

Amenities and Rural Development

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Theory, Methods and Public Policy

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Abbreviations

AEM	Agri-Environmental Measures (France)
AES	Agri-Environmental Schemes (Germany)
ASPO	American Society of Planning Officials (USA)
BANANA	Build-Absolutely-Nothing-Anywhere-Near-Anything
BEA	Bureau of Economic Analysis (USA)
BEA-REIS	Bureau of Economic Analysis – Regional Economic Information System (USA)
BLM	Bureau of Land Management (USA)
BMA	Bayesian Model Averaging
BMP	Best Management Practices
BMVEL	German Federal Ministry of Consumer Protection, Food and Agriculture
CAP	Common Agricultural Policy (Europe)
CRP	Conservation Reserve Program (USA)
CTE	Contrat Territorial d’Exploitation (France)
CWSE	Center for Watershed Science and Education (USA)
ECU	European Currency Unit
ESA	Endangered Species Act (USA)
FHWA	Federal Highway Administration (USA)
GIS	Geographic Information System
LAUS	Bureau of Labor Statistics Local Area Unemployment Statistics (USA)
LLPA	Long Lake Planning Association (USA)
NIMBY	Not-In-My-Back-Yard
NORSIS	National Outdoor Recreation Supply Information System (USA)
NWRPC	Northwest Regional Planning Commission (USA)
OECD	Organization for Economic Co-operation and Development
OPL	Out-migration/population loss
ORF	Outdoor Recreation Facility
PBR	Pine Barrens Region (USA)
PEBLDS	Pan-European Biological and Landscape Diversity Strategy
RDR	Rural Development Regulation (Germany)

TIAA	Travel Industry Association of America
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USDA-ERS	United States Department of Agriculture – Economic Research Division
USDA-FS	United States Department of Agriculture – Forest Service
UWSP CLUE	University of Wisconsin-Stevens Point Center for Land Use Education (USA)
VEP	Visitor Employed Photography
WDNR	Wisconsin Department of Natural Resources (USA)

1. Introduction

**Gary Paul Green, Steven C. Deller and
David W. Marcouiller**

Our images of rural areas are still dominated by pastures, working forests being actively harvested and mountainous landscapes dotted with mines. For much of the past century, rural communities have struggled with population and employment loss, high rates of poverty and a paucity of financial resources to provide basic services to residents. Improvements in technology, transportation and communication systems promised to improve the quality of life for rural residents, but the primary beneficiaries have been communities on the urban fringe. Technological change has reduced demand for workers and producers, especially in forest products and agricultural commodities.

Not all rural communities are facing these pressures, however. Many communities are experiencing high rates of population, income and employment growth. Most of these communities are heavily endowed with natural amenities. Rather than extracting natural resources for external markets, these communities have begun to build economies based on promoting environmental quality. This shift in rural economies from extraction of natural resources to promotion of natural and cultural amenities is apparent throughout Europe and North America.

Amenities can be broadly defined as qualities of a region that make it an attractive place to live and work (Power 1988, p. 142). In many cases, amenities are immobile, nonsubstitutable and provide direct and/or indirect benefits to people. Examples include such things natural or wildlife areas and parks, but they would also include historic buildings and sites and cultural settlements (such as Amish communities). Amenities, however, include a wide range of attributes that are potentially shaped, and possibly even produced, through human action. Recreation areas typically are highly influenced by public policy and markets.

For the most part, amenities represent assets that are not effectively regulated by markets. There are a number of problems in establishing the commodity character of amenities. The supply of them cannot be easily increased, while the demand grows significantly with development. In many

cases amenities are public goods and it is difficult to make users pay to benefit from these resources. For example, it is difficult to charge people who derive benefits from a rural landscape. Many of the beneficiaries of the promotion of amenities may live in urban areas, while most of the costs associated with this development are borne by residents in rural areas.

Many rural communities are able to capture the economic benefits of their amenities by promoting strategies that build on these resources. Demographers have recently documented that rural areas dependent upon recreation as a source of jobs have experienced higher rates of in-migration than other rural areas (Johnson and Beale 1998). Economists have also found that natural and recreation-related amenities contribute to job growth as well (Deller et al. 2001). There continues to be some debate whether amenities directly contribute to job growth or indirectly through in-migration. In a review on this topic, Gottlieb (1994) concludes that there is little evidence that amenities directly induce employment growth. Instead, amenities attract in-migrants who demand additional goods and services, thereby creating new job opportunities.

We do not have a very good understanding of amenity-led growth. There are several questions that need to be addressed. One question concerns the impacts of growth on amenities. At what point does population and employment growth threaten the amenity base of the community? How well do communities manage amenity-led growth efforts? Does amenity-led growth face real limits? Will this growth consume and destroy the amenities that fostered the growth? What policy tools work best in these settings? Given the regional nature of most amenities, is it possible to coordinate management across multiple jurisdictions? Do local policies work better than state or federal policies?

Second, what are the effects of maintaining the amenity base on job and population growth? Do efforts to manage amenities affect the rate or character of growth? Are there successful models that mix extraction of natural resources with maintenance of the amenity base of the community? The European policies promoting multifunctionality attempt to address these concerns (Knickel and Renting 2000).

Third, can the lack of growth threaten the amenity base? Maintaining the quality of amenities may require fiscal resources only available through local growth. Managing natural or wildlife areas may require resources that are not available at the local level. Who pays for this management? How effective are communities in securing external resources to maintain their amenity base? Many of the beneficiaries are urban residents who do not pay for the real costs of maintaining these amenities. Beale and Johnson (1998) note that many local governments face financial pressures in providing the infrastructure for recreation and tourism. These communities

tend to become dependent on recreation spending and have higher than normal costs for highways and sewerage/water systems. Yet another study of the fiscal impacts of recreational housing development found that this type of development more than paid for itself when considering contributions to the tax base compared to the demand for local services (Deller et al. 1997).

Fourth, we need a better understanding of the long-term impacts of amenity-led development on social equity. Much of the literature on tourism has emphasized the seasonal and part-time nature of the employment in this sector and has raised questions about its contribution to income inequality in these regions (Leatherman and Marcouiller 1999). Jobs in the tourism and recreation sector tend to be low-wage, low-skilled and offer few benefits or opportunities for mobility. Is it possible for amenity-led growth to create high-wage, high-skilled jobs and increased diversification of the regional economy?

Finally, to better understand the role of amenities in rural development we need to clarify the conceptual meaning of amenities and ways of measuring their impacts on communities. How do we measure amenities? Natural amenities tend to be intangible things such as environmental quality or scenic views, where markets are not clearly defined. We also lack a clear understanding of how local and state policies help communities to manage their amenities. What are the ultimate outcomes we are concerned with in amenity-led development?

The chapters in this book are based from papers presented at a conference on Amenities and Rural Development, which was held in Madison, Wisconsin in the summer of 2004. We solicited papers from scholars working in this area from a variety of disciplines (economics, sociology, planning and geography) and from different countries. We organized the conference around three basic themes: (1) theoretical issues related to the concept of amenities, especially with regard to the supply of and demand for amenities; (2) methodological and empirical issues related to measuring the impact of amenities on development; and (3) policy issues related to amenity-led development.

In the first several chapters, authors discuss several issues related to the supply of and demand for amenities in rural areas. Dave Marcouiller and Greg Clendenning explore the conceptual issues related to the compatibility of amenity resources with jointly produced market-based natural resource outputs. Jean-Eudes Beuret and Marie-Christine Kovacshazy focus on how to restore market coordination between providers and beneficiaries of amenities in rural Europe. Jacqueline Candau, Philippe Deuffic, Sylvie Ferrari, Nathalie Lewis and Mbolatiana Rambonilaza discuss equity issues related to French policies used to maintain amenities

in agricultural areas. In his overview article, Michael Thomas Power turns economic base theory on its head and discusses how amenities can form the economic base of regions.

Authors in the second set of chapters explore a variety of ways of measuring the social and economic impacts of amenities on growth and development. The chapter by Martin Shields, Stephan Goetz and Quiyan Wang examines the relationship between amenities and migration. They find that natural amenities do not have as strong an effect on out-migration decisions as do labor market conditions and earnings differentials. W. Richard Goe and Gary Green assess the relationship between the level of amenities and change in population, employment and income across nonmetropolitan labor markets areas in the US from 1980 to 2000. They find important differences among the outcomes in the types of amenities that are examined. Warm weather, outdoor recreation amenities have the most robust relationship with the absolute well-being of nonmetropolitan regions. Christy Dearien, Gundars Rudzitis and John Hintz examine the issues of migration and rural development in the amenity regions of the Northwest US. Their analysis shows that place attachment is a key factor in explaining migration decisions in amenity regions of the region. Steven Deller and his colleagues use a Bayesian approach to examining the effects of amenities on regional economic growth. They find that amenities are strongly related to income growth. J.C. Dissart and Dave Marcouiller consider the effects of recreation facilities on rural economic growth. They do not find strong evidence that recreational facilities are related to income growth, net of the effect of natural amenities and other characteristics of the region. Ken Johnson and Susan Stewart examine the role of recreation and amenity migration in urban proximate areas. Proximity to urban populations shapes the supply of natural amenities, as well as the efforts to manage them. Richard Stedman and his colleagues use photography as a tool for understanding attachment to high-amenity places. They demonstrate how the social aspects of community are intimately tied to the natural components of these amenity areas. Greg Clendenning and Donald Field examine the differences between seasonal and permanent residents in their sense of community in a high-amenity region. They find that the conflicts between these two groups over amenity use tend to decline over time.

Several chapters address the policy challenges of amenity-led development. Michael Smith and Lisa Spadoni evaluate the effectiveness of land-use planning policies in the amenity-rich regions in the Rocky Mountains of the United States. They find little consensus among residents and officials regarding the effectiveness of tools to manage population growth. The most effective land use planning tools involved comprehensive plans, zoning and the purchase of property or development rights. Dana Jensen

and Donald Field discuss how landowner attitudes affect growth management efforts in Northwestern Wisconsin. They emphasize the importance of planning efforts that build consensus as the most effective way to manage amenities. Eric Olson looks at some of the dilemmas regarding localism as a strategy for protecting natural resources. He concludes that we should use different planning approaches in rural areas to manage natural amenities than we do in urban settings. Finally, Karlheinz Knickel and Sarah Peter examine recent policy initiatives in Germany to promote amenity-led development. They focus on the Regional Action – Rural Areas Shaping the Future Pilot Program in Germany. This program encourages regions to promote integrated rural development projects that recognize the multifunctionality of agriculture and the interconnectedness between agricultural and rural development. Joan Brehm summarizes some of the policy challenges facing amenity regions. We close the book with an overview of some of the research issues identified by the conference participants.

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2. The supply of natural amenities: moving from empirical anecdotes to a theoretical basis

David W. Marcouiller and Greg Clendenning

INTRODUCTION

Natural resources continue to play an important role in defining the structure and viability of rural communities across North America. Historically, natural resources have provided location-specific advantages for communities at various stages of their development. In early stages, extractive industries (farming, forestry, mining and fishing) utilized natural resources as physical raw materials for processed goods thus creating plentiful and relatively high-paying job opportunities. As communities develop, traditional dependencies have given way to alternative foundations. In essence, many rural communities have experienced a paradigmatic shift in perceptions of what is comprised by the regional natural resource endowment and the manner in which these natural resources are utilized.

Several forces have come together to fundamentally alter the manner in which natural resources act as engines of economic growth. With the exception of oil production, international competition has led resource extractive industries of the US to lose their price competitiveness in world commodity markets (Freudenburg 1992; Glaston and Baehler 1995; Pulver 1995; Weber 1995). Also, economic restructuring of the American economy toward a service base has significantly tempered the importance of physical raw material inputs for production of manufactured goods (Bluestone and Harrison 1982; Chevan and Stokes 2000). Finally environmental awareness and political activism of urban audiences have provided strong criticism of extractive production practices by emphasizing adverse environmental impacts, threats to biodiversity and sustainability and global environmental change (Buttel 1995; Castle 1993).

These regional resource and development issues have forced a reexamination of the uses and management of natural resources, particularly publicly-owned land-based resources such as forests and water resources.

Since the late 1960s natural resource management has broadened its focus to include nonextractive environmentally-sensitive land management practices that reflect broader nonmarket values (Floyd 2002; Hays 1998; Macie and Hermansen 2002; Power 1996). Natural-amenity-rich communities have become aware that natural resources provide not only a source of physical raw material commodities but can also serve as a source of recreational use that provides a backdrop for tourism development and new-age rural economic development (Green 2001; Isserman 2000).

Rural communities across the United States have been experiencing dramatic demographic, social and economic transformations. Many rural regions have experienced demographic change and population growth due to in-migration of predominantly urban residents who are leaving the city for the countryside. Today, fewer communities are dependent upon traditional resource-based rural industries, such as mining, agriculture, or timber production (Cook and Mizer 1994; Halfacree and Boyle 1998; Johnson and Fuguitt 2000; Krannich and Zollinger 1997; Marcouiller and Green 2000; Power 1996).

A particularly important trend found in these migration patterns has been substantial population growth, fueled by in-migration, into areas and places that are rich in scenic and recreational amenities (Beale and Johnson 1998; Brown et al. 1997; Frenz et al. 2004; Frey and Johnson 1998; Johnson and Fuguitt 2000; McGranahan 1999; Nelson 1992; Nelson and Dueker 1990; Nord and Cromartie 1997; Rudzitis 1999; Schwarzweller 1979). For most new residents, primary reasons for migrating to these areas include environmental quality, scenery, outdoor recreation opportunities, frontier living and a generally slower pace of life (Beyers and Nelson 2000; Davis et al. 1994; Rudzitis 1999; Rudzitis and Johansen 1991; Schwarzweller 1979).

Conceptually, natural amenities are clearly thought to provide an integral component of recreation, tourism, amenity migration and retirement development (D.G. Bennett 1996; Frederick 1993; Jakus et al. 1995; Keith and Fawson 1995; Keith et al. 1996; Marcouiller 1997; McDonough et al. 1999). They provide the substantive but latent primary factor input into tourism industry output (Power 1988; Marcouiller 1998). As a component of quality of life factor, they are believed to play a critical role in human migration and firm location decisions (Beyers and Lindahl 1996; Beyers and Nelson 2000; Gottlieb 1994; Graves 1979; 1980; 1983). Rudzitis and Johansen (1991) were among the first to suggest that the presence of wilderness and large expanses of open space were an important reason why people moved to or lived in remote rural counties.

Empirical analysis of exurban growth in the western United States has found that not only is population growth linked to natural amenities, but so to is economic restructuring and economic well-being (Shumway and

Otterstrom 2001; Smutny 2002). The economies of amenity-rich counties are shifting away from dependence upon resource extraction to service and high-technology-based economies. For example, Shumway and Otterstrom (2001) found that counties rich in natural amenities experienced dramatic increases in employment in a broad range of service subsectors, such as health care, personal services, recreation and entertainment but also export-oriented product and professional services.

There is a growing empirical literature on the regional economic consequences of amenity-based development. Early studies examined the effects of amenities on migration, housing location decision and individual welfare. Graves (1979; 1980; 1983) and Knapp and Graves (1989) found that location-specific amenities such as climate were significant in explaining population migration. Porell (1982) showed that both economic and amenity characteristics were important determinants of migration. Roback (1982; 1988) found that while improving the quality of life, amenity variables might lower wages and increase housing rents. Hoehn et al. (1987) found statistical differences in housing prices and wages due to location-specific amenities. Deller and Tsai (1999), building on the work of Blanchflower and Oswald (1996), argued that amenity variables can influence levels of local unemployment. These studies, however, lacked a focus on natural resource amenities.

Empirical studies suggest that natural amenities affect regional economies through aggregate measures of economic performance such as population growth, income growth, employment growth and housing development. Assessing the developmental aspects of amenity-led regional change, however, requires a more thorough focus on alternative measures of economic performance such as income distribution and spatial organization (Marcouiller et al. 2004). In some cases population growth and local economic restructuring has led to higher income inequality and has raised concerns about housing affordability and general economic dislocation for many long-time residents (Beyers and Nelson 2000; Bush 2003; Shumway and Otterstrom 2001; Smutny 2002). Results suggest mixed amenity-based associations, namely that different amenity types affect growth and development in different ways.

