted index of real GDP in the USA, Japan, Germany and UK. Weights are as for P^w (5) and (6).

11

TERMS OF TRADE FOR MANUFACTURED EXPORTS FROM DEVELOPING COUNTRIES[1]

One of the most influential views in the post-war development policy debate has been the Prebisch-Singer hypothesis concerning a structural tendency for the net barter terms of trade (NBTT) of developing countries (DCs) to deteriorate in their dealings with the industrialised (developed) countries (ICs). Prebisch (1950) and Singer (1950) launched this hypothesis at a time when the export structure of DCs was dominated by primary products. Reflecting this initial condition, the debate on the long-term deterioration in NBTT has been carried out assuming a close overlap between the NBTT of primary commodities relative to manufactures and the NBTT of the periphery relative to the centre. Since about the late 1960s there has, however, been a continuous and considerable shift in the export structure of DCs away from primary commodities and towards manufactured goods.[2] In this context, it is pertinent to pose the question whether this emerging trade pattern has allowed developing countries to escape unequal exchange relations with the developed countries.

The majority opinion, especially in developing countries and in agencies representing their views, has been that a shift away from primary commodities to manufactures will bring significant gains in terms of trade. This view is usually rationalised by referring to the theoretical reasons given by Prebisch and Singer for the deteriorating trend in terms of trade for primary exports. In a recent synthesis of the post-war terms of trade debate, Singer (1987) casts doubt on this view arguing that the theoretical explanations developed by Prebisch and himself for deterioration in the NBTT for DCs 'relate as much, or more, to the characteristics of countries,…as to the characteristics of different commodities' (p. 628). The original Prebisch-Singer explanations can be itemised under four headings:

1 lower price and income elasticity of demand for primary products than for manufactured goods;
2 technical progress that economises on the use of primary raw material in the manufacturing process;

3 the technological superiority of ICs and the control exercised by IC-based multinational enterprises on the use of sophisticated technology;[3] and
4 monopolistic market structures in the ICs combined with competitive conditions in both commodity and labour markets in DCs.

Of these, so argues Singer, the first two factors are essentially 'commodity-specific' and hence they, by reverse reasoning, imply that a shift from primary commodities to manufactures would lead to a terms of trade gain. By contrast, the remaining two factors, which lead to a biased distribution of productivity gains between developing and developed country export producers, are 'country-specific'. These country-specific factors may be relevant in determining relative prices of both primary commodities as well as manufactures exported by DCs compared to manufactures exported by ICs. Singer, therefore, postulates that 'a shift away from primary commodities in the exports of developing countries has not disposed of the problem (of terms of trade deterioration)' (p. 628).

As a new twist to the original Prebisch-Singer view, Singer's pessimistic proposition about the terms of trade for DC exports of manufactured goods (which we dub here *the Singer hypothesis*) is likely to have a greater appeal to the critics of the new emphasis on export-oriented industrialisation in developing countries. Despite this policy relevance sound empirical evidence needed for a systematic scrutiny of this view is rather sparse. Two early studies (Keesing 1979, Cline 1984) provide some conflicting evidence based on simple time series comparisons of limited data for the 1970s. Sarkar and Singer (1991) provide the first and, as yet, only statistical test of the hypothesis. However, the validity of the Singer-Sarkar results remain doubtful because of some serious limitations relating to both the data and the methodology (Athukorala 1993a).

The purpose of this paper is to subject the Singer thesis to systematic empirical testing by extending the existing limited research in two ways. First, we employ a carefully assembled broad data set which avoids many pit-falls in data used in previous studies. Second, we draw upon recent developments in time series econometrics to investigate the robustness of results to alternative model specification and thus to guard against the possibility of discovering spurious trend rates.

We begin with a review of the existing empirical evidence to place the present study in context. Then the data and the methodology are discussed. The results are presented and discussed in the next section, followed by some concluding remarks. Our results reject the deteriorating trend hypothesis and support the opposite view that, through rapid expansion of manufactured exports, developing countries have achieved significant gains in import purchasing power without generating any adverse impact on the net barter terms of trade.