Not only are people and economic resources concentrating in amenity-rich areas in comparison to other rural areas, amenity-rich regions are experiencing economic growth and structural economic change. Rural areas in the Inter-mountain West are dividing into high amenity/high income counties and less-favored areas (Shumway and Otterstrom 2001). Similarly, Smutny (2002) found that growth in Idaho counties was closely associated with natural amenity endowments and was largely due to not only tourism but also high technology capital investment. Smutny (2002)

suggested that with advances in telecommunication and transportation infrastructure, technological capital is highly mobile and increasingly locates to what were once remote, amenity-rich areas of the country. Beyers and Lindahl (1996) found similar patterns in rural areas across the United States where specific firms such as computer programmers, investment advisors and managing consultants were expanding rapidly in amenity-rich rural areas.

Natural amenities are linked not only to recreation and tourism, but as some recent research suggests, to the migration of individuals and firms across a broad spectrum of the service sector. The natural-amenity-driven rural development linkage has much for academics to discuss, conceptualize and discover. In the realm of economics, one area that remains relatively unexplored is the conceptual basis for provision of amenities and their role in development. Although empirical relationships between natural amenities and economic growth exist, there is a dearth of documentation on the microeconomics of joint production and additivity with respect to non-market natural amenity inputs.¹ For example, while widely reported to be an industry (Leiper 1979; 1990; Smith 1987; 1988; 1998), the tourism phenomenon lacks a defensible and integrative production function that provides the basis for contemporary supply assessments with multi-product raw material outputs. How are natural amenities used to produce tourism? How compatible are amenity resources with jointly produced market-based natural resource outputs? What is the relevant set of externalities involved in supplying natural amenity resources? Furthermore, how can we characterize the regional economic production influence of retirement migration, high technology capital shifts, or the impending impact of telecommunication and telecommuting on structural community economic change?

In the realm of resource management, a related set of questions has to do with how amenities themselves are produced. Are we satisfied with the notion that natural amenities serve as a static endowment or are there dynamic aspects that allow us to consider tacit actions, management strategies and/or public policies that act to produce natural amenities? Although great effort is expended to understand the physical and biological aspects of natural resource production (agronomy, silviculture and geologic/hydrologic engineering), characteristics related to the simple recognition of natural resources as amenity resources are left unaddressed. In addition to being a central issue of resource management, this question provides the basis for analysis of the role amenities play in development. Specifically, how does resource management affect the presence and quality of natural amenity resources? Upon what theoretical basis do we develop public policy that acts to alter regional natural amenity resources?

These unanswered questions provide the basis for concepts discussed in this chapter which is organized into four subsequent sections. First, we outline the temporal context needed to address natural resources as amenities. The next section provides a critique of phenomenological characteristics commonly associated with natural amenities. We follow this with a discussion of a conceptual approach for amenity production theory. We conclude with a discussion of general theoretical limitations, public policy implications and further research needs.

THE TEMPORAL ASPECT OF AMENITIES

Natural resources such as forests, prairies, lakes and rivers have been transformed from their original natural state to their present condition by human activity. Until recently this activity of transformation was driven first by subsistence and then by market-based production of tangible commodities for consumption with primary motivating factors centered on the generation of monetary income. What exists today in terms of a community's natural resource endowment is largely left-over from previous productive activities.²

The dynamic nature of amenities can be linked to several developmental attributes. Over time, infrastructural improvements have allowed us to become much more mobile. This combined with personal income growth has contributed to a shift in resource dependence away from use of natural resources as physical production inputs (raw materials) to more of an amenity basis. These changing natural resource dependencies follow the accumulation of wealth and disposable income and represent a progression in developmental stages (Mäler 1998).

Examples of this transition can be found throughout both rural and urban North America (Matlack 1997). Take, for instance, the Lake States forests of Minnesota, Wisconsin and Michigan. During the late 1800s and early 1900s, the vast majority of these forests were harvested with little consideration for amenity uses, ecosystem function or future value. The harvested timber was processed and sold to build the great Midwestern cities of Minneapolis, Milwaukee, Chicago, Detroit, Kansas City and St. Louis. Lands once rich in virgin forests were wholly cutover and residually burned with the most productive sites converted to agricultural production.³ The use value of these forests in early stages of economic development was easily measured in production oriented price-quantity terms (e.g. volume of timber multiplied by market determined price).

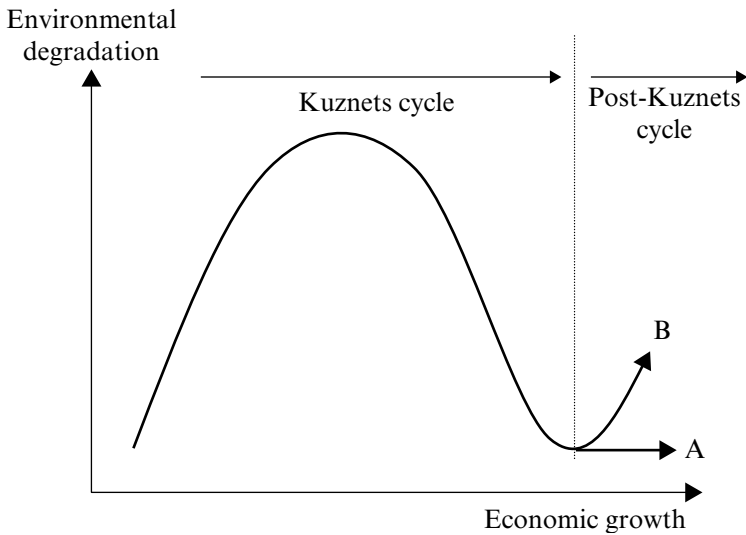
At the time, amenity values held for these forests were, at best, modest relative to the direct use values associated with trees for timber. At worst, the amenity value of these forests were nonexistent. Today there has been

a dramatic shift in value types and joint productive processes. Although a vibrant wood products industry remains and continues to draw on significant timber volumes from second and third-growth forests, the indirect use values of forested landscapes (a jointly produced output) now support a vibrant tourism industry and second-home economy that dominates many communities throughout this region. These forest-based amenity values now play a significant role in determining how forest management practices are applied to forested lands.

Similar transitions are occurring in some agriculturally dominated areas. Halfacree and Boyle (1998) point out that in many areas farmers are adopting non-traditional economic activities such as bed and breakfast lodgings and rural leisure activities. In addition, productive agriculture in some areas is being displaced by the rise of hobby farms (Fitchen 1991; Halfacree and Boyle 1998; Ibery 1991). Agricultural landscapes are valued not only for their production values but also for their aesthetic appeal, provision of rural environmental public goods and cultural heritage (Hall et al. 2004). As population growth continues in amenity-rich areas the compatibility of some agricultural uses with amenity values often become contested (Daniels and Bowers 1997; Friedland 2002). New residents are often less than enamored with dust, noise and odors associated with industrial agriculture (Daniels and Bowers 1997). Even the seemingly bucolic landscape of Napa Valley's vineyards is contested as environmentalists point to the damage caused to watersheds and wildlife habitat by expanding vineyards (Friedland 2002). Just as forest managers have adapted management practices to growing amenity values, so too will agricultural producers.

The conceptual basis underlying environmental change and development has been explored but has yet to be extended into the realm of natural amenity resources. Take for example, the adaptations to a theory originally posited by Simon Kuznets (1955) and later adapted by Orley Amos (1988). Now referred to as the Environmental Kuznets Curve, this adapted theory posits a curvilinear relationship between levels of economic growth and environmental degradation (Grossman and Krueger 1995).

Following the logic of the Kuznets relationship between growth and income distribution there exists a clear and predictable pattern between growth and environmental degradation. In a subsistence economy, there tends to be very little environmental damage. But as the economy begins to grow, pressure is placed on the environment in the form of pollution and resource extraction. As the economy grows, pollution and environmental degradation climb. At some point higher incomes become associated with a demand for environmental protection. Shifts in technology and demand structures result in policies that address environmental degradation. This is



Source: Adapted from Kuznets 1955, Amos 1988, and Grossman and Krueger 1995.

Figure 2.1 An environmental Kuznets Curve adapted to the realm of amenity-based development

often characterized by an inverted U-shaped curve (Figure 2.1). Current policies and future development initiatives will dictate how these relationships continue to play themselves out (as identified by options A or B in Figure 2.1).⁴

Extending this set of ideas to amenities allows the environmental adaptation of Kuznets to be relevant to temporal aspects associated with amenity production. Were we to adapt the vertical axis of Figure 2.1 to capture the inverse of amenity demand (or values), we would have a conceptual framework for the previous discussion of anecdotal transitional amenity-based phases. At low levels of income, or early stages of development, the demand for amenities is neutral. In the name of economic growth and development people are willing to tradeoff amenity value for monetary income, and as the economy grows, that tradeoff increases. At some point along the growth spectrum production technologies along with tastes and preferences will change sufficiently such that amenity-based management becomes a social priority and amenity values increase. The resulting inverted U-shape relationship follows the stages of development process offered by Kuznets' theory of income distribution and growth. This line of theoretical and empirical work can provide guidance in furthering our

understanding of the temporal interaction between amenities and rural development.⁵

In addition to the stage of economic development, transitions to consumption of natural amenities often require an initial input of some productive factor that allows an awareness of the resource. There is a temporal aspect to these inputs that relate to the use of resources as a production input. For instance, the development of infrastructure (highways) for travel to amenity-rich regions and recreational site developments that facilitate amenity resource use play important roles in determining overall amenity value. Without infrastructure, the amenity's overall economic value is diminished as few people are aware of and decide to utilize amenity-based resources.⁶ A continued public investment in infrastructure serves both the purpose of production (access to markets and raw materials) and amenity access.

CHARACTERISTICS OF AMENITIES

Amenities are unique from other regional factors of production. Their uniqueness can be summarized along four basic lines that represent fundamental characteristics of amenities (Green 2001; Power 1988; 1996). These include the notion that amenities tend to be (1) non-producible, (2) irreversible, (3) subject to high income elasticity of demand, and (4) regionally non-tradeable.

Non-producibility

The supply of natural amenities tends to be restricted in an absolute sense. It is very difficult to recreate events that lead to natural amenity change in the short term. Thus, it is typically not feasible to produce natural amenities. Attempts to produce natural amenities are often limited to gradual, or incremental, transformations of the existing resource endowment.

This said, there are mechanisms that can be used to increase the regional capture of amenity values. For example, resource management practices that are sensitive to the effects of resource use on amenity values have the opportunity to affect amenity outcomes. Further, amenities are in effect produced with the creation of public parks, forests and other forms of open space. The growth of gateway communities adjacent to National Parks and other public lands is directly attributed to the presence of the neighboring park (Howe et al. 1997; Marcouiller et al. 2002; Rothman 2000). In the case of Cape Cod National Seashore, the designation of the Seashore has led to

increased population growth and second-home development precisely because of the guarantee of a produced amenity (Kornblum 2000). Growth and development in turn require more planning and management to maintain amenity values.

In a similar manner, the literature is replete with examples documenting higher property values for lands adjacent to public lands in both rural and urban settings. A premium has been created by the public provision of an amenity, a guaranteed amenity, in the form of protected open space, in perpetuity (Irwin 2002; Jackson 1985; Kim and Johnson 2002; Klase and Guries 1999; Wu et al. 2004).

Irreversibility

Consequences of natural resource management decisions are difficult to ameliorate in the short term. This said, attempts to reverse amenity diminishing resource decisions in the short term are possible but often at very high costs. An example would be mine reclamation, a common approach to restoring the function of land for ecosystem and/or amenity uses. This type of remediation is a costly endeavor and clearly identifies the short term irreversible nature of amenities with respect to resource management decisions.

The level of irreversibility in natural resource decisions depends on the temporal aspects of resource renewability and the ability to commit rehabilitation effort and resulting costs. In general, those natural resources relying on geomorphology (plate tectonics, volcanism and soil building) as a regenerating mechanism are extremely slow. Here, we can talk about temporal frames measured in millennia or longer. Those natural resources that rely on biomorphology (tree growth, wildlife production and prairie restoration) however rejuvenate relatively fast. Temporal units here are on the order of decades or centuries. Human created development of amenities would be the fastest, but again the most costly.

High Income Elasticity of Demand

Does the consumption of natural resources for amenity value depend on the relative wealth (or income) of individuals who make up the demand base? In other words, are amenity values representative of luxury goods? These questions would raise important equity-related public policy issues. It is generally assumed that amenities can be characterized by income elasticities of demand (the percentage change in the quantity demanded of a good in response to a 1 percent change in income) that are greater than unity (McFadden and Leonard 1993). Empirical research has confirmed

this theoretical basis.⁷ The demand for environmental goods as amenities tends to increase more rapidly as income increases.

It is important to note that equity, fairness and exclusion are critical issues facing amenity-rich regions (Bush 2003; Duncan and Duncan 2001; Halfacree and Boyle 1998; Nelson 2001; Spain 1993; Walker and Fortmann 2003). Spain (1993) recognized that population growth in many rural areas is often driven by the proliferation of recreational and retirement homes and commonly leads to privatization and redistribution of what were once public amenities. Long-time residents are often excluded from local amenities as housing costs and taxes rise, shorelines are purchased for homes and traditional access to open space is lost as lands are posted by new landowners (Bush 2003; Spain 1993). In addition, once a critical mass of newcomers arrives in a community political struggles can arise. For example, Walker and Fortmann (2003) found that wealthy, exurbanites to one county in California's Sierra Nevada Mountains challenged the political, social and cultural heritage of long-standing residents. Political struggles for control over local political offices and land use planning became extremely heated and contentious, centering on the question of who owns the landscape or decides how it should look (Walker and Fortmann 2003, p. 491). To many long-time residents, losing political control over local land use and development decisions represented a loss of social power and cultural identity. Control over land use in some exurban areas represents power over the landscape and in turn the local culture – a landscape of aesthetics and preservation and with it an economy of services and technology versus a landscape of production, development and extraction (Walker and Fortmann 2003).

Duncan and Duncan (2001) argue that amenities, aesthetics and environmental preservation can at times mask and obscure mechanisms of social exclusion. In some cases a landscape of bucolic open spaces represents a form of cultural capital for those with the wealth and power who control land use and development decisions. The preserved landscape can play a central role in social identity and class distinction. 'Members of certain communities can mobilize enough economic and cultural capital to create landscapes that have the power to incorporate and assimilate some identities while excluding or erasing others. Landscapes become possessions for those with the wealth and power to control them' (Duncan 2001, p. 387). Conserving and enhancing aesthetics and wilderness can in some cases be used to mask exclusivity, especially exclusion of the poor. Managing amenities should consider the impacts of management decisions on the poor and those most sensitive to the conversion of formerly public goods to private resources.

Benefit distribution resulting from alternative value structures reinforces the necessity of introducing tradeoffs to the conceptual basis of amenity

production. There is a growing literature that identifies compatibility of alternative land use as a primary empirical research target (Clawson 1974; Van Kooten 1993). The literature suggests that different land uses will have varying levels of inter-use compatibility and the nature of management practice can have a significant effect on the outcome of land use tradeoffs.

Non-tradeability

Much like land itself, natural amenities exist as fixed assets of regions. For our purposes this is primarily important from the standpoint of the mobility of amenities as a primary factor input. A consumer's amenity value is linked to the region in which the amenities lie. Unlike capital or labor resources, a community is isolated from the amenity inputs of other regions but is in direct competition with other regions for people attracted to similar types of amenity resources. What exists in terms of regional amenity value can be considered fixed in the short term.

This immobility aspect of amenities is a supply characteristic. It breaks down as we consider demand characteristics of amenities. Certainly, one way a region can enhance use of its amenity assets is through marketing itself to the outside world; or through affecting demand from the outside for regional amenity-based assets. In a similar fashion to non-amenity natural resource outputs (such as agricultural commodities or timber products), the level of demand for amenities can be affected through marketing to individuals and firms beyond the boundaries (or outside) of the region. Thus, we can view amenity demand in a similar fashion to commodities and raise the specter of natural amenities as export-based (or basic) goods. The trades that take place with amenities are now in the form of traveler demands, demands for recreational housing, as well as the demands by migrants and owners of small firms who are seeking out areas richly endowed with natural amenities. The market-based proxy for these demands is monetary expenditure.

Although we recognize that a generalized approach to amenities rests on irreversibility, non-producibility, high income elasticity of demand and non-tradeability, our critique has pointed out obvious flaws in this traditional thinking. In particular, given progressive management and public policy interaction, it would be logical to assume that each of these characteristics is highly malleable. What is lacking is a conceptual perspective that provides us a robust and easily replicated basis upon which to forecast, understand and address the supply of amenities. In developing a consistent and robust set of amenity supply concepts, we provide an interdisciplinary basis to substantiate a theory of the post-productivist countryside thus allowing a more complete understanding of the amenity-based development phenomena.

OUTLINE OF A THEORETICAL BASIS

There has been a growing literature that makes a connection among environmental resources (forests, water resources and so on), their management and the presence of activities that utilize amenity resources. Many have written about the linkages between environmental resources and tourism (Mlinari 1985; Pleuramom 1992; Weaver 1991). We face a dearth of usable economic generalizations that allow us to make linkages between environmental costs and benefits resulting from alternative environmental resource management regimes and the productive processes reliant on amenity resources. For ease of discussion, let us consider the situation that exists in amenity-rich regions between the natural amenity resources, outdoor recreation and the set of nature-based tourism-sensitive firms and migratory out-comes that are increasingly dominant within these economic structures.

In an effort to conceptualize this linkage more specifically, one would need to focus on alternative management regimes and develop a set of tradeoffs that provide the basis for tourism experience. With reference to amenity production, this set of public and private good tradeoffs is outlined in Figure 2.2.

Natural resources located in remote rural areas are often managed for multiple uses: traditional market-based extraction (agricultural, mineral and/or silvicultural production) and non-market amenity uses. Within a policy context, particularly in environmental policy, these multiple uses

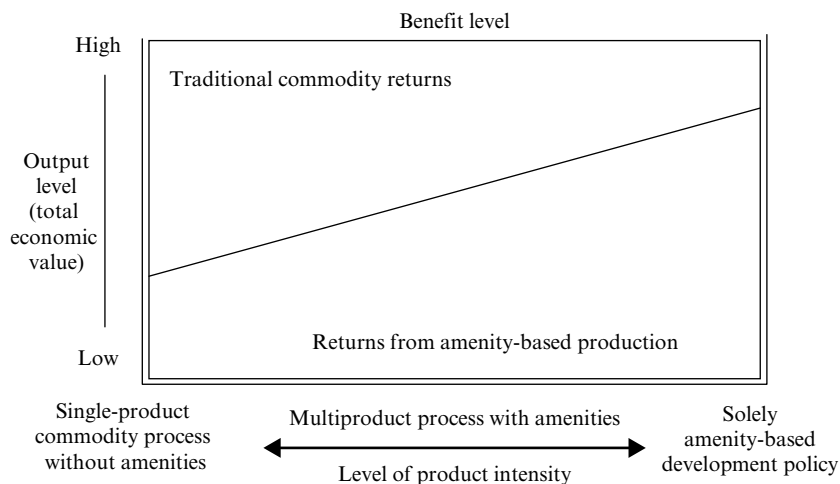


Figure 2.2 Tradeoffs in production of multiproduct land use including amenity processes

have traditionally been presented as mutually exclusive. One cannot enjoy a recreational experience in a forest if it has been harvested. Under traditional management regimes this black and white depiction may have held true. Today, if we view the application of natural resource management as lying along a spectrum that varies from intensive (fencerow to fencerow agriculture, open-pit mining or short rotation silviculture for fiber production) to extensive (agro-forestry/community supported agriculture, highly regulated mining or longer rotation silviculture), we realize there to be differential combinations of market and non-market outputs. If we assume that the output from the resource is multidimensional we can model a trade-off between output levels across alternative management regimes. In essence, we can approach management from the standpoint of variable economic additivity.

The two-dimensional output stream can be characterized in terms of private and public goods. Under intensive single-product management regimes the resource is used in the more extractive sense of commodity production (such as managing stands of trees to maximize fiber production). Output of the resource here is relatively easy to measure: the price of the commodity (corn) times the volume of the commodity harvested (yield of corn). Our traditional approach to modeling the economic impact of alternative resource management regimes has been to identify biological productive potentials for use as exogenous shocks to a static system. This approach ignores the fact that there are public goods and services flowing from the natural resource (as depicted in Figure 2.2 by the area below the diagonal line). These nature-based public goods provide the linkage to the production of recreational experiences.

Theoretical and Empirical Complexities

By explicitly recognizing the public good aspect of the resource, we see that a number of modeling problems become apparent. These difficulties can be summarized as including (1) the size of the box, (2) the shape of the top of the box and (3) the amount of regionally exported public good (the level of the public good that is consumed locally versus that which is used by in-coming tourists and/or migrants).

Perhaps the biggest challenge is estimating the dollar value of the public good flowing from natural resources. In other words, if the market-determined dollar value of the harvested timber resource is known, what then is the non-market value of a stand of trees for recreational purposes? The generalized form of this question has been one of the primary research problems undertaken by resource economists during the past 50 years. Methods developed include (1) revealed preference models (hedonic

pricing and travel cost) and (2) stated preference models (contingent valuation). Although a complete review of these methods is beyond the aim of this chapter, there does exist a large body of research to draw upon (J. Bennett 1996; Bostedt and Mattsson 1995). Unfortunately, while these methods can be complex and rigorous, there is little to suggest that the final estimated value of the non-market good will be robust across alternative methods used or regionalized in a comparable manner to use-driven market goods.

Another important empirical issue is the shape of the top of the box. Given a square representation we assume that the sum of market and non-market values of the forest resource is fixed across all forest management regimes. Implicit in this assumption are two empirical problems. The first reflects fixed prices with respect to market and non-market goods. Although internally consistent, recent evidence suggests that market and non-market prices fluctuate significantly. Casual observations of local price behavior in areas where national forests have shifted from one management regime to another suggest that prices are sensitive to harvesting policy. Simple supply and demand theory predicts that as more forested land is removed from harvest, the supply of timber drops and prices increase. As increased acreage has been placed aside in extensive management regimes, the reduced supply causes increases in timber prices that motivate accelerated rates of harvesting on private forest lands. More difficult to track is the change in willingness-to-pay for a recreational experience as management regimes change. Currently, these recreational experiences exist as common-pool benefits and are thus non-priced to the recreating public. Tourism sector businesses in the region are currently not charged for recreational experiences requiring extensive management regimes. Ultimately, it is these experiences that provide a basis for tourism business receipts yet extensive management regimes create significant opportunity costs for owners of forest land.

A problem with a square top is the assumption of neutral compatibility and its theoretical counterpart, constant additivity. Land use compatibility can range from complementary and supplementary to competitive and antagonistic. The manner in which alternative uses interact is summarized in Figure 2.3. Complementarity reflects decreasing marginal rates of substitution between alternative land uses. In essence complementarity reflects the notion that one land use acts to stimulate the production of another land use. If the provision of market benefits (physical commodities) is complementary with production of non-market benefits (amenities), then the top of the box will expand in a non-linear fashion.

Neutral compatibility is reflective of supplementarity which is graphically presented in Figure 2.4. In essence, supplementary land uses exist

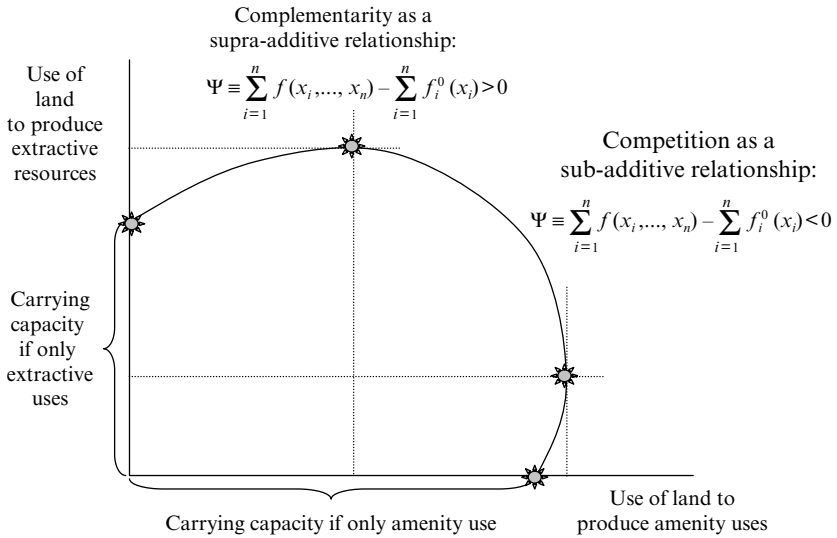


Figure 2.3 Complementary and competitive multiproduct outputs of land use

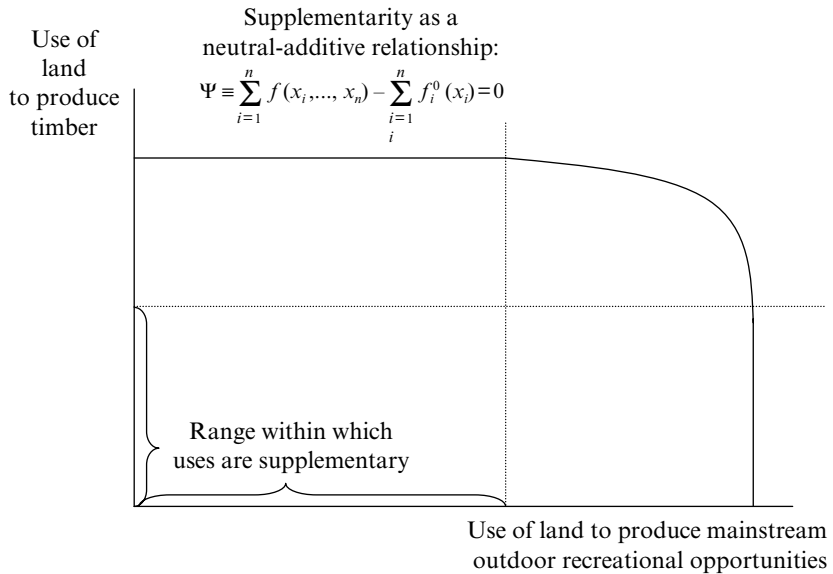


Figure 2.4 Supplementary multiproduct land uses

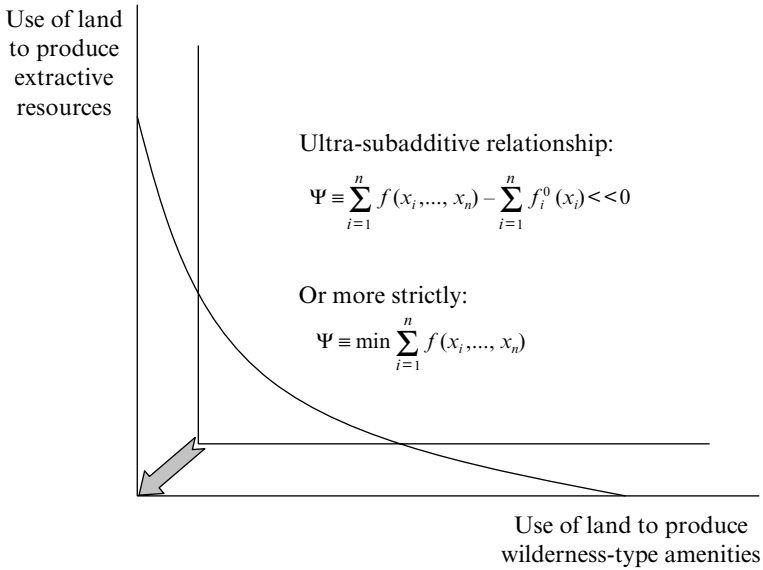


Figure 2.5 Antagonistic land uses

when one land use does not impact (either positively or negatively) the other. The square top of the box shown in Figure 2.2 reflects complementarity of producing physical commodities and producing amenities.

Finally, strict competitive processes in land use can sometimes be considered antagonistic. Antagonistic land use exists when any multi-product output completely reduces another as summarized in Figure 2.5. The production of amenities and its coexistence with production of physical commodities will vary on this spectrum of compatibility. With respect to Figure 2.2, antagonistic multiproduct land uses would cause the top of the box to contract in a non-linear fashion.

Environmental economists have developed a corresponding quantitative representation of this notion of compatibility in what is known as additivity. Using diversity as a basis, Weitzman (1992) recognized how a multivariate system relates to individual functions. In this work, alternative forms of additivity were defined. In what is termed supra-additivity, complementarity in utility is defined as increasing returns to utility by combining uses. Sub-additivity, on the other hand, occurs when alternative uses are substitutes. It exists when alternative uses are combined that generate decreasing returns to utility.⁸

The third conceptual issue is the flow of non-market benefits that originate from the regional natural resource. Clearly, local residents benefit

from the availability of resource-based public goods. Many residents elect to live in these rural amenity-rich regions because they enjoy living in close proximity to nature, open space, and the unregulated frontier. Benefits to residents are significant but remain rather intangible. Tourism-sensitive businesses, on the other hand, are increasingly prevalent and profitable in amenity-rich communities. Non-resident travelers visit these forested regions and spend considerable amounts of money in the local economy. Thus, relevant tourism production benefits would tend to be limited to the regional export-based portion of the public goods associated with environmental resource management.

Fundamental to this set of arguments is the simple notion that tourism-sensitive firms in natural-amenity-rich regions benefit from the quality and quantity of environmental resources present in the region. These amenities are created or heavily influenced through natural resource management and exist as positive externalities of the resource base. For example, in natural-amenity-rich regions the output of tourism goods and services relies on the forests, bucolic agricultural landscapes, lakes and publicly-provided recreational opportunities present in the region. It is unlikely that people travel to these regions solely due to the presence of excellent restaurants or uniquely wonderful hotel beds. Rather, it is the natural amenity base available in the region that provides the basis for tourism sector output.

A Theoretical Basis to Policy

Managing for amenity qualities is a public policy choice that could be quite similar to and consistent with managing timber or agricultural production. It is perhaps a rather dramatic shift in management priorities, but one that has broad support (OECD 2001). Studies have shown that the public increasingly values forests for wildland and amenity values rather than for production of timber (Mather 2001; Rudzitis and Johansen 1991; Shindler et al. 1993; Tarrant and Cordell 2002; Tarrant et al. 2003). Studies of private forestland owners consistently find that owners value their lands for the natural setting of the forest, the natural beauty of the forest and the related recreation opportunities (Birch 1996; Bliss et al. 1997; Bourke and Luloff 1994; Brunson et al. 1996; Campbell and Kittredge 1996). When forests are managed for wood products, a majority of the public clearly prefers nontraditional management practices such as group-selection cuts and retention of older trees for wildlife purposes over traditional management practices such as clear-felling (Bliss 2000; Brunson and Shelby 1992).

Beyond public preferences and support there is reason to believe that managing for amenities is sound rural economic development policy. As our review of the literature has demonstrated, natural amenities are clearly

thought to provide an integral component of recreation, tourism and retirement development (Frederick 1993; Jakus et al. 1995; Keith and Fawson 1995; Keith et al. 1996; Marcouiller 1997; McDonough et al. 1999; OECD 2001). They provide the substantive but latent primary factor input into tourism industry output (Marcouiller 1998). As a quality-of-life factor, they are also believed to play a critical role in human migration and firm location decisions (Beyers and Lindahl 1996; Beyers and Nelson 2000; Gottlieb 1994; Graves 1979; 1980; 1983). Thus, natural amenities are tied not only to recreation and tourism but to the migration of individuals and firms across a broad spectrum of the service sector.

Our intent was to highlight compatibility as a key element for management input. We firmly believe that there are more compatibilities among multiproduct natural resource uses than incompatibilities. This runs counter to much of the traditional thought. The key to more integrative solutions lies within two parochial ideologies. Those who view commodities and monetary income as predominant need to realize the simple reality of human-centered land use and management that is sensitive to more than just commodity production. Conversely, proponents of nature-based tourism and amenity migration need to realize and internalize the dynamic nature of environmental change, the benefits of scientifically sound silvicultural/agronomic techniques and the need to interpret the working landscape. Open communication and dialogue as to the implementation of these suggestions is required and remains a critical future planning need.

We realize that people and households in rural-resource-dependent and amenity-rich regions have traditionally relied upon the natural resource base for economic sustenance through physical commodity production. It is this level of economic dependence that, in large part, helps us understand why people view the natural resource from such disparate positions and ideologies.