Existing evidence

The study by Keesing (1979) contains perhaps the first empirical analysis of the behaviour of NBTT trade for manufactured exports from developing countries. In a simple comparison of the behaviour of unit value index for manufactured exports from developing countries and developed countries using data for selected intermittent years between 1960 and 1976, Keesing observes a sharp relative drop in the former series during the years surrounding 1975. He does not, however, read much meaning into the observed pattern because the UN unit value series for DCs used in the analysis 'appears to be dominated by trends in nonferrous metals and other standard process commodities' (p. 35) whose price movements tend to be significantly different from those of standard manufactured goods.[4] Nonetheless, his analysis of disaggregated wholesale price indexes of manufactured goods in the US does produce some evidence which corroborates the pattern indicated by the UN data. According to these data prices of textiles, clothing, electronics and other labour-intensive export specialities of developing countries showed a declining trend relative to prices of other manufactures (p. 36).

Cline (1984) examines the relative price behaviour of developed country imports of manufactures (defined to include commodities belonging to Section 3 of the International Standard Industry Classification (ISIC), excluding refined petroleum) from developing countries using unit value indexes compiled from import data for the seven major industrial countries (US, Canada, West Germany, France, Italy, UK and Japan) for 1969, 1970, 1976, and 1978. His analysis is based on both unit value indexes for 4–digit ISIC categories and total manufactured imports (derived as the weighted average of 4–digit indexes) constructed for imports from DCs and total imports. Cline's results based on the aggregate indexes are mixed; when the unit value index for total imports of manufactures from developing countries is compared with that for imports from all countries, a slight gain appears in NBTT for developing countries between 1970 and 1978. When the same comparison is made between the former index and the UN unit value index for manufactured exports from developed countries, a mild opposite trend becomes apparent. However, at the disaggregated (4–digit) level there are no pronounced divergences in relative price movement other than a substantial rise in the terms of trade for footwear and a severe loss in the terms of trade for non-ferrous metal products. Thus, Cline comes to the overall conclusion that 'no significant trend is present in the terms of trade of manufactured products from developing countries relative to that for industrial countries' (p. 163).

Sarkar and Singer (1991) report the results of the first econometric analysis of the trend in the terms of trade for manufactured exports from DCs. They apply the conventional log-linear time trend estimation procedure, which has been widely used in the general empirical literature on terms of trade movements[5] to data on NBTT for total manufactured exports from DCs

during 1970–87 and from 29 DCs during 1965–85. The authors claim that both aggregate and country-level results of their analysis support the deteriorating trend hypothesis.

The validity of Sarkar-Singer results can be questioned on the basis of limitations of the econometric procedure and data deficiencies. As we will see later, the conventional trend fitting procedure used in the study is susceptible to the problem of uncovering spurious trend rates. As regards data deficiency, we suspect that the results might have been distorted by at least two major factors. First, as noted above, the UN unit value index of manufactured exports from DCs used in the study is influenced by price movements of non-ferrous metal products included in SITC 68 (such as copper, tin, zinc, lead and aluminum) whose price movements tend to be significantly different from those of standard manufactured goods. Second, even if we ignore this basic limitation relating to the commodity coverage of UN index, there is still the issue of the appropriateness of unit value indexes as price proxies for manufactured goods.[6] Unit values are value per unit of quantity at a selected level of a given commodity classification, usually at the 4-digit level of SITC. Unlike primary commodities, manufactured goods tend to be highly heterogenous even at a very fine level of commodity disaggregation. Changes in a unit value index compiled by combining various unit values derived at a selected level of commodity classification are, therefore, influenced not only by *genuine* price changes but also by changes in the commodity mix. In other words, changes in the commodity mix can generate spurious price movements. This bias might be particularly severe for aggregate unit value indexes for DCs as their export structures are subject to significant changes in line with policy shifts. Unit value indexes are defective not only because of this ambiguity of computation but also because quantities used to compute unit values are usually available only for a limited number of categories at the 4-digit SITC level of aggregation. Therefore unit values for aggregates such as total manufactures from a given country, or worse still for a group of countries, are highly unreliable.[7]