SUMMARY, CONCLUSIONS AND POLICY/PLANNING IMPLICATIONS

There is a need to explicitly capture several aspects of this discussion within a policy and planning context. The first and most obvious point to make is that there exists an opportunity to more fully capture the essence of amenity-based development within discussions of economic development, land use and natural resource management planning realms. The realization, acceptance and integration of the role of natural amenities in the rural economic condition are necessary for more informed public policy. Furthermore, the tacit understanding that both theoretical and empirical

relationships are complex will provide ample opportunity for a renewed emphasis on both basic and applied research efforts.

Historian Samuel Hays suggested that the desire for amenities and environmental quality represents a fundamental shift in values reflective of the general desire for an improved quality of life. Hays (1987) argued that this was largely due to rising standards of living, higher levels of education and generational shifts. With the rising standard of living, the environment becomes less valued as a storehouse of extractive goods and commodities and more valued as a place to recreate, as a vista or as a wild place. To the exurban migrant the rural countryside has taken on idealized, nostalgic qualities exemplifying what a landscape should look like and how communities should be. Thus, economic prosperity, improvements in infrastructure and geographic redistribution of employment allow urban residents to act upon cultural ideals and reside in a rural setting.

Amenities serve as important latent inputs to production in amenity-rich communities throughout America. They exist as latent inputs and present a complex mixture of market-based and non-market goods and services into the analysis of community economic development. Rapid change experienced within amenity-rich communities across America continues to point to the importance of amenities as key factors. This change is driven by the demands of short-term visitors, in-migrating newcomers and long-term residents. Supplying these latent inputs is not a costless endeavor. Public policies that act to incorporate traditionally defined non-market goods and services (common pool and public goods) into pricing mechanisms to support amenity production have an important role to play in shifting the incidence of fiscal measures. These non-market goods and service costs traditionally provided by society will inevitably give way to more market-driven pricing mechanisms that will have the inevitable consequence of shifting the burden of costs onto those who demand these goods and services.

The economic, social and environmental changes brought about by amenity-driven residential developments are typically not fully understood by decision-makers within affected communities. Although rapid residential development and its planning complexities have been recognized since the 1970s (ASPO 1976; Coppock 1977; Greason 1989; Ploch 1978), unfettered growth has persisted throughout many rural American communities. Several factors have contributed to this, including a general lack of planning resources, desperation for economic growth in hopes of alleviating persistent rural poverty and a more conservative political environment.

We suggest that successful policy solutions need to recognize the wide range of productive and consumptive land uses in amenity areas and better determine the level of compatibility and antagonism between certain land uses. If amenities are not recognized as a resource that can be managed and

produced, they run the risk of being degraded. For as surely as soil can be degraded by poor farming practices, a beautiful scenic vista can be degraded by poor land use planning or poor forest management practices. As the rural planner Daniels (1999, p. 3) has noted 'In the new knowledge economy, an area's quality of life translates into economic growth. Yet the places with the highest quality of life are always at risk of being loved to death.' Perhaps this fate can be avoided by recognizing the need to plan, manage and produce amenities.

NOTES

1. Economists have developed the concept of additivity to describe costs of producing joint outputs relative to producing each output individually as a way to understand multi-product firms (Bailey and Freidlaender 1982).
2. This said, we recognize the significant investment of public resources in management of public lands and the scarceness, or scarcity, of the natural resources they contain.
3. Historically, forested lands were converted to agricultural production which experienced a checkered history in the Northwoods. Given marginal soil fertility levels and shorter growing seasons, many of these northern farms were unsuccessful and reverted back to forests. Interestingly, these more productive sites made up the bulk of tax reverted lands during the 1920s and 1930s and now are largely owned and managed by public agencies such as the USDA Forest Service and state/county level units of government. Readers interested in this pattern of land ownership are referred to the article by Stier et al. (1999).
4. The notion of the Environmental Kuznets Curve grew out of the trade, growth and environmental literature over the past decade. Using a panel data of countries, Grossman and Krueger (1993) found a hump-shaped relationship between measures of air quality, such as SO₂ concentrations and per capita income as described above. Forms of this relationship have been reported by Selden and Song (1994), Grossman and Krueger (1995) and Shafik and Banyopadhyay (1992). More recent theoretical and empirical work by Copeland and Taylor (2004) find that the direct interpretation of the Environmental Kuznets Curve may be an oversimplification of a more dynamic and complex interaction between trade and environmental policies and growth, but the general pattern appears to hold.
5. This discussion of temporal transitions is not without limitations and caveats. Certainly it is important to note that rapid change in recreational use often defies spatial generalizability. For example, previously desolate and unpopulated areas such as the Moab desert have recently experienced significant jumpstarts to high recreational use without ever having experienced periods of wide-scale extractive use. Likewise, regions far removed from connective infrastructure (highly remote regions) are limited in their transition to amenity-based development by the simple fact of location relative to population centers. In other words, some places can be expected to change or progress very slowly to higher or more mature stages of development given their remote location. Examples can be found throughout Central and Northern Canada.
6. The development paradox of wilderness is a useful concept to reinforce this notion of accessibility. Wilderness, by definition, connotes a general dearth of infrastructure. The awareness of natural amenities found in wilderness areas originates from those who actually access wilderness areas. If our interest were to develop amenity-based market-driven economic value of wilderness areas, we would need to increase their use by developing access and recreational sites within the wilderness, a pursuit inimical to the very essence of wilderness.

7. This said, there is some disagreement on the extent of the empirical relationship. In examining the growing empirical literature, some have had difficulty in substantiating a claim that the income elasticity of demand for amenity values exceeds one. For instance, Kriström and Riera (1996) examined several European-based contingent valuation studies for the income elasticity of demand and found widely varying results. Indeed, many of the studies they examined suggested that income elasticity of demand was less than unity.
8. This can be functionally presented if we let $F(x_1, \dots, x_n)$ be a systemwide production function defined to equal the sum of individual production functions [$f_i(x_1, \dots, x_n)$] across the system and $f_i^0(x_i)$ is the production function of individual land use i . Alternative forms of additivity in the system are defined as follows:

Supra-additivity exists if and only if

$$\Psi \equiv \sum_{i=1}^n f(x_1, \dots, x_n) - \sum_{i=1}^n f_i(x_i) > 0 \quad (2.1)$$

Additivity exists if and only if:

$$\Psi \equiv \sum_{i=1}^n f(x_1, \dots, x_n) - \sum_{i=1}^n f_i(x_i) = 0 \quad (2.2)$$

Sub-additivity exists if and only if:

$$\Psi \equiv \sum_{i=1}^n f(x_1, \dots, x_n) - \sum_{i=1}^n f_i(x_i) < 0 \quad (2.3)$$

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3. Rural amenity policies: future stakes

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When residents of the countryside go into the city they often have to pay for a parking space and so pay for a service that is provided for them. When city dwellers head out to enjoy the quiet of the countryside, admire farmed landscapes and amble up country lanes to reach the best viewpoints, however, they pay nothing for the service they are provided. Yet it is indeed a service because the upkeep of the assets provided by rural areas has its costs.

Farming practices change and what agriculture once produced naturally for our great satisfaction such as country lanes, landscapes, traditional buildings and so forth is no longer produced. Hedgerows and embankments are essential features of many country landscapes to which the French feel an attachment. Previously farmers would spend long days clearing out ditches and preparing for winter by cutting wood from the hedges, which by the same token were carefully tended. Some of these hedgerows have been ripped out today because they were in the way of farmers looking to work larger plots of land and needing wider lanes. The same is true of assets related to crafts, businesses and religious practices: the upkeep of chapels, mills and other buildings costs individuals and rural councils dearly for benefits which are often slight or even non-existent. Such assets provided by rural areas are vanishing: citizens grouped into numerous associations complain of this and criticize certain economic activities for destroying this heritage. Given that public demand for these assets is growing disproportionately to income, demand is expected to increase in the future and some form of public policy response is needed.

These assets now have a name because economists, notably at the OECD's Territorial Development Department, have taken an interest in them. They are grouped under the heading of rural amenities, defined as 'natural or man-made assets which the public enjoys irrespective of any function they may have in the production process. They originate in a well-defined geographical area which has specific physical and cultural

characteristics' (OECD 1996). It is their hedonic value, and so the well-being they procure us, that makes amenities different from more ordinary assets. This value may be aesthetic, recreational or even an identity value. These assets raise a specific economic problem. Because they are regulated by a market there is nothing to prompt those who produce them to continue doing so. What should be done to conserve them? First, those who provide them should be allowed to derive some benefit from them or at least not to be penalized economically if they conserve them. This calls for specific policies that we shall present by way of several examples. After identifying the economic instruments traditionally implemented, we look at the challenges that need to be met to go beyond them and allow for the regional and collective dimension of the provision and enhancement of amenities.

CLASSICAL ECONOMIC INSTRUMENTS: RE-ESTABLISHING MARKET COORDINATION

Regulation of Rural Amenities by Market Forces

Most rural amenities are public goods or common resources that anyone may enjoy without paying those who provide them. One way, then, of stimulating a supply of amenities which is consistent with demand is to restore the market. To do this a form of exclusivity must be created so that a public good can become a club good and a common resource can become a private good. In Northern Italy, mushrooms which were an overexploited common resource on local council land have been saved so that existing stocks can be sustained without overpicking. The Comunalie Parmensi own 9000 hectares of forest, grazing land and unfarmed land. Mushroom picking has always been a very important activity for the members of the Comunalie, the local inhabitants in this case, but in recent decades picking by tourists has put great pressure on resources. In the mid-1980s tourists' willingness to pay for a day out picking mushrooms was estimated on the basis of transport costs and contingent evaluations at about two ECUs. At first it seemed difficult to impose restrictions given the long tradition of free access. In 1988 the Comunalie Parmensi were able to set up reserves for mushroom picking where access was restricted to commercial pickers with special permits. Access permits were issued to visitors at the willingness-to-pay rate evaluated previously, with the commercial pickers and forest rangers of the Comunalie Parmensi enforcing controls. Some 10 000 tickets are sold each year so that the sites and their resources can be properly managed.

Many other examples of this type can be found. In France and the Netherlands some outstandingly scenic villages are only accessible by paying for a parking space. North America's nature reserves charge for admission. All are ways of creating a form of exclusion between the beneficiaries as recognized consumers of an asset provided for them and the remainder of the population.

The Risks of Exclusion

Does that mean that toll gates are to be set up at the entrance to the countryside and its sunken lanes, that access to the finest panoramas will be pay-per-view and that admission will be charged everywhere? Such market mechanisms for rural amenities are already in place for amenities of outstanding beauty, or which are unique, fragile or subject to high tourist traffic. First, the users of amenities should not be the only ones to pay for the cost of their provision. If this were so, those who do not use them but demand that they be conserved because they are happy for them to exist, the non-user beneficiaries, would be free riders deriving an advantage without paying for it. The cost of caring for amenities would fall upon the users alone, which would be neither fair nor efficient as users might be discouraged by prohibitive access charges. Indeed, such a market arrangement might be rejected out-of-hand by the public, disgruntled at having to pay for access to assets they consider as an integral part of their own community heritage. Such reactions have been reported in France and in more free market countries like Australia (OECD 1996). Public policies will therefore have to take account of cultural factors specific to each country or even each region or locality. Above all they will have to organize market arrangements by creating a form of exclusion with compensatory or incentive mechanisms whereby it is the authorities, representing the beneficiaries of amenities and in particular non-user beneficiaries, who pay the economic agents and localities providing the amenities.

When the Public Authorities Act as Intermediaries: Administered Market Coordination

A form of coordination is then arranged where government sets out to be as neutral an intermediary as possible between supply and demand, substituting for an invisible hand which is absent here. It levies charges on the beneficiaries of an amenity so as to return them to the providers of that amenity. This assumes the introduction of what are known as assigned taxes, targeted as far as possible at groups who benefit from amenities, with

the takings being assigned to actions designed to conserve the amenities they call for.

In practice it is difficult to introduce assigned taxes like this because the beneficiaries are often poorly identified especially when they are not users. And so the resources employed often come from the general public purse with the charge for amenities being shared among all taxpayers. These resources are used to offset excess costs related to actions designed to conserve an amenity: this is the aim of ecological payments introduced in Switzerland and of European Regulation 2078/92 on the introduction of agri-environmental measures whereby farmers who employ what are judged more environmentally friendly practices can obtain compensation.

These resources may also be employed to make up for loss of takings by agents who refrain from carrying out an operation that might cause irreparable damage to an amenity. This is what the Swiss Fund for Landscape does. What is to be done when local authorities eager to provide employment and ensure the supply of resources plan to build dams which would drown Alpine valleys and destroy landscapes which are highly prized by the public? For some local authorities which derive little tourist income it is a choice between either being left by the wayside of the overall development of society for the sake of providing a landscape for walkers who enjoy it more often than not for nothing, in exchange or selling energy. For society as a whole the benefit obtained in terms of power supply may be far less than the loss of the non-market benefits corresponding to the value of the landscape (and so indirect benefits from tourist activities). The Swiss Fund for Landscape may then step in to ban the building of certain dams but will compensate these rural authorities so as to make good the loss incurred by not carrying out their project. This loss corresponds to a cost of providing scenery and it is therefore the taxpayers who are the beneficiaries of this rural amenity and who foot the bill.

This is a policy specific to one form of amenity, landscape, of the sort found in some countries as mountains, coastlines or the built heritage. The challenge sometimes lies elsewhere, in changing sector-specific policies. Whether it is policies on farming, fisheries, tourism, infrastructures or forestry, all may have a far greater impact on rural amenities than the policies specifically designed to conserve these amenities. They need therefore to be modulated to allow for broader objectives than those traditionally set for them. Amenity-related conditions will be laid down for granting certain forms of aid which will be defined and targeted by taking account of demand for amenities with a contribution from the beneficiaries of the amenities to financing them. Re-establishing administered market coordination will therefore involve both specific policies and the modulation of sector wide policies.

Several Ways of Observing the Same Principle: the Beneficiary-Pays-Principle

In all instances an attempt is made to abide by a baseline principle proposed by the OECD in 1994, the beneficiary-pays-principle. Just as polluters must foot the bill for damage caused by their actions on the polluter-pays-principle, so anyone providing an amenity should be paid for doing so by those who benefit from it. This principle is seldom strictly applicable because of the dispersion of beneficiaries and difficulties in identifying them but it serves as a reference point. Its recognition by OECD member states is a major step forward in our view because it underlies the point that identity, beauty, quiet and the feeling of well-being provided by a place are not negligible quantities in the face of the lure of gain and of what is sometimes just the frantic pace of the modern world. Within modernized economies, which generate and trade essentially immaterial outputs (indeed this sector employs more than 60 percent of the working population in Europe) the value and significance of the provision of rural amenities is now recognized.

On the whole it can be seen that some countries give precedence to the creation of a market by setting up rights of access and use of amenities whereas others prefer to employ public monies to pay the providers of amenities. The major drawback with this second approach is that demand may remain mute, making it difficult to gauge as it does not make itself known anywhere.

The Risks of the Market Only Approach: Not Substituting for 'Basic Civilities'

Whether the market coordination to be set up is administered or not, these policies are ineffective if market coordination merely substitutes for what are both discrete and effective non-market forms of coordination. Coase (1960) provides a reminder that property rights are not unlimited and correspond to a list of things owners are entitled to do and things they have a duty to do. Owners' rights end where citizens' rights begin, especially those of amenity consumers. For example, access to farmland for walkers and other consumers of rural landscapes is the subject of agri-environmental measures in some counties with owners being remunerated by the public authorities for allowing walkers access to their land. Conversely, in northern Europe it is the tacitly acknowledged right of all citizens – *allemansratt* – to go on to farmland and collect natural products such as mushrooms and wild berries. Then again, some agents provide amenities free of charge because they consider it their duty to do so. Tacit

conventions are in force that set out how much effort each must put in to maintaining lanes, hedgerows, water courses, decorating houses with flowers and so on. Social control is exercised by the local community, which sanctions those who fail to comply with the convention in force (Beuret 1999). These social norms are basic civilities (Duclos 1993) which allow us to live together by setting out the duties upon each of us in terms of respecting property held in common.

The danger of leaving amenities to market forces is that contractual mechanisms will be substituted for conventional mechanisms by substituting market coordination for non-market coordination. Although non-market forms of coordination do not fulfil all the requirements of coordination, they do exist without public aid, involve no transaction costs and social control is often more effective than sporadic outside controls. The danger is that eventually everything will be governed by the market. The weekend gardener, the owner of a superb wooden boat or even the young and beautiful dressed in all their finest attire all provide a rural or urban landscape we can enjoy. Would the world still be a place worth living in if everyone insisted on being paid for providing an amenity?