Data and method

Data

The empirical analysis of this chapter focuses on terms of trade for manufactured exports from all DCs (1959–89), and from three DCs—India (1971–86), South Korea[8] (1970–90) and Taiwan (1976–90)–selected in the light of data availability. In the aggregate analysis, prices of manufactured exports from DCs are measured in terms of the UN unit value index in its original form (denoted UNUVDC1) as well as an alternative series (UNUVDC2) derived by netting out price movements of non-ferrous metal products (SITC 68) from the original index. The commodity coverage of the adjusted index is consistent

with the most widely used (in particular in official publications of GATT, World Bank and IMF) definition of manufactured goods (SITC 5 through 8 *less* 68). There is, of course, no clear-cut and universally accepted definition of manufactured goods, and it is possible to identify at least five definitions which accord with generally accepted classifications of manufacturing activities (Hill 1986). The choice of definition should, therefore, depend on the user's purpose. For the purpose of our analysis we certainly prefer 'SITC 5 through 8 less 68' to 'SITC 5 through 8', because trade in natural resource-intensive products depends to a considerable extent on a country's resource endowment rather than on the nature of export development policy. In any case, no matter what definition is used, it is sound statistical practice to exclude 'outliers' in order to ensure general applicability of results.

Two alternative series are used to represent import prices of manufactured goods faced by DCs. These are the UN unit value index for total manufactured exports from ICs (UNUVIC) and an export price index for exports of manufactures from the three leading IC exporters (the USA, Japan and Germany) to developing countries developed by Lipsey *et al.* (1990) (LMKXP). Thus, the aggregate analysis makes use of four alternative NBTT series:

NBTT(a 1)=(UNUVDC1 /UNUVIC)
NBTT(a2)=(UNUVDC1/LMKXP)
NBTT(b1)=(UNUVDC2/UNUVIC)
and
NBTT(b2)=(UNUVDC2/LMKXP).

In the country-level analysis, for each of the three sample countries we examine NBTT for total manufactured exports as well as for disaggregated export categories. The degree of disaggregation is carried out to the fullest extent permitted by the nature of national data bases.[9] For Korea and Taiwan we have 'true' trade price indexes which are free of many shortcomings (discussed above) associated with unit value indexes. For India what we have are unit value indexes. However, we believe that unit value indexes derived for a given country directly from its own trade data tend to be more accurate than those derived on the basis of import records of its major importing countries. For each country both the aggregate and the disaggregated NBTT series are derived by deflating the relevant export price/unit value index by the price/unit value index for total manufactured imports of the country.[10] The data sources and a brief description of the methods used in data transformation are provided in the Appendix at p. 221.

Method

The methodology that has commonly been adopted in previous analyses of long-run trend in NBTT is to estimate a log-linear trend equation of the form:

$$x_t = \alpha + \beta t + u_t \tag{1}$$

where x is the logarithmic value of the NBTT series, t denotes time and u_t is a disturbance term. The coefficient β indicates the average compound rate of improvement ($\beta>0$) or deterioration ($\beta<0$) of the NBTT. It is usually the case that the residuals in (1) are highly correlated and this is remedied using a standard autocorrelation correction procedure, the Cochrane-Orcutt procedure being the most widely used.

The estimate of β derived from model (1) is valid only if x is a trend stationary (TS) process (that is, if x has a deterministic trend). If x is a difference stationary (DS) process, that is, if the series has no deterministic trend but fluctuates widely around a mean level that itself changes quite often, the appropriate choice is:

$$x_t - x_{t-1} = \beta + e_t \tag{2}$$

where β is the (fixed) mean of the differences, and e_t is a stationary series with zero mean and variance σ^2 (Nelson and Plosser 1982, Mills 1991).

In theory, the mean growth coefficient, β, in (2) is the same as the coefficient attached to T in (1).[11] However, in empirical application, the incorrect application of model 1 to a series belongs to the DS class may lead to a spurious trend rate estimate. This point can be easily illustrated by comparing model (1) with the following alternative representation of model (2):

$$x_t = \alpha + \beta t + \sum_{j=1}^{t} ej \tag{3}$$

Note that Equation 3 has simply been derived from equation 2 by accumulating x_t starting with value x_0=a at the selected reference point of t=0. Equations (1) and (3) are similar in that both express x as a linear function of time plus deviation from it. But there is a fundamental difference. Unlike in (1), the disturbance in (3) is not stationary; being an accumulation of stationary changes, it has variance $t\sigma^2$ that increases over time without bound. It is therefore intuitively clear that if a DS process is regressed on time (t), the trend in the variance will be transmitted to the mean and, in terms of the conventional t-test, we may find a significant coefficient for t even if in reality there is no trend at all in the mean (i.e. β=0). The simulation evidence of Nelson and Kang (1984) is of particular interest in reinforcing this point. They find that the conventional t-test for the trend coefficient obtained by regressing a DS series on time tends to reject of the null hypothesis β=0 with a probability of 87% at a normal 5 per cent level of significance when in fact the null hypothesis is true. They further find that an attempt to correct for residual serial correlation using the Cochrane-Orcutt procedure only partially alleviates the problem; after a first-order AR correction, the true null

hypothesis would still be rejected at a normal 5% per cent level with 73 % probability.

The overall impression from numerous investigations into trend properties of macroeconomic time series is that a great many of them, including international trade prices, belong to the DS rather than TS class of processes (Nelson and Plosser 1982, Schwert 1987). Much closer to our area of study, this pattern is confirmed by Cuddington and Urzua (1989) and Powell (1991) for aggregate NBTT series for primary commodities and Fieleke (1989) for NBTT of individual developing countries. Moreover the general impression conveyed by the literature on manufactured export expansion from developing countries (e.g. Keesing 1979, Cline 1984, Balassa 1990) is that the export expansion process is not deterministic, and periodic policy changes can radically change the export growth path upward. In light of these considerations, an essential first step in the estimation of trend rate for a given NBTT series should be to formally test whether it belongs to the TS class or the DS class. Based on the test results, the choice between models 1 or 2 can be appropriately made thus avoiding the estimation of spurious trends.

There is a wide range of statistical tests that can be used for testing whether data time series are TS or DS processes.[12] In this study we chose to use two alternative tests, namely the Dickey-Fuller (DF) test (as extended by Nelson and Plosser (1982) to take the DS model as the null hypothesis) and the Johansen maximum-likelihood procedure (Johansen test) (Johansen 1988). The Dickey-Fuller test is the most widely used and in terms of asymptotic properties it has been found to be similar to most alternative tests (Engle and Granger, 1987).[13] The Johansen procedure, which we use here as a check on the DF test, has been basically developed for the testing for and estimation of cointegration relations among non-stationary variables. However, it can also be used as a test of time series properties of a single series: when applied to a single variable with a time trend included in the data generation process, evidence in support of cointegration (non-cointegration) implies that the variable is trend stationary (difference stationary).[14]

Results

The results of the TS versus DS tests for the NBTT series used in the study are reported in Table 11.1. The results based on the two alternative tests are strikingly similar. The null hypothesis of DS process is overwhelmingly accepted for all the four series relating to total manufactured exports. At the individual country level, the hypothesis is rejected only for a single commodity category, namely exports of chemicals and related products from Taiwan. Thus, for the purpose of estimating trend rates of NBTT, the DS model (Equation 2) is to be preferred over the conventionally used TS model (Equation 1). However, for all series we estimated both models for comparative purposes. For exports from all developing countries, estimates were made

Table 11.1 TS versus DS tests for net barter terms of trade series

Statistic[a]	*DF/ADF Statistic*[b]	*Johansen*
Developing countries (1959–79)		
NBTT(a1)	−2.67 (0, 0.32)	4.47
NBTT(a2)	−1.80 (0, 0.15)	4.14
NBTT(b1)	3.13 (0, 0.85)	8.73
NBTT(b2)	−2.55 (0, 0.60)	6.72
India (1971–76)		
Total manufactures	−1.83 (0, 1.57)	3.87
Machinery and transport equipment	−2.41 (0, 0.42)	6.13
Miscellaneous	−1.34 (0, 0.24)	2.92
Korea (1970–90)		
Total manufactures	−3.23 (1, 0.87)	4.15
Textile, apparel and leather goods	−3.01 (1, 0.23)	3.79
Wood and wood products	−2.23 (0, 0.00)	4.90
Chemical and related products	−1.47 (0, 0.01)	3.94
Non-metallic mineral products	−2.59 (0, 0.00)	5.51
Basic metal products	−2.11 (0, 1.53)	7.55
Metal products, machinery and transport equipment	−2.51 (0, 0.03)	0.82
Taiwan (1976–90)		
Total manufactures	−2.94 (0, 0.15)	4.94
Chemical and related products	−2.77 (2, 5.33)	3.99
Manufactures classified by material	−2.79 (0, 1.56)	6.96
Machinery and transport equipment	−4.55 (1, 1.01)	11.46
Miscellaneous manufactures	−1.74 (2, 2.57)	1.16