Public policies on amenities will therefore have to create a benchmark that legally or tacitly identifies what owners of property to which an amenity attaches are entitled to do and what they have a duty to do in virtue of rights that amenity beneficiaries are collectively recognized to enjoy (not to damage the amenity). Now, this benchmark varies from one locality to another.

POLICIES OF THE FUTURE: MATERIALIZATION OF TECHNOLOGICAL AND INSTITUTIONAL INNOVATION

Having described the most widely employed public policy instruments and their shortcomings let us now turn to the future and the challenges to be met if these policies are to be made more relevant. There is no denying that collective action remains the poor relation of many policies applicable to individual economic agents and in particular incentive schemes. Measures are dispersed within geographical areas. There are arrangements for collective action but they are still underdeveloped. A second challenge relates to research and the criteria it highlights for guiding the development of technological models: strictly technical and economic criteria should be supplemented by hedonic factors not just in agriculture but in the domain of infrastructures, urbanization and forestry.

The Materialization of Technological Innovation: Inventing Mixed Technological Models

Innovation will first have to cover technological models. The years of economic growth and industrialization that followed the Second World War promoted technologies that were optimized only in terms of output performance and production of added value. Today a field or a fishing boat must provide foodstuffs but also a feature in a landscape. A forest must produce not only timber but also recreational sites, a city must allow external savings because of the proximity of activities but is also a living environment and an urban landscape which is the subject of demand. Technological models have to be created that optimize both added value and hedonic value.

Farmers in France have developed production systems that accomplish these goals by adding value, through reduced costs, and conserving the environment through reduced inputs (Alard et al. 2002). Massive inputs of chemicals from outside the system have been eliminated by reactivating economies that are internal to the system (sensible use of animal fertilizers of their own production, nitrogen production by leguminous fodder crops as supplements to grasses). It has to be said that farmers have been prompted to change and to realize that there is not just one objective involved, unlike the research sector where many workers still strive to achieve technological performance regardless of its social utility.

Here is the first rallying point for the future: government needs to be able to set its scientists precise objectives extending beyond the boundaries of their usual area of research in order to take account of multifunctionality, which should be the guiding principle for many economic activities.

The Materialization of Geographical Areas and Collective Action

A number of policies are still applied at the scale of economic agents and are slow to consider the broader geographic dimension of amenities. Yet this dimension is fundamental in several respects.

Collectively supplied amenities

A number of amenities are provided by a combination of economic agents. The quality of a living environment, a landscape or even a resource like water is dependent on the actions of multiple agents. Sometimes all of these agents without exception must commit themselves if the amenity is to be successfully conserved. For example, the landscape made up of rice-growing terraces in Japan, known as *tanada*, cannot be sustained without the commitment of all the owners because the water flows from one terrace

to another and if any one terrace is not properly maintained all those downstream of it are under threat. A collective initiative must be put in place. The most striking example of ill-adapted policies is that of agri-environmental measures in Europe which are applied at the scale of agricultural holdings or even of agricultural plots whereas the challenge is geographically a much wider one (the management of water courses, watersheds, landscapes and sensitive natural areas).

Enhancement of the tourist value of a range of amenities

Many ordinary amenities are not enough on their own to draw visitors. By joining them up in a network, however, they can make up a big enough volume of amenities to attract tourists. There is a threshold effect here that must be taken into account by network creation policies. These may be linear networks such as tourist routes or paths linking disparate amenities or area networks such as France's Regional Nature Reserves. In this way a locality's amenities are packaged by setting up an ad-hoc structure and a label for the geographical area. In the absence of such collective actions, whether on a regional basis or not, some amenities will remain on the sidelines and will be inoperative as factors of regional development.

The essential input from those who exploit the presence of amenities

Some amenities are exploited by economic agents who contribute nothing to their provision. The case of Vulcania in the centre of France is particularly instructive. Europe's volcano park, as Vulcania styles itself, was set up in the heart of the Puy mountain range, and is made up of at least 75 extinct volcanoes. It now receives more than 500 000 visitors a year. Once visitors have been around the park they are tempted to rush up the surrounding volcanoes. Nothing has been provided to accommodate these visitors and the landowners are faced with an influx of people whose secondary effects (damage to paths and waste) they are left to manage for nothing in return. Vulcania exploits the presence of amenities without redistributing profits to those who provide them, in particular the landowners and volcano management organizations. It seems essential in such cases to provide redistributive mechanisms.

Enhancing the value of an amenity through a range of services

In the same case, it seems that while politicians were active in setting up this park they failed to set up a range of services which would have optimized the economic outfall from this structure for the locality. Putting in place a range of recreational activities and structures for visitors to meet demand would help keep visitors in the area whereas, this is currently transient

tourism which boosts the park's income and has little impact on the local economy.

All of this shows that it is essential to provide collective local mechanisms. This is a major challenge that has not been given adequate consideration by a neoclassical economic approach still based on market coordination and on methodological individualism – which are inappropriate here. Policy improvement is less a matter of developing new ways to evaluate environmental assets and calculate the utility of economic agents than a search for collective incentives for action and coordination within localities.

Enhancing the Value of the Locality

Beyond coordination among actors in terms of the provision of amenities and their economic exploitation, there lies a final challenge for a locality: the overall exploitation of the value and the image of the locality embodied in those amenities.

First, the presence of rural amenities is a decisive criterion in the location choices of households and firms alike. Rural localities see new opportunities for their development if they can conserve and enhance such assets and target actions at populations and firms that are potentially mobile. These include working people looking to enjoy rural amenities on a daily basis whether they work in the city or not or non-workers whose residential mobility is determined by the search for sunny climes and also by a growing attraction to areas with plentiful amenities. Local policies should be implemented to provide a range of factors combining amenities such as a well-conserved living environment and scenery with services adapted to each target population (public or private services for young children or teenagers, leisure services and medical services). Land use policies become crucial in order not to destroy the amenities that drew people there.

As for firms, certain factors weigh increasingly in favor of movement to rural areas, in particular increased urban environmental costs, traffic congestion costs, the development of new information technologies and the fact that the cost of transporting goods is increasingly determined by handling costs regardless of the distance travelled. It is not just the presence of amenities that is used to attract business creators and leaders, an argument to which they are often personally receptive, but the possibility of using the image of these amenities to enhance the value of their own products. The presence of amenities may indeed endow local products with an extrinsic quality, giving them extra value in the eyes of consumers, provided that labels or other mechanisms are introduced to certify the existence of a linkage between the product, the locality and the amenities to which it is home. In a rationale of balanced regional development, government must

support the introduction of such certifying instruments by concentrating its action on localities with no other comparative advantages than the amenities they are home to.

Materialization of Socio-institutional Innovation in the Face of Regional Challenges

If there are needs for local coordination among the actors involved with amenities as providers, beneficiaries or agents of their market development, the challenge facing public policymakers is to promote inventiveness and back initiatives for concerted collective action capable of fulfilling these needs for coordination. Here are several examples each addressing a specific challenge.

An initiative to provide amenities through redistribution of profits derived from enhanced market value

Yufuin-Cho, in Japan, is a spa whose amenities are to be found in the combination of rural landscape, hot springs and the local lifestyle. The colors of the paddy fields after harvesting are the result of the traditional agricultural practices of *kakeboshi* and *warakozumi*, practices that contribute largely to the landscape amenities of this locality in winter. After harvesting the rice the growers hang the stalks out to dry (*kakeboshi*) for ten days before threshing. The rice straw is then stacked in the paddy fields to dry naturally (*warakozumi*) for a few months. During this period straw is sold to farmers for fodder or bedding for livestock and the remainder is composted and worked back into the paddy fields. In response to the concerns of tourists and of inhabitants aware of the importance of the natural scenery in the conservation of all of the local amenities, the local actors got together to finance measures to conserve the *kakeboshi* and *warakozumi* landscapes by supporting farmers who buy naturally dried rice straw made into stacks by the method of *warakouzmi*. The Yufuin-Cho city council, the tourist association and the spa hotel union all contribute to the funding of these measures as part of a collective initiative.

Initiatives bringing together rural and urban dwellers as providers and beneficiaries of amenities

In Japan, *tanada* are paddy fields laid out in a step-like pattern on steep mountain slopes. To retain water, the terraces must be perfectly flat and ringed by a dike built of stones or mud. Today their numbers are dwindling rapidly but the attachment of the Japanese to rice-growing, traditional landscapes and *tanada* in particular have given rise to initiatives designed to conserve them. A highly original arrangement has been introduced in

20 towns and villages. Farmers lend their *tanada* to the local council, which proposes to city dwellers to come and work them for US \$240–400 per year for the rental of 30–150 m² of terrace. They benefit from the advice of farmers and cultivate the *tanada* for their own profit, thereby ensuring they are conserved. The local council organizes festivals and other events for transplanting the rice, weeding and harvesting which allows the farmers and city dwellers to become better acquainted. This arrangement is highly original and brings together the providers of rural amenities and urban beneficiaries. This program promotes a form of closeness, making it easier for each group to appreciate the constraints and aspirations of the other.

Initiatives for setting up networks and local development

France's Regional Nature Reserves are the medium through which amenities are formed into a network that achieves national and even international prominence through the awarding of a label. Most of the financing of the reserves comes from outside their boundaries, which in itself is a mechanism for remunerating the locality for the amenities it provides free of charge to visitors from elsewhere. A similar arrangement has been introduced in Luxembourg where Haute-Sûre Lake supplies drinking water for two-thirds of the country's population and provides amenities related to the natural environment, landscapes, forests, flora and fauna, and architectural and cultural heritage. A reserve has been created and endowed with a budget paid for by the local councils and ministries (Dichter 1997).

Concerted management of amenities: initiatives for multi-actor dialogue and assessment

Natural forests are the primary source of rural amenities in Australia for their recreational and conservation values. Serious disagreement has arisen over the last 40 years about how they should be managed. The Ministry for Primary Industries and Energy has therefore tried to strike a balance between local economic development and the conservation of characteristic regional amenities. To do this, the government has relied on the regional forest agreement process and on social assessment.

The forest agreement process is a mechanism whereby the federal government and the state governments concerned can reach consensus on the management and long-term use of forests in a given region. These agreements provide guarantees both on conservation and on access to resources and their use, thereby promoting increased investment and the development of industry and job creation in rural Australia. These effects are due in particular to the social assessment carried out as part of the regional forest agreement process. The social assessment optimizes and evaluates the impact of decisions on the interested parties and on local

communities. In this context, detailed information is collected about the social and biophysical environment, the history of an area and its response to change, current problems, political and social structures, attitudes, socio-psychological conditions and the vitality of communities. This information is then used to evaluate the probable effects of any particular action which may affect groups within the community and to determine how to manage them. Techniques are employed to make it easier for interest groups and the community to become involved before any decisions are taken. By participating in the planning process all of the actors better understand what is at stake in the discussions and the agreement. The community is therefore more willing to embrace the resulting agreement. At the same time, the social assessment enables governments to target aid at those categories which are affected by the agreement.

It is a matter in this instance, then, of reaching agreement in order to ensure collective management and to find the best compromise between the development of economic activities and the conservation of amenities subjected to irreversible change. Notice that the public authorities retain the right to take decisions alone specifically because they represent a general interest which overrides purely local interests.

Innovating in Support of Collective Initiatives

It seems that none of these initiatives can be generalized as they stand. Each is adapted to the needs of a group, a locality and an amenity. Each is an innovation in itself. So what is this last point on innovation about? Is it about developing standardized procedures to propose to local actors looking for support? Or is it about the development of invention accompanying policies by the actors of a locality, of their own mechanisms for consultation and action?

The second option seems far more preferable to us since the procedures proposed by the authorities, and often imposed as a condition for granting finance, enjoy varying fortunes. A flagrant illustration is the Sea Development Scheme, a procedure proposed by the French government to bring actors together to coordinate management of the coastal zone. Of some 15 procedures under examination, only one scheme has been signed by participants and a large number of informal agreements have been entered into as a result of consultation by actors who have devised their own procedures, rules for dialogue and modes of action (Beuret and Tréhet 2001). In OECD countries as a whole many land protection associations have emerged (Steenblich 1997). These associations are collective action arrangements set up by farmers to conserve the resource they work and the amenities their land is home to.

The job of the government is to accompany these initiatives without strapping them in a procedural straitjacket and to acknowledge the agreements which have arisen from them. The government must do this even if it entails revising legislation so long as the initiatives are in the general interest. Australia provides an exemplary case of this type of policy as its agro-environmental policy is based entirely on landcare groups set up in the 1970s by farmers seeking to combat salinization together. These groups multiplied and diversified their land protection activities to the management of rural amenities. Today one farmer in three belongs to such a group and government has encouraged this approach by setting up a specific policy which is flexible and unobtrusive enough to allow the participants to continue to invent their own action schemes and mechanisms for optimizing the linkage between the benefits of their actions and the constraints they impose.

For government it is less a matter of intervening than of accompanying and facilitating, not so much about arbitration as mediation, not so much about legislating as translating proposals into rules, organizations and projects. It is a question of developing innovative policies toward collective actions developed by local actors and the tools needed to identify and support such actions. This is the subject of our current research.

CONCLUSION

As globalization advances, localities are now in competition with each other to attract and develop economic activities. What comparative advantages do rural areas have? Amenities are often the only source of comparative advantage for isolated rural areas in the ever broader competition they are up against. Allowing such areas to hold on to those amenities by taking advantage of their value is a major issue.

To do this public authorities will first have to move beyond the perception of an environment or of amenities as problems for which policies are designed essentially in reaction to threats and conflicts or to prevent risks. They will have to introduce a positive approach to managing nature and heritage as a whole, an approach involving not just the guardians of our ecological and cultural heritage but also local populations anxious to go on living on home ground. They must appreciate, enhance and promote what is still after all their own heritage even if it is also ultimately the heritage of an entire country. Rather than being a problem, the environment and amenities are capital assets. This is a point which has been and all too often is still overlooked by the authorities. Viewed in this way amenities can be a significant source of employment and of direct and indirect profit.

The issue is no longer about what is at stake but about how to implement more relevant and effective policies than the current ones. The major challenge ahead is how to set up collective arrangements that can restore market coordination between the providers and beneficiaries of amenities with or without government mediation, and also ensure non-market coordination among all the actors involved with the amenities locally. Such initiatives are constantly being invented and tested out by local actors. It is for the authorities to work out what stand to take and what would be suitable instruments for financing and supporting these local initiatives so as to increase their number, their scope and their ambition.

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4. Equity within institutional arrangements for the supply of rural amenities

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INTRODUCTION

The Farming Acts of the 1960s enabled France and Europe to develop a self-sufficient agricultural sector capable of export. These Acts emphasized technical modernization and restructuring of farms. This model was showing its limits by the mid-1980s. Within the European Union, voices were raised against the negative impacts of this intensive farming model on food safety, the preservation of natural resources (especially soils, water resources and biodiversity) and the demographic, economic and social structure of rural areas. Outside Europe, it was challenged because it obstructed deregulation of trade and it distorted competition to the detriment of developing countries through exports of European agricultural surpluses (Dupraz et al. 2001).

In 1992 the European Union began to reform its Common Agricultural Policy, spurred on by the GATT agreements signed in Marrakesh in 1994. Gradually, the principles of decoupling production subsidies, ecoconditionality and modulation came to constitute the new conceptual framework of agricultural policies.¹ The European Union bestowed a major role on agriculture and its environmental and social functions. A normative vision of the multifunctionality of agriculture was thus put forward as a means of implementing sustainable economic and social development in our societies (Laurent 2002).

In France multifunctionality was adopted within the framework of the new Farming Act of 1999 designed, according to the farming organizations, 'to renew the terms of the contract between agriculture and the Nation' (Hervieu 2002, p. 415). At the same time, on the occasion of the

debate on Agenda 2000 at the Berlin summit, the Common Agricultural Policy had been focused on rural development and multifunctionality (Lowe et al. 2002). This approach to farm and rural policy provides public support to encourage agricultural production systems to produce rural amenities and environmental services. The new European agricultural policies also have the declared objective of protecting employment, the social bonds and farm earnings, as well as seeking to promote fair allocation of public subsidies and their redistributive nature from the point of view of the social cohesion of rural areas (Butault et al. 2002).

On the latter point the previous Common Agricultural Policies have not achieved efficiency and equity in the principles governing the distribution of public funds. Some authors have argued that they have contributed to the creation of two-tier farming and a division between zones, one for intensive agriculture and others concerned with respect for the environment (Alphandéry and Billaud 1996). Moreover, they have not slowed the disappearance of farms or ensured sufficient revenues for farmers (Fabre and Laurent 1998; Commins 2004).

Following the evolution of the Common Agricultural Policy, the concept of rural amenities defined by the OECD (1999) was put forward. Rural amenities are defined as natural or man-made goods that the public appreciates regardless of the role they might have in production processes. Amenities are generally assimilated with positive externalities of production and associated with a given territory. Rural amenities are made up of the set of environmental services associated with the presence of natural habitats that deliver benefits associated with their use (for instance the hydrological processes provided by wetlands) or non-use (determination to conserve irreplaceable species or habitats for the future). More generally, they are wild areas, cultivated landscapes, historic monuments, traditional crops and locations for recreational activities (such as hunting and fishing). Rural amenities are by their very nature endowed with particular economic and societal values (Bonnieux et al. 1998). The economic values are use and non-use values: option, existence and bequest values. From a sociological view societal values emphasize the quality of the social bonds associated with these amenities.

The purpose of this chapter is to analyse the distribution norms that are at work implicitly or explicitly under the new French law on farming, as well as the principles of equity that underlie them. First, these norms will be discussed on the theoretical level in terms of the principles of equity and justice. Then, we will analyse, from both an economic and sociological point of view, the selection processes of farmers in relation to a specific agri-environmental contract form called the territorial farming contracts (CTE in French), for the South-west region of France.

DISTRIBUTIVE NORMS, PRINCIPLES OF EQUITY AND AMENITIES

Since the post-war boom, contemporary issues of equity and social justice have risen in importance. The establishment of a strong welfare state in many western societies and the rise of the social sciences contributed to these concerns. The central question of equity was one that came up time and time again in the minorities or women's rights movements, social housing and in access to wealth. Many theories of social justice emerged from a wide range of ideological worlds (Kellerhals 1995). Within these various movements, a certain crystallization of ideas took place in the 1960s and 1970s on the basis of inductive theoretical constructs.

Principles of Equity, Principles of Justice

The first studies on the norms governing the allocation of resources (material or symbolic) between group members according to their contribution to a joint action led to a theory of equity (Homans 1961 [1974]). According to Homans' theory only a single norm of justice would compose this distribution: the norm of the merit which considers that each person must receive in proportion of the delivered effort. Later work in sociology and social psychology emphasized two other principles that relativized merit: the principle of need and the principle of equality. The principle of need views equity as giving to each according to his or her situation, whether this situation is needy or not. The principle of equality is expressed through a form of equity in which everyone receives the same thing, whatever his (her) situation or contribution. It is accepted today, however, that the distribution of goods, material or symbolic, is carried out through a system 'composed of a mixture of these principles rather than the monopoly of just one of them' (Kellerhals 1995, p. 266).

The question of social justice has been broadly sustained in the social sciences by the work of Rawls (1971). Rawls defined two principles of justice endowed with a particular lexical order. The first is the principle of equality of liberty in which 'each person is to have an equal right to the most extensive scheme of equal basic liberties compatible with a similar scheme of liberties for others' (1971, p. 53). The second is composed of two principles: the principle of fair equality of opportunity (functions and positions open to all in conditions of fair and equal opportunities) and the principle of difference (that is to say for the greater benefit of the most severely deprived, within the limits of a fair rate of saving).²

The principles of justice as defined by Rawls are just and fair principles. A principle is fair if it respects the two principles presented previously.

The Rawlsian conception of justice is built around this edifice and justice is constituted by this whole in its order of precedence. Indeed, the principle of equal liberty dominates the principle of difference in such a way that a society in which the fundamental liberties are not guaranteed cannot be considered as a fair society. It is therefore not possible to envisage an improvement in the fate of the most deprived if it should involve a violation of these liberties.

The basis of justice in terms of equity agrees with the principles of justice that prevail over the distribution of wealth in society. Among these principles, it would appear that the principle of difference, which maximizes the expectations of the most deprived, constitutes the aspect of the theory of Rawls which is the most closely comparable with utilitarianism (Van Parijs 1991).

The interpretation made of this philosophical contribution varies from one discipline to another. We can wonder how close the inductive principles (the principle of merit, the principle of need and the principle of equality) highlighted in social science studies are to those of Rawls. There is a close convergence between the principle of equity in terms of equality and Rawls' principle of equal liberty. For the philosopher, each individual placed in his original position possesses primary goods of a natural (health, talents . . .) and social (rights, fundamental liberties, revenues . . .) character.³ It is to protect those goods that a common agreement is necessary.⁴ The principle of equality therefore aims to protect the basic liberties related to these primary goods such as political freedom, freedom of expression, freedom of the individual from oppression and personal property rights.

The particular case of equity of an egalitarian nature corresponds to a situation in which the first principle of justice coincides with the principle of equality supported by sociological approaches. The match between the two, however, is not reciprocal. The principle of equality is only a particular case of the first Rawls' principle. The other two principles coincide, on the philosophical level, with the idea of equity according to merit and according to need.

Nevertheless a major difference is found in the ongoing adjustment of the social principles which are constantly adjusting to changes in society. For Rawls the principles are the very foundation of the social contract. As a result, the former are necessarily reflexive in nature whereas the latter are immutable. A second difference relates to the predefined lexical order that the principles must follow in the Rawlsian theory of justice, while in sociology, they do not observe any hierarchy. There is therefore material for debate on whether the principles of equity based on merit and on need are always compatible with a society which aims to be equitable and egalitarian.

We propose to deal with this question by getting away from the philosophical debate to examine the question of resource distribution from economic and sociological standpoints.

Justice and Distribution of Wealth: the Nature of the 'Social Contract'

The principles of equity bring us to the debate on distributive justice (Rawls 1971). The theory of justice proposes an alternative to the utilitarian vision of economics in which the main objective is the maximization of social welfare with no reference to the distribution of resources among individuals. Rawls supports the idea that justice should not focus on welfare as such but should seek to provide individuals with primary goods. Thus, to achieve a certain degree of egalitarianism, the criterion of choice is founded on the principle of difference. According to this principle, each allocation should be assessed in terms of its impact on the situation of the individuals who are the most deprived of these goods. An important aspect of the Rawlsian vision, contrary to the egalitarian vision, is to accept the persistence of a certain inequality in distribution if, and only if, the introduction of inequality constitutes a necessary condition to improve the situation of the most deprived.

Distribution takes us beyond mere market goods because society is like a distribution operator (Ricœur 1988). It is to this society that individuals sign up by contract: 'the object of the idea of justice is thus the distributive structure of the basic social phenomenon' (Ricœur 1988, p. 131). In this perspective, equity can be approached in two different ways. One approach is to look at the rules that aim to set up a fair framework enabling individuals to find a place (in relation with the three principles of justice evoked) on the basis of an initial contract (theory first put forward by Hobbes) founded on common political values. In this effect, society is treated 'as a congregational, mutualist phenomenon' (Ricœur 1988, p. 131). In a procedural approach to achieve fair distribution, three stages emerge: the choice of the independent criterion aimed at deciding on the fair result, the definition of the procedure to be followed, and the result. Sociology focuses on the choice of an independent criterion and considers justice as being in a process of perpetual redefinition (Pharo 1998). For Habermas (1984), it is in the debate between the actors that the values, fair and unfair, are defined. Agreement is found on the basis of a practical reason commonly accepted by the actors.

Economists, on the other hand, attend more closely to the result of the distribution, placing the emphasis on Rawls' second principle (composed of the principle of equality of opportunities and difference principle).

They look at whether distribution succeeds in reducing inequalities and favouring the less privileged, or not.

In this theoretical framework of justice, public intervention aiming to encourage farmers to produce amenities is approached from this twofold viewpoint, complementary and constructive. The question of amenities, exemplified by the French Contrats Territoriaux d'Exploitation, will be studied in terms of the principles of justice selected for the distribution of public aid. The sociological view focuses on the process of negotiation by which the principles to be applied were chosen, while the economic view looks at how the results match up to the principles considered. This approach, however, focuses only on the equity between farmers belonging to the same generation. We will now analyse how intergenerational equity could be legitimized.

Intergenerational Perspective and Environmental Responsibility

The Rawlsian principles of justice which prevail over all distributions of wealth in society allow for the respect of intragenerational equity. However, according to Rawls, it is not possible to use one of them, the principle of difference, for the purpose of intergenerational equity because it does not guarantee the setting of the fair rate of saving. This being the case, if we wish to consider a production of amenities that favours the long-term protection of the environment, it is necessary to define a principle that enables the implementation of intertemporal distributive justice while taking into consideration the welfare of future generations.

Within the framework of the implementation of the multifunctionality of agriculture by the European Union, an intergenerational perspective put an emphasis on bequest and existence values. Only these two values imply a bond between two generations belonging to different moments in the period of time in question.

From a theoretical point of view, one pertinent approach to the analysis of the intergenerational perspective in relation to the ethical dimension of the environment can be constituted by Jonas' responsibility principle (1990). In this philosopher's approach, the ethical dimension of the natural environment is based on the existence of intergenerational solidarity. The responsibility principle fundamentally constitutes an essential principle of human action and is expressed as follows: 'Act in such a way that the effects of your action are compatible with the permanence of authentically human life on earth' (1990, p. 30). He indicates that the individual has the power to cause risk to humanity but does not have the right to do so. The intervention of the ethical thus becomes legitimate for it regulates the power of the individual to act, to be aware of and responsible for his or her actions.

In this way Jonas takes into account the global dimension of the human species. Human action is linked to the conscience of humanity and it must guarantee the well-being of unborn generations by protecting ecological balances.⁵ Nature as an object of human responsibility enters the field of ethics. In this ethic, Jonas refers implicitly to values of nature that are independent of any usage (bequest and existence values) when he writes: 'the solidarity of destiny between man and nature . . . also brings us to rediscover the autonomous dignity of nature and orders us to respect its integrity above and beyond the utilitarian aspect' (1990, p. 188).

Under these conditions, obligations must be defined in order to limit the power of action necessary to conserve the integrity of nature and preserve the existence of humanity. The naturalistic approach of the philosopher consists in taking into consideration indirect obligations, with the preservation of the conditions for the existence of humans on earth, and direct obligations, by attributing an intrinsic value to nature (Larrère and Larrère 1997).

In an intergenerational perspective, the responsibility principle supposes a break with the reciprocity that traditionally links obligations and rights. Considering that future generations cannot demand rights or oblige respect with regard to the present generations, Jonas confers on the responsibility principle an ethical counterpart of irreversibility. By nature the obligations are not contractual. As a result intergenerational equity is asymmetrical. It invites us to define the rights and duties of the present generations with regard to generations to come.

In considering the effects of human activities on the earth (for example, greenhouse gas emissions and exhaustion of natural resources), we should adopt collective actions that consider the environment in its global dimension, both spatial and temporal. The responsibility principle thus implies public intervention in order to set ethics of conservation. On this subject, Jonas (1990, p. 28) writes: 'If the sphere of production has invested the space of essential action, then morality must invest the sphere of production from which it was excluded in the past, and must do so in the form of public policy.' The choice of the public decision maker in accordance with the responsibility principle depends above all on its social recognition by the community.

Such a vision is quite relevant in the management of rural amenities so that future generations can benefit from their existence. The role of the state in defining the terms by which they will be distributed between the generations is then essential.

AGRICULTURAL MULTIFUNCTIONALITY AND PUBLIC SUBSIDIES: A WAY OF ACHIEVING FAIRNESS?

For several years now, the multifunctional character of agriculture has been very evident in public policies in recognition of the existence of a social demand for non-market services of an environmental nature (Romstad 2004; Randall 2002). In this context the normative approach of multifunctionality is based on the idea that agriculture does not only supply food products and raw materials. It has two other major functions: social and environmental. The first contributes to the viability of rural areas and to local development by creating jobs in the primary production sector as well as in the processing and supply circuits. It plays a role in maintaining, recreating or reinventing rural social bonds. It serves as a territorial anchor for the development of a sense of local belonging and of citizenship. The second concerns the production of rural amenities whose existence confers an ecological and patrimonial value on rural areas. Besides this, social amenities can also reinforce the social bond: for example, landscape development favours the protection of natural resources, but can also contribute indirectly to the development of tourism and community life within a territory.

Analysis of a Specific Agri-environmental Contract: CTE

The Farming Act of 9 July 1999 marked, in France, the commitment of the government to the implementation of agri-environmental measures by creating the territorial contract farming (Contrat Territorial d'Exploitation or CTE). Founded on the recognition of the multifunctionality of agriculture, the CTE is a contract in which the farmer undertakes the development of multifunctional farming activity which contributes to the creation of added value while ensuring the protection of natural resources, of landscapes and of biological diversity, as well as equilibrium of the territory and employment.

The contract is made up of two distinct components: the economic and social and the environmental (including agri-environmental measures (AEM)). The farmer commits to take environmentally friendly measures but also to make the necessary investments for the viability of the business. The environmental protection measures are set out in a schedule validated by the European Union. Their aim is to minimize the negative impacts of farming activity on natural resources and to encourage the production of rural amenities such as the landscape, water quality and biodiversity.

Several studies in France have tried to assess the impact of the first measures taken to decouple farming subsidies from the reduction of inequalities in earnings.⁶ On the basis of the farm revenue data, it would appear that decoupling has accentuated the role of the surface area of the farms in the formation of disparities in farmer earnings. In reality, the CTE is a tool that favours big farms and supports certain sectors more than others (Butault et al. 2002).

Here, we will study the way in which the distributive norms implemented in the CTE influence inequalities between big and small farms in access to public subsidies on the one hand, and analyse the redistributive impact of this tool on the other. Although it is difficult to state that the sense of justice debated during the standard contract negotiation has a direct impact on the economic inequality between contracting and non-contracting farmers, we will analyse the principles of equity underlying the sharing out of the environmental effort associated with this distribution mechanism.

Principles of Justice and Inequalities in Earnings among Farmers

Our study covers one French region, the Dordogne, where agriculture still occupies almost 330 000 ha, or 40 percent of the territory. Alongside the widespread system of mixed farming, we can identify 16 production sectors of which the largest are cattle and sheep breeding, arable crops (wheat, corn and oleaginous plants), vines and fruit trees. The other sectors are essentially specialized production such as tobacco, walnuts, fattened ducks and geese and strawberries. The movement towards the contracts under the CTE system is currently one of the strongest in France with 657 contracts signed by June 2002.

As early as 1998 (more than a year before the law was promulgated), the Dordogne positioned itself as an experimental area and a working group was set up for this purpose with the ultimate goal of writing up standard contracts. The institutions came from the agricultural and the environmental world in order to encourage the complementary approaches required in the production of rural amenities. During the consultation process, the contours of the multifunctionality of agriculture were specified (Candau and Chabert 2003). The sense of justice emerging from this debate is in our opinion the result of the cooperation between these protagonists, thus leaving in suspense the question of a more wide-ranging political and moral consensus on the scale of society as a whole.

The debate on the general orientations of the CTE focuses on the basis of the political proposals put forward by the various participants.⁷ Some farming policy-makers saw in the CTE the possibility of receiving public aid that had hitherto been difficult to get for small farms in France.

In addition, funding dedicated to the production of amenities and not to the production of foodstuffs was seen by them as a particularly welcome readjustment of the distribution of public funds among farmers in the country as a whole. Implicitly, it is the distributive principle of need that the participants wanted to apply by taking into consideration not the volume produced by each farm but the productive unit itself: each farm should be 'entitled' to received public subsidies, even if it plays only a small role in the production of agricultural commodities.

This political objective is similar to another objective that came up, the survival of the largest possible number of farms. This objective was shared by all the participants, wishing to slow down the loss of vitality of rural areas. In this respect, public aid is perceived as being additional revenue that improves, or even restores, the viability of certain farms. This conception led the elected representatives of farming professionals to favour access for all farmers to the CTEs. For this norm of equality to apply, the issue in preparing the standard contracts was to propose specifications placing the contracts within every farmer's reach.