Source: Author's estimates based on data sources discussed in the text

Notes

a DF/ADF statistic is the t-statistic associated with the coefficient b in the OLS regression:

$$\Delta x_t = \alpha + \beta x_{t-1} + \delta t + \sum_{i=1}^{k} \varphi_1 \Delta x_{t-1} + u_t$$

The statistic is called the DF statistic when k=0 and ADF statistic when K>0. In estimating the equation, the value of K (the lag length on the lagged dependent variable) has to be chosen such that the residual of the final equation is approximately white noise. Our choice of K is based on the LM test for residual serial correlation. The figures in parentheses show the value of K and the LM test statistic (F version) respectively for the chosen specification. The approximate 5 per cent critical values (taken from Mckinnon 1991) for testing the DS null hypothesis as against the TS alternative are -3.7 for the DF test and -3.9 for the ADF test

b LR test statistics for cointegration in one variable based on maximum eigenivalue of the stochastic matrix. The 5 per cent critical value (obtained from Johansen 1988) for testing the null of a unit root (i.e. the hypothesis that the variable is I(0)) is 9.27

for the total sample period (1959–89) as well as the 1970–89 subperiod. This was done in order to see if the slowing down of economic growth in ICs since about the early 1970s has had any distinct impact on the terms of trade behaviour. As anticipated, in all cases the OLS estimate of the DS model passed the Durbin-Watson (DW) and Lagrange multiplier (LM) tests for residual serial correlation without requiring any further correction. The OLS estimate of the TS model, however, passed these tests only in three cases (NBTT-al for the period 1959–89 for all developing countries, and total manufactures and manufactures classified by material for Taiwan). For the remaining cases we supplemented OLS with the Cochrane-Orcutt procedure to achieve residual whiteness. The results are reported in Table 11.2.

Table 11.2 Trend-rate estimates of NBTT for exports of manufactures from all developing countries (1959–89), and from India (1971–86), Korea (1970–90) and Taiwan (1976–90)

Country/commodity category	*TS model* $x_t = \alpha + \beta t + u_t$		*DS model* $x_t - x_{t-1} = \beta + u_t$	
	β^*100 *(t-ratio)*[a]	*DW* *LM*	β^*100 *(t-ratio)*[a]	*DW* *LM*
Developing countries (1959–90)				
NBTT(a1):				
1959–90	−0.57	1.86	−0.34	2.16
	(1.81)**	0.00	(0.29)	0.24
1970–90	−0.96	1.46	−1.03	2.27
	(3.83)*	1.31	(0.57)	0.43
NBTT(a2):				
1959–90	−0.81	−1.90	−0.07	1.94
	(0.81)	0.00	(0.06)	0.01
1970–90	−1.25	1.76	−1.00	2.10
	(2.13)**	0.00	(0.58)	0.08
NBTT(b1):				
1959–90	−0.25	1.80	0.50	2.24
	(0.80)	0.00	(0.18)	0.51
1970–90	−0.61	1.93	−0.32	2.35
	(1.35)	0.00	(0.21)	0.64
NBTT(b2):				
1959–90	−0.06	1.79	−0.11	2.17
	(0.15)	0.00	(0.31)	0.29
1970–90	−1.13	1.98	−0.28	2.10
	(1.50)	0.00	(0.20)	0.06
India (1971–76)				
Total manufactures	3.36	2.08	2.21	2.26
	(2.15)**	0.00	(0.80)	0.65