Finally, up to the end of the year 2002, CTEs attracted only 6 percent of the eligible farmers (farmers under the age of 55) covering 10 percent of the arable land. Statistical analysis of the CTEs signed show that large farms were privileged. The average arable surface area of the farms that signed a CTE was around 59 ha, while the average for this area is 29 ha. The proportion of small farmers (farms of less than 30 ha) in the sample is 26 percent, when in the agricultural census of 2000 they represented a proportion of 67 percent. To go into this result in more depth, we can ask two questions: (1) Were the small farms that signed a CTE advantaged in relation to the larger ones? (2) Have the CTEs made it possible to reduce inequalities in earnings between farmers?

Concerning the economic component of the contracts, the average proportion of the investments engaged and funded by the CTE came to only 34 percent. Investment capacity being closely linked to the economic vitality of the farms themselves, it is therefore not surprising to note a positive correlation between the value of the gross farm income and the total amount of the economic investments undertaken. Concerning the environmental part, the value of the Gini index relating to the distribution of AEM aid was 0.40.⁸ Thus, AEM aid slightly favoured the big farms. But if we break down the inequality index using the method proposed by Dagum (1997) between the part explained by intragroup inequality (in this case, inequality between the small and large farms) and the part explained by inequality between the two groups, we notice that 60 percent of the inequality is explained by intragroup inequality. On top of this, the distribution of the AEM among the smaller farms is less egalitarian with a Gini index

value of 0.40, against 0.36 for the distribution of the AEM among the big farms.

Despite the persistence of this inequality in the distribution of aid, the AEM have a redistributive effect among the farmers and have enabled a reduction mainly in the inequalities between large and small farms on the basis of their farm income (gross annual income). Thus, the Gini index for the distribution of gross farm income between farmers was 0.36. After the distribution of the AEM, if the revenue conditions applied to signatories do not change, the Gini index value goes down to 0.28, resulting in the proportion explained by inter-group inequality going from 36 percent to 21 percent. Inequality in earnings is therefore explained mainly by inequalities within each category of farmer, inequalities which are mainly linked with the crop type.

These results provide support for the application of the Rawlsian equity principle which accepts the persistence of a certain inequality to improve the situation of those who are most deprived. Indeed, we have observed that even if distribution of the AEM remains non-egalitarian because it is strongly dependent on farm size, it has enabled both an improvement in the earnings of small farms and a reduction in the gap between large and small farm earnings.

Production of Amenities and Equity between Farmers

In the handling of the environmental dimension of the contract, the representatives of the environmental cause wanted the risks and damage to be mapped. Whether it be a question of water pollution, of preservation of landscapes or habitats specific to certain species of flora or fauna, the drawing up of this map implied that the farmers in the zones targeted be obliged to commit themselves to certain agri-environmental measures in signing the contract. In this case, the fact that the farmers receive public subsidies is justified, above all, by the effort made by the farmer in terms of amenity production. The distribution of funding therefore obeys the principle of merit.

The application of this principle, however, was cause for debate. The case of the management of landscape is an interesting case in point. The question was to know whether farmers who already managed the forest edges and riverbanks would be able to sign up to the AEM specific to these measures. In principle, public subsidies are supposed to be paid out to compensate for the additional work created by adopting new ways of doing things. They should not therefore be paid out for existing practices. This non-remuneration of existing work was deemed unfair by the farm representatives and the farmers in question, the good farmers, would not be able to

sign up for the AEM if they had already adopted the practices producing these amenities. Only those who had not respected such practices until now would be able to benefit from public aid. We can therefore wonder what the true motivations of these new adepts are: the attraction of financial gain or a real desire for social change?

The environmentalists also consider this situation to be questionable in that the farmers concerned by the CTE system are the very producers who have been at the forefront of the intensification and specialization of farming and have therefore participated greatly in the deterioration of the environment. This situation reveals a paradox: those who, yesterday, harmed the environment, today find themselves in a position to receive public funding to repair the environmental damage caused, while those who have continued to apply environmentally friendly farming practices are excluded.

Going beyond the issue of encouraging changes in farming practices, the environmentalists also consider that the production of amenities by farming activities would gain from granting recognition to these existing practices by awarding them financial remuneration. This would amount to applying the distributive norm not only on future merit but also on past merit.

The consideration of past merit brings us back to the question of the fair remuneration of the non-market services provided by agriculture. The notion of externality or of public good to deal with environmental services, services that are consumed free of charge by beneficiaries, requires public intervention indispensable to correct market failures in coordinating the supply of amenities. This being the case, an amenity production funding policy would appear to be necessary to satisfy the social demand. In this framework, those farmers who have favoured practices that are respectful of the environment should also be concerned by the subsidies. However, the amount would not be calculated on the basis of the additional cost incurred by the farmer, but on the economic value of the non-market services provided to society. Such a distribution norm would be based on perfect equality among the farmers-amenity producers, irrespective of any objective of redistribution. Then, the amount of aid calculated on the basis of this economic value could remain insufficient as an incentive for farmers to sign contracts.

CONCLUSION

The French case suggests that the agri-environmental contracts lead to a mode of regulation that tends towards Rawls's principle of equity. It is a

non-egalitarian tool that enables equitable distributive justice between the farmers who sign the contracts. Indeed, the earnings gap between small and big farms is significantly reduced. But the fact that few farmers have signed CTEs reveals a certain inefficiency of the distribution mechanism. A large number of small farms have been excluded from the system, contrary to the wishes of the institutional protagonists involved in preparing the standard contracts. The CTE is therefore a redistribution tool that is of a low level of efficiency.

Even if our results concern a single French area, other studies point in the same direction, by focusing on the exclusion of small farms from the system (Dupraz et al. 2001; Fabre and Laurent 1998). Looking beyond this redistributive dimension, our analysis also reveals the incompatibility that exists between the principle of equality-invoked in relation to maintaining social vitality of rural areas and the principle of merit invoked in the production of amenities. The two objectives being pursued simultaneously by the CTE turn out to be irreconcilable from the point of view of equity. One possible approach, inspired by Rawls, would be to introduce a hierarchy establishing the principle of equality as the premier principle. Thus, the vitality of rural areas constitutes the priority objective to be achieved (by maintaining the largest possible number of farms) and to which the production of amenities by farmers would be subordinated.

Consequently, the selective character of the CTE should be corrected to make the contract accessible to a greater majority of farmers. This would imply challenging the selection criteria (notably earnings levels) and remuneration norms based exclusively on land surface area. This brings us back to the social norms defining the good farmer, norms communicated by the institutions which are the reason why certain farmers are not part of the networks of the institutions responsible for implementing the CTEs. Furthermore these principles of justice only take into account equity between farmers. Yet the production of amenities by the funding of AEM in the CTE is politically justified on behalf of multifunctionality which grants an important role in sustainable development. The production of amenities encouraged in this way must be of benefit to all citizens thus making it possible to legitimize the public funds given to agriculture. It must also benefit future generations by preserving environmental resources as Jonas' Responsibility Principle calls on us to do.

The subordination of the production of amenities to the preservation of the largest possible number of farms can constitute an equitable public support policy. The European argument of preserving farms for the production of these goods and services is therefore fair. In addition, it confers legitimacy to the valorization of the amenities in a non-market framework. In this respect, we note that if we take into consideration other

environmental functions of the agriculture, rural amenities would be a major part of an agricultural policy in achieving sustainable development in Europe.

NOTES

1. The complete decoupling of farm subsidies from the act of production consists of converting most of the current subsidies into a one-off payment to be paid out to farmers on the basis of the surface area of arable land, irrespective of the type of crops or livestock, or the volume of production sold. In addition, the principle of eco-conditionality makes payment conditional on compliance with 18 regulatory requirements in the field of the environment, food safety, animal and plant health and animal well-being. As for the principle of modulation, it institutes slight discrimination in favour of smaller farms by exempting them from a planned reduction of 5 percent in the single payment (Frahan et al. 2004).
2. In his preface to the French edition, Rawls (1987, p. 12) replaces this principle by the principle of utility. 'I continue to think that the principle of difference is important and I will continue to defend it, on the condition that it is accompanied by institutions respecting the two prior principles. But it should be recognised that this argument is not a given and will never have the force of the one in favour of the two earlier principles.'
3. The principles of justice are elaborated through a (virtual) negotiation between individuals belonging to different generations without any of them being aware of their position or function, in accordance with the hypothesis of the veil of ignorance. Consequently, the original position is a purely hypothetical position.
4. This is not specific to the theory of Rawls, but goes back as far as Hobbes (1588–1679), guiding all philosophical thinking on the social contract and giving rise, later, with Bentham (1748–1832), to the utilitarian movement.
5. Jonas does not have an anthropocentric vision of ethics: it is because of the danger the human species represents for nature that it also represents a threat to its own survival. The technological vector, the driving force behind the power of human action, constitutes the means by which the threat to humanity is brought to bear: man controls nature using techniques he does not control.
6. See note 1.
7. Our empirical analysis is based on semi-directive interviews conducted with all the institutional participants having taken part in this debate in year 2001.
8. The situation is completely nonegalitarian when the Gini index is close to one.

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5. The supply and demand for natural amenities: an overview of theory and concepts

Thomas Michael Power

Economists have long recognized the fact that many of the important determinants of our well being are noncommercial in character. They cannot be appropriately provided by commercial businesses coordinated by markets. That is one of the reasons economics exists as a social science separate and apart from the study of commercial business.

Site-specific characteristics of a particular locale that make it a more or less attractive place to live make up one important group of such non-commercial goods and services. These site-specific qualities have come to be labeled 'amenities'. They may include everything from local climate, levels of crime and congestion, outdoor recreation opportunities, quality of schools, air and water quality and urban density.

Amenities, to economists, include all of those location-specific public good characteristics of a place that increase that place's attractiveness as a residential or business location. Characteristics of the local market economy such as market size, job opportunities and cost of living are not treated as amenities.

Economists have worked to develop the tools that allow the measurement of such noncommercial economic values so that in public policy decisions in which both commercial and noncommercial economic values are at stake, better, more fully informed decisions can be made. By studying the actual choices made by individuals in the pursuit of noncommercial economic values, economists have been able to measure those noncommercial economic values through the sacrifices people actually make. Analysis of travel costs, property value differentials and wage differentials have revealed the economic value people place on non-marketed goods and services. Where that type of hedonic analysis has not been possible, economists have developed survey techniques (contingent valuation and conjoint analysis for example) that allow people to express the strength of their preferences for non-marketed goods and services in economic terms (Goodstein 2004).

A half century of such analyses has clearly documented the economic importance of these amenities to individual well-being. In some ways, this work has only documented what we already knew. Real estate professionals have always understood the role that the qualities associated with a particular site play in determining property values. As their cliché puts it: 'Location, location, location'.

If site-specific amenities are important to people and those amenities are distributed unevenly across the nation, the amenities may play an important role in determining the distribution of population and economic activity as people act on their preferences and pursue the residential locations most attractive to them. For rural areas that are high in amenity values but are facing declining employment opportunities in their traditional land-based economic activities, those amenities might provide alternative or complementary support for local economic vitality.

There are several ways in which local amenities impact local economic development. Amenities draw temporary visitors, tourists, who want to enjoy the local amenities. Businesses focused on serving these visitors' needs could be created. Some visitors are more regular and persistent and build second homes to use during their visits. The spending of these visitors supports local businesses. Retirees may be attracted to high amenity areas. With footloose retirement funds, they can choose their residence largely without regard to employment opportunities, largely on the basis of the type of location that most appeals to them. Such residential choices by retirees boost local population and spending. All three of these means by which local amenities stimulate the local economy are consistent with the conventional economic base view of the local economy in that they all bring additional income into the local economy from the outside that can then circulate within the local economy, having multiplier impacts for locally-oriented businesses.

Amenities can stimulate the local economy in another manner that the economic base view tends to ignore. Amenities can attract in-migrants of working age whose very efforts to take up residence in the area can also stimulate the local economy. The economic base model is entirely a labor demand model in which workers and their families passively move to where the jobs are. Labor supply is irrelevant (Power 1996a; 1996b). In general it is not usually prudent to exclusively focus on only one blade of the Marshallian scissors of supply and demand. Local amenities among other things may attract workers, which influences labor costs and creates an attractive labor supply that draws economic activity. Jobs may also follow people. The relative importance of labor demand and labor supply forces in driving regional economic development is an open empirical question that appears to vary from locale to locale and over time. There is considerable

evidence, however, that population shifts can lead to shifts in economic activity. (Duffy 1994; Greenwood et al. 1986; Greenwood and Hunt 1984; Greenwood 1981) In-migration to high amenity areas, therefore, can also be an important causal force in stimulating local economic vitality.

This book explores the connection between local amenities and rural development. The first few chapters have an even more specific focus on the potential impact on rural development of the supply and demand for natural amenities, those amenities associated with characteristics of the natural landscape such as scenic beauty, wildlife, outdoor recreation opportunities and open space.

THE ECONOMIC IMPORTANCE OF THE SUPPLY OF AMENITIES IN RURAL AREAS

As mentioned above, the range of potentially relevant local amenities is quite broad. All of the following local amenity characteristics could be relevant:

1. Natural landscape features, including coastlines and lakeshores, varied topography and landscape characteristics, wildlife, rivers and other unique natural characteristics.
2. Climate, including frequency of sunshine, temperature extremes, humidity and average wind speed.
3. Social environment, including the quality of schools and other public services, the quality of community, crime rate and levels of congestion.
4. Cultural environment, including local diversity or homogeneity, cultural richness and integrity and the presence of higher educational and other cultural institutions.
5. Human-built environment, including air and water quality, density, quality of homes and businesses and basic public and commercial infrastructure.

THE PHYSICAL VERSUS ECONOMIC SUPPLY OF NATURAL AMENITIES

Although some discussions of amenity-led economic development have focused only on the local physical supply of the amenities in rural areas, the existing empirical literature directly or indirectly raises important questions about the adequacy of such a focus.

Consider natural landscape amenities. We know that natural splendor by itself is insufficient to spark local economic vitality. The experiences of

central Alaska, central Idaho, northern Maine and parts of southern Utah demonstrate this. It is not surprising that the existence of a physical supply of something may not represent a powerful economic force.

Supply from an economic point of view is not simply a matter of physical availability: price or cost is a central component of supply. A high-cost source of supply of a valued good may have no economic value at all. That is why most of the coal deposits in the United States have never been developed and why we do not mine the ocean for gold. The high access costs associated with isolation may reduce the value of those amenities to non-residents to zero in many rural areas. Travel costs and loss of access to urban amenities due to isolation are chief among these potential costs. Transportation and communication infrastructure and technology have been reducing these costs somewhat, but they remain a significant barrier to amenity-supported economic development in many isolated rural areas.

This underlines the importance of urban proximity to amenity-led rural development. The existence of differential access costs to natural amenities in different rural areas also underlines the relevance of the distinctions among rural counties that many analysts have been making for decades (US Department of Agriculture 2003): (1) areas adjacent to metropolitan (within commuting distance); (2) areas containing a micropolitan center (population greater than 10 000); (3) areas adjacent to micropolitan areas (within commuting distance); (4) areas within reasonable travel time of a major metro area and/or scheduled airline service; and (5) areas that are none of the above or truly isolated.

Amenities are likely to be of limited immediate value to the development of rural areas that fall into the truly isolated category. This is true even though those amenities may still be very important to local well-being. High access costs have to be offset by higher valued and more unique local amenities if those amenities are going to support rural development.

The point here is an obvious economic one. People may value a good or service highly but if the cost of gaining access to it is too high they will not pursue it despite its value. People seek to have their cake and eat it too in the sense of gaining access to rural amenities while paying as low a cost as possible in what else they have to sacrifice. This explains much of the pattern of amenity migration that we observe across the nation.

WHICH AMENITIES MATTER? NATURAL VERSUS SOCIAL AMENITIES

Several of the chapters in this book suggest that social amenities may be at least as important as natural amenities especially to permanent residents of

an area. This is clear when the local characteristics that are important to residents are contrasted with the characteristics that are important to visitors. When residents of high-amenity areas are asked to identify those local characteristics that are most important to them, they are likely to focus on home, work and informal community institutions rather than on particular features of the natural landscape. Polling data repeatedly indicate that family, social, cultural, and human-built local characteristics often have a higher priority to residents than any particular aspects of the natural landscape. That is not to say that residents do not value the qualities of the natural landscape, only that social qualities may be a higher priority.