Machinery and transport equipment	−1.15	1.21	−1.49	2.11
	(1.42)	1.57	(0.35)	0.25
Miscellaneous	4.86	1.38	1.42	1.13
	(31.50)*	0.00	(0.48)	1.85
Korea (1970–90)				
Total manufactures	1.47	1.20	−0.28	1.24
	(0.22)	0.00	(0.24)	1.45
Textile, apparel and leather goods	1.28	1.53	1.42	1.78
	(2.34)**	0.00	(0.78)	0.10
Wood and wood products	0.95	1.93	1.55	2.37
	(1.03)	0.00	(0.53)	0.72
Chemical and related products[b]	1.81	1.87	4.40	1.92
	(0.59)	0.00	(0.90)	0.00
Non-metallic mineral products[b]	−0.36	1.81	1.72	1.17
	(0.45)	0.00	(0.87)	1.15
Basic metal products	−1.07	2.36	1.57	2.26
	(0.12)	0.00	(1.09)	0.35
Metal products, machinery and	−1.96	1.58	−0.01	1.09
transport equipment	(3.16)*	0.00	(0.06)	3.15
Taiwan (1976–90)				
Total manufactures	0.37	1.39	0.24	2.11
	(2.10)**	0.38	(0.25)	0.41
Chemical and related products	0.34	1.27	0.28	1.13
	(0.51)	0.00	(0.11)	0.96
Manufactures classified by material	0.56	1.69	2.82	1.02
	(1.82)**	0.20	(1.32)	1.60
Machinery and transport equipment	0.30	1.63	−1.14	1.02
	(0.38)	0.00	(0.98)	2.70
Miscellaneous	1.47	1.22	0.84	1.30
	(3.13)*	0.00	(0.95)	0.60

Source: Author's estimates based an data sources discussed in the text

Notes

a statistical significance (one-tailed test) is denoted as: *=1% and ** 5%

b The estimates are for the period 1976–90

First we consider the results for total DC exports. For the NBTT series derived by dividing the unadjusted UN unit value index for DCs by the UN unit value index for ICs (NBTT(al)) the TS model produces a statistically significant compound annual rate of deterioration of 0.6 per cent for the total sample period and 1 per cent for the subperiod 1970–90. The latter estimate is comparable with the estimate for 1970–87 produced by Sarkar and Singer (1991) using the same data and method. When the alternative NBTT series derived by replacing the UN unit value index for total IC exports by the LMK price index for IC exports to developing countries (NBTT(a2))

is used, the negative trend rate for the overall sample turns out to be statistically insignificant. However, for the subperiod 1970–89, it gains statistical significance with a numerical value of 1.25 per cent. All in all, disregarding the change in the numerator, the NBTT trend rate estimates based on the unadjusted UN export unit value index for DCs (UNUVDC1) are generally in favour of the deteriorating trend hypothesis. However, when the alternative index UNUVDC2 (which is derived by netting UNUVDV1 for the non-ferrous metal prices) is used, estimates for both periods turn out to be statistically insignificant. And this result is insensitive to the use of the two alternative deflator series. Thus, when non-ferrous metal products are excluded (legitimately, we believe) as a special case, even the results based on the conventional TS model do not support the Singer hypothesis. When the DS model (which is unambiguously the preferred model given the trend properties of the data) is used, trend rates for all four alternative NBTT series overwhelmingly reject the hypothesis.

It is interesting to note that the results are remarkably insensitive to the use of the UN unit value index for manufactured exports from developed countries or the LMK index of exports by developed countries to developing countries as the deflator in estimating the NBTT. Indeed, a graphical comparison shows that the two series are strikingly similar in terms of both year-to-year changes as well as the distinct turning points. The simple correlation coefficient between the first differences of the two series tuned out to be as high as 0.98. A comparison of the results for 1970–90 with that for the overall period in terms of the preferred (DS) model does not seem to suggest any significant shift in the time pattern of NBTT during the period of slow growth in the developed world since the early 1970s. As a further check, we applied Chow's structural stability test using 1959–69 and 1971–90 as the two sub-periods. For all four alternative NBTT series, the test overwhelmingly rejected the hypothesis of a structural break in the time trend.

Now we turn to country-level estimates, which we consider superior to estimates for total DC exports on grounds of lower aggregation bias and better data. It is interesting to note that results based on the TS model actually provide some support for the alternative hypothesis that DCs have reaped terms of trade gains through diversification into manufactured goods. Apart from machinery and transport equipment exports from Korea (which show a statistically significant negative trend rate of about 2 per cent), all other export categories show either statistically insignificant (zero) or positive and statistically significant NBTT growth rates. However, it is not appropriate to read much meaning into these results because the data series used are not trend stationary. Results based on the preferred DS model, in fact, suggest that the terms of trade for total manufactured exports of each county as well as for exports in all sub-categories have basically been trendless. The results for textiles, apparel and leather goods exports of Korea and miscellaneous export category (SITC 8)[15] of India and Taiwan deserve particular attention

because these product categories represent areas of heavy export concentration for DCs as a group in general and new exporting countries in particular. Some observers (e.g. Dornbusch 1992:81) have hypothesised that, by flooding the world market, DCs may be worsening their terms of trade in these product areas. This hypothesis does not receive any support from our trend rate estimates.

Conclusion

The purpose of this chapter has been to examine the empirical validity of the recent hypothesis by Singer (1987) that, owing to certain country-specific disadvantages, the net barter terms of trade (NBTT) for exports of manufactures from DCs tend to experience secular deterioration favouring the importing ICs. We estimated trend rates of NBTT for manufactured exports from all DCs as well as from India, Korea and Taiwan, by applying an econometric procedure designed to avoid the problem of spurious trend estimation to a carefully assembled data set which avoided many pitfalls in the data used in previous studies.

For total manufactured exports from DCs, trend rate estimates based on the conventional trend-stationary model are found to be sensitive to the nature of commodity coverage of the UN export unit value index for ICs. While the estimates for NBTT series derived from the original UN export unit value index are in favour of the deteriorating trend hypothesis the estimates are not statistically significant when non-ferrous metal products are legitimately excluded from the commodity coverage of the UN unit value index. However, when the alternative difference stationary model, which we found to be the preferred model given the trend properties of the data, is used the trend rates of both unadjusted and adjusted NBTT series turn out to be statistically insignificant thus overwhelmingly rejecting the deteriorating trend hypothesis. In the country-level analysis, which we consider superior to the aggregate analysis on grounds of better data and lower aggregation bias, the results based on the trend-stationary model actually support the converse viewpoint that DCs have achieved terms of trade gains through diversification of exports into manufactured goods. This finding, however, is only a statistical artefact resulting from the inappropriate model choice: in terms of the preferred DS model, terms of trade for total as well as disaggregated exports of all three countries are found to be basically trendless. Thus, if we believe in the long-standing Prebisch-Singer proposition that there is a structural tendency for the prices of primary exports to experience a secular decline relative to the prices of manufactures,[16] then our results clearly suggest that the emerging export pattern characterised by increased diversification into manufactured goods may allow DCs to escape unequal exchange relations with ICs in world trade.

Notes

1 An expanded version of 'Terms of Trade for Manufactured Exports from Developing Countries', *Economia Internaztonale*, XLVIII (2), 1995, pp. 179–95.
2 For instance, the share of manufactured goods in nonfuel exports of the developing countries increased from 15 per cent in the early 1960s to over 60 per cent by the early 1990s (World Bank 1995). Although most low-income countries still depend on primary products for the bulk of their export earnings, the identification of developing countries generally as primary commodity exporters has certainly lost much of its relevance over the years.
3 These two factors taken together imply that the prices of manufacturing exports from ICs embody both a Schumpeterian rent element for technological innovation and a monopolistic rent element in the use of technology.
4 The definition of manufactured goods used in constructing the UN unit value index is the sum of SITC sections 5 through to 8, and therefore the index is affected by price movements of non-ferrous metal products (SITC 68). As far as exports from developing countries are concerned, this commodity category is composed predominantly of mineral products (mostly unprocessed) such as tin, copper, zinc, lead and aluminium, whose price movements tend to be significantly different from those of standard manufactured goods. Moreover, as compared with developed countries, this commodity group accounts for a greater share of total SITC 5–8 exports from developing countries. For instance, in 1970 (the base year of the UN series used by Keesing) non-ferrous metals accounted for 25.1 per cent total SITC 5–8 exports of developing countries. The comparable figure for developed countries was 3.1 per cent.
5 See Sapsford (1990) for a comprehensive survey of this literature.
6 For a useful summary of these limitations and a detailed listing of the related literature, see Lipsey *et al.* (1990).
7 By inspecting detailed export records given in UN, Series D country data records for arbitrarily selected countries (Malaysia, Thailand, South Korea, India and Sri Lanka) for 1984 and 1985, we found that quantity figures are available only for commodities accounting for 4–60% of total value of manufactured exports. More importantly, it was found that the incidence of non-reporting was greater among products belonging to SITC Section 7 (machinery and transport equipment) and SITC 8 (miscellaneous goods) which are usually the most dynamic product lines. Thus, it may be that the degree of reliability tends to decline over time along with export success. Of course, the bias in NBTT resulting from this data problem can go either way.
8 Henceforth referred to as Korea.
9 The Korean data cover products classified under Section 3 of ISIC while Indian and Taiwanese data cover products belonging to Sections 5 through 8 of SITC. However, given the nature of the export structures of these countries, in terms of the *actual commodity coverage* the indexes are closely comparable with indexes derived on the basis of the most widely used definition of manufactured goods of 'SITC 5 through 8 less 68'.
10 In all cases the use of LMKXP as an alternative deflator series yielded almost identical results.

11 For equation (1), $E(x_t)=\alpha+\beta_t$. The differencing of x_t in equation 1 yields, $\Delta x_t=\beta+v_t$, where $v_t=u_t—u_{t-1}$, and therefore $E(Dxt)=\beta$.
12 See Mills (1991, Chapter 11) for a useful survey of this literature.
13 The DF test is discussed in the footnote to Table 11.1 on p. 215.
14 See Cuthbertson, Hall and Taylor (1992, ch. 5) for a succinct discussion on the Johansen procedure with its application for testing time series properties of data.
15 This commodity category basically covers apparel and clothing accessories, footwear, toys and other light labour-intensive consumables.
16 The majority finding in the vast empirical literature on the terms of trade issue is that there has been a continuous log-term deterioration in the terms of trade for primary commodities (excluding petroleum). See Spraos (1983) and Sapsford(1990) for comprehensive surveys of this literature.

Appendix

The UN unit value indexes for manufactured exports from DCs and ICs (UNUVDC1 and UNUVIC) are from various issues (starting from December 1971 issue) of UN, *Monthly Bulletin of Statistics*. In each case the indexes for the three sub-periods 1959–69 (1963=100) and 1970–79 (1970=100) and 1980–89 (1980=100) were spliced to a 1980 base to form a unified index for the sample period.

The price index for non-ferrous metal (SITC 68) used to adjust UNUVDC1 (to obtain UNUVDC2) was obtained from Thirlwall and Bergevin (1985, Appendix (for 1959–82)) and UN, *Monthly Bulletin of Statistics* (for 1983–89). We first purged the SITC 68 index from the UN unit value index for developing countries for the three sub-periods (1959–69, 1970–79 and 1980–89) and then the sub-indexes for the first two subperiods were spliced to a 1980 base. The weights (shares of SITC 68 in total SITC 5–8 exports from DCs) used for this purpose are: 1963=0.461, 1970=0.252 and 1980 =0.091. These shares were estimated using data on export composition obtained from GATT, *International Trade*, Geneva.

Data for India, Korea and Taiwan were obtained from various issues of the following sources: Department of Statistics—India, *Monthly Abstract of Statistics*, New Delhi; Bank of Korea, *Monthly Bulletin of Statistics*, Seoul; and General of Budget, Accounts and Statistics, Republic of China (Taiwan), *Statistical Yearbook of China*, Taipei.

All terms of trade series used in the study have been constructed with 1980 as the base year.

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Abbreviations

DCs	developing countries
EOFDI	export-oriented foreign direct investment
EPZs	export processing zones (or FTZ Free Trade Zones)
FDI	foreign direct investment
ICMNEs	industrial country multinational enterprises
ICs	industrial countries
MNEs	multinational enterprises
NBTT	net barter terms of trade
NECs	new exporting countries
NICs	newly industrialised countries
NTBs	non-tariff barriers
QRs	quantitative restrictions
SOEs	state-owned enterprises
TWMNEs	third world multinational enterprises
VERs	voluntary export restraints