When visitors are contrasted with permanent residents, the difference in emphasis on social characteristics should not be surprising. The visitors have their homes and social support systems elsewhere and are unlikely to be visiting a rural area in their pursuit. The visitors are likely to take for granted the basic aspects of their normal work life from which they have voluntarily and temporarily extracted themselves. When asked why they are visiting, they are likely to focus on the local characteristics that led them to visit the area. Residents are likely to give a more complete evaluation of all of the aspects of that community that are important to them. The social, cultural and human-built environments will almost certainly get more emphasis.

The importance of these considerations for amenity-led development partly depends on whether the development strategy is focused on the role of tourism and second-home owners or on the in-migration of new permanent residents and the retention of existing residents. For the former group the social characteristics of an area may not be of high importance. They may be largely irrelevant to them. For potential and current permanent residents the attractiveness of an area as a place to live and raise a family may be a prerequisite that must pass a quality threshold before the local natural amenities can play a role in a location decision. If a community's vision of local development favors permanent residents over temporary visitors, social environment has to be part of the amenity focus. In any case, existing residents are likely to make the social and cultural environment a focus of public policy. This may explain the not always quiet rebellions that have been going on in resort communities including Jackson, Aspen and Telluride. In these places permanent residents are seeking to rein in tourist promotion and development and focus more attention on protecting community integrity.

An alternative view might be that almost all rural areas have social advantages compared to metropolitan areas in the form of a slower tempo, lower density, less threat of crime, more neighborliness and so on. It might be asserted that potential residents simply take for granted the

superiority of the social environment and focus on those aspects of the natural environment that are most attractive to them. Given the importance of the family raising environment, I am skeptical that potential residents would take the social aspects of their own and their families' lives for granted.

This discussion underlines the importance of distinguishing between the tourist, second-home owner, retiree, working-age in-migrant and business relocation mechanisms by which amenities may affect rural development. Not only is this important because each group may be seeking something different but also because each group is likely to have a different type of impact on rural communities.

In my experience most amenity-supported local development is not usually tied primarily to tourism and second-home development. These types of amenity impacts attract a lot of attention because the growth mechanism is quite visible and easily understood in terms of the economic base way of thinking about the local economy. However much of the amenity-supported development is actually tied to in-migration of new permanent working-age residents. This mechanism is not considered viable within the economic base view and therefore often ignored. However, tourism and second-home ownership often are the way that potential residents get familiar with an area and choose it for a permanent residence. We must be careful to avoid an exclusively economic base mindset in which natural landscapes are viewed as economically valuable only to temporary visitors. It certainly would be perverse to implicitly assume that sense of place matters only to those who are away from home!

THE CHANGING DEMAND FOR NATURAL AMENITIES

Some skeptics about the economic role that natural amenities have played or could play in rural economic development have pointed out that usually the physical supply of natural amenities has not changed much over the years, yet rural economies have been changing rather dramatically. Given that climate, the presences of coastlines and lakeshores and the existence of mountains and valleys have been a static factor, how, they ask, can any causal role be attributed to those static natural amenities in explaining changes in rural economies? Part of the answer to this has been discussed above. Changes in transportation and communication technology have dramatically modified the costs associated with access to these fixed physical supplies of natural landscape amenities. But changes in demand have played an important role too.

First, all economic values are relative values. The value of a particular rural area's amenities is measured relative to the amenities associated with other areas. If a significant number of the residents of our larger metropolitan areas were to judge that the lack of amenities associated with those areas had intensified, the unchanged amenities of some rural areas are likely to rise in relative value. This potentially leads to a shift in population in that direction.

Second, most analysts believe that environmental amenities are normal economic goods the demand for which rises with income. With rising family incomes for at least a significant portion of the population, the demand for static physical supplies of amenities in rural areas could rise. In addition people's preferences change over time. New tastes develop; different areas are discovered. Preferences are not static and therefore the demand for amenities is not either.

There have been rather dramatic changes over time in what we consider attractive natural amenities. Possibly the most dramatic was the reevaluation of desert landscapes. What once were considered dead, monotonous and threatening landscapes that were uninhabitable became the land of enchantment and part of the California dream. The desert southwest became one of the most attractive and rapidly growing high amenity areas. Climate played an important role: sunshine, low humidity, low pollen counts and so on. The mass appeal of these areas was facilitated in an important way by a technological development, relatively low-cost air conditioning that allowed residents to turn what had been a curse, intense sunshine and high temperatures, into an amenity that could be adjusted for personal comfort. This is just one example. Similar reevaluations of mountainous terrain, wetlands and harsh coastal landscapes also took place.

The supply of natural amenities is not fixed except in the relatively short run. This is not only true because of the shifts in the costs associated with pursuit of various natural amenities but also because landscapes change over time. One of these dramatic changes took place in northern Wisconsin where forests were stripped away in the late nineteenth and early twentieth centuries. Farming was briefly tried but largely abandoned on the thin, glacial scoured soils. Forests then reclaimed those farmlands. A similar pattern of shifting land use characterized much of what were once forestlands east of the Mississippi. Forests were cleared for agriculture and then abandoned marginal agricultural lands reverted back to forests. That pattern continues in parts of the southeastern United States today. Some parts of these second and third-growth private forestlands became National Forests in the first half of the twentieth century. Both those public and private forestlands, once abandoned wastelands, now are often considered natural amenities.

A dramatic example of the transformation of industrial landscapes into a high amenity area is Baxter State Park in north central Maine, one of Maine's premier natural areas. A good part of the park was built around privately logged private timberlands purchased by ex-Governor Percival Baxter and offered as a gift to the State of Maine. It is now considered a wilderness reserve of spectacular beauty even though many of the most popular trails follow old logging roads. A three-million-acre, logged-over area surrounding Baxter State Park is now being proposed by some as a Maine Woods National Park. The point is that what is considered a natural area or pristine or wilderness is somewhat subjective and relative. New natural areas have been created on a spectacular scale. The reforestation of the eastern United States is an obvious and dramatic example.

Other nonforest examples are available. The US Department of Agriculture Conservation Reserve Program (CRP) retires environmentally sensitive land from marginal agricultural uses. On the northern Great Plains, those CRP lands often become de facto wildlife habitat that has boosted wildlife populations and led to expanded hunting opportunities. This has reversed the decline in the percentage of the population that hunts and increased hunting expenditures and the local economic impact of that activity significantly (Leistriz et al. 2002). This transformation of land use from commercial agriculture to wildlife habitat supporting recreational activity took place on a much shorter time frame than is required for the regrowth of a forest. The restoration of diverse wetlands and riparian areas may have the potential to increase the natural diversity that was lost in many of our rural areas when the landscape was converted to commercial agriculture. As rising productivity in agriculture and worldwide competition continue to reduce the support farming and ranching provide to rural economies, the ability of these rural areas to recreate some of the biological and landscape diversity they once had may be crucial to maintaining their economic vitality.

TRADEOFFS BETWEEN PROTECTING NATURAL AMENITIES AND THE COMMERCIAL DEVELOPMENT

The discussion above clearly indicates that although there may be irreversible environmental changes and value loss associated with the commercial development of natural landscapes, yet all of the lost value is not permanent. Natural systems that are not pushed too far can recover in ways that allow them to once again provide some of the important

environmental services that are the basis for what we have been calling natural amenities.

Given that natural systems that were once significantly modified by commercial activities can recover enough to provide some of the amenities they previously offered, it is reasonable to ask whether those commercial activities could be modified so that those amenities could be continuously provided while that commercial activity also continues to take place? In short, can we have ongoing joint production of both natural amenities and commercial products from the natural landscape?

We know that the answer to that question in some common situations is clearly 'Yes'. Many communities are actively engaged in efforts to protect farm and ranch lands because those human-modified landscapes are now considered landscape amenities. Across the United States and around the world some of the most attractive landscapes are those associated with decades or centuries of agricultural activities. This has led some to propose that farmers and ranchers be considered primarily landscape managers whose activities create a mix of goods and services. These include landscape services that are valuable to other rural and adjacent urban residents. Those landscape services include attractive agricultural landscapes, open space and related lower settlement density, wildlife habitat and potential recreation opportunities such as hunting and angling. There are similar potentials when it comes to forest management. It is clearly possible to manage forestland for both continuous timber production and recreation, wildlife and residential settlement if the rate and method of timber extraction is chosen to be compatible with these amenity values.

Such joint production of commercial products and amenities obviously can be a reality but it is likely to require the imposition of some constraints on commodity production. One can imagine limited residential development on farms and ranches and recreational home development in working forests for instance. Before homebuyers will be willing to make investments in such properties they will want their investments protected by covenants, easements or other limits on what the commercial operators are allowed to do to the landscape. There is some tentative movement in that direction but no obvious trend. At this point most open space easements or purchases of development rights do not limit how timber is harvested or what agricultural activities can be engaged in or address what the environmental impacts of either might be. The public, seeking to prevent residential and commercial development of open space, may be willing to forgo directly dealing with the environmental impacts associated with commercially motivated working farms, ranches and forests. Potential homeowners would not be so trusting. Massive hog farming operations and timber

companies denuding huge expanses of forests are two examples that suggest that working forests and working landscapes have the potential of generating massive loss of amenities.

Just what the potential for joint production is when it comes to traditional natural resource activities and the provision of contemporary natural landscape amenities depends crucially on what the unavoidable tradeoffs actually are and how people who are interested in the natural amenities evaluate what is lost in the joint production process. This is just another way of saying that we need to understand in detail the amenity damage function that is associated with particular types of commercial uses of natural landscapes. This not only requires careful environmental analysis but also good economic evaluation of those environmental changes. We rarely have that combination. The result usually is an emotional debate based on people's hopes and fears rather than on information. A succession of good examples of such successful joint production of amenities and commercial products on private lands might put the public more at ease with the reality of this potential.

THE CHALLENGING COMPLEXITY OF AMENITIES AS AN ECONOMIC FORCE

The characteristics of particular locations that make them more or less attractive places to recreate, live, work and/or do business are complex. How different groups of individuals (tourists, second-home owners and in-migrants, both retirees and working age) and business firms evaluate and respond to those local characteristics, including ongoing commercial uses of those landscapes, is also complex. Finally, how public policy might affect the supply and demand for local amenities is also challenging. Figure 5.1 outlines these empirical challenges. The following characteristics are potentially important:

1. *Natural landscape attributes* Which matter? How does degradation of those natural attributes damage attractiveness?
2. *Social attributes* Which matter and to whom? If public expenditures are required, how does the balance of taxes and expenditures affect the attractiveness of the area?
3. *Cultural attributes* Diversity is an amenity to some and not to others. The same can be said about some small town characteristics.
4. *Economic characteristics* Labor market balance, the mix of employment opportunities, pay levels, cost of living, retail trade and services infrastructure.

5. *The costs of isolation* Transportation and communications infrastructure; urban proximity.
6. Family proximity and other previous personal connections with an area.

This list could be easily expanded in many directions. These factors were identified by Tiebout (1956) and Lancaster (1971) many decades ago and extended by Roback (1988; 1982) in a national model of regional development: each location has to be looked at as a bundle of particular characteristics to which mobile individuals and firms respond as they seek the combinations of characteristics that best match their preferences.

Regional scientists have been pointing out the importance of natural amenities in regional development for at least a half century (Ullman 1955). Many large metropolitan areas have focused on urban amenities and quality of life factors in their economic development strategies (Florida et al. 2000). We have only recently begun analysing the rural development potential of amenities and the barriers to rural development associated with the lack of amenities.

The empirical literature that has developed over the years is not sparse (Dissart and Deller 2000; Green 2001) but it does have serious limitations. Part of it is based primarily on anecdotal evidence whose general application is uncertain. Some of the broader cross-sectional and time-series analysis primarily aims at showing that traditional market-based explanatory variables are not sufficient to explain the regional development patterns we observe. There is a significant residual that cannot be explained. At that point researchers have relied on suggestion, a process that I call 'labeling the residual'. There is a long tradition in economics of doing this. Technological change and the quality of the labor force have often been measured as an unexplained residual in the past. In this case the residual is labeled 'amenity supported in-migration or development'. There are also quantitative methods such as factor analysis that lend a scientific veneer to this labeling the residual.

This does provide some important information. We would like to be able to associate particular economic changes, however, with particular measured amenity characteristics. Large regional and national cross-sectional analyses have been somewhat successful in doing this. The demands of putting together a consistent database of dozens of different measures of amenity characteristics for hundreds of urban areas or thousands of counties have forced researchers to focus on those amenities for which there is readily available quantitative data rather than on those amenities that may be most important for location decisions.

As we now focus on the role that rural amenities play in enabling or retarding rural development, we clearly have to focus on specific areas

and specific amenities. That is what the chapters in this book have attempted to do.

RURAL DEVELOPMENT

In this volume we are focused on community development, as opposed to individual consumer choices and well-being. That is, we are focused on how amenities affect the character of the changes our rural areas experience not on how particular individuals' well-being is affected. This is an important distinction. While this focus on rural development is important and appropriate, it can also be dangerous in that it can lead to an uncritical focus on quantitative economic expansion and Chamber of Commerce boosterism with little regard to local well-being.

That is why we need to use a broad set of measures of rural development. We need measures that move beyond the quantitative growth approach that equates more people, more jobs and a larger dollar volume of business with improved rural well-being. Neither economists nor rural sociologists have always measured rural development well, but for quite different reasons. Economists working on rural development often sound like Chamber of Commerce boosters emphasizing readily available economic aggregate statistics such as employment, income or population growth. Rural sociologists often appear to be working from a static historical reference that has nostalgic overtones and is largely qualitative.

Unfortunately even some of the more sophisticated economic measures of rural well being can be misleading or inadequate. Per capita income, average pay and median family income can all provide distorted measures of local well-being because of geographic differences in the local cost of living and the existence of compensating wage differences tied to the presence or absence of amenities. Economic theory tells us that in high amenity areas we can expect the presence of the amenities to cause some combination of depressed wages and elevated rents (Roback 1982; 1988; Blanchflower and Oswald 1996). We have to be careful about cross-sectional comparisons of poverty rates at the same point in time for the same reason. Unemployment rate differentials can reflect private choices about the pursuit of local qualities rather than regional economic failure.

We may desire both big city wages and rural or small town quality of life or attractive landscapes and low unemployment rates, but labor markets may not work that way! When we are focused on amenity-supported economic development income in kind in the form of those amenities, Whitelaw and Niemi's second paycheck (1989), may be important. That

makes easy measurement of local economic well-being difficult. The distributional impacts of deteriorations in local amenities as well as the distribution of income and employment among different groups of residents can also be important in judging local well-being.

If most of the conventional measures of local economic well-being are flawed, what measures should we use? There is no easy answer to this. In some situations, combinations of various socioeconomic measures can paint a reasonably informative picture. It seems to me that we also need to interview the community, starting with their evaluations in non-monetary terms of what is good and not so good about a particular place. We need to focus not on aggregate statistics based on market outcomes but on concrete statements from people about what is inferior or superior about a place. This is how most good local economic development objectives and strategies are developed but it is not the way we usually approach measuring local economic well-being.

If the focus of our analysis is the impact of amenities on rural development then we must distinguish between impacts that are unique to this type of development from those that would accompany any economic development (such as congestion, newcomers, expansion of residential and commercial building and loss of open space). It does not help us understand the consequences of amenity-supported development when the impacts we are detailing are those that would be associated with almost any type of development. Failing to make this distinction confuses concerns about any growth or change with the unique implications of amenity-supported rural development.

Finally rural amenities may be important to metropolitan and other urban area development not just to rural development. If urban proximity has an important impact on rural areas by providing access to urban amenities and economic opportunities, then it is also likely that urban areas are more attractive places to live because of the amenities in the surrounding rural areas. The breadth of this impact could be quite large given that a substantial fraction of the nation's population lives in metropolitan areas adjacent to recreation or amenity counties. Even on the northern Great Plains, most of the land area lies within commuting distance of a micropolitan or metropolitan area. Many rural counties that are losing population are part of economic regions that have stable populations. One interpretation is that residents are moving closer to urban amenities and employment opportunities while seeking to maintain contact with the amenities associated with the rural landscape. Proximity of metropolitan areas to high amenity rural areas also often has dramatic spillover effects on the rural areas through exurban sprawl and second-home development. Amenity-supported development is a symbiotic one affecting both rural and urban areas.

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6. Out-migration from the Northeast US: the relative roles of economic and amenity differentials

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INTRODUCTION

Population growth in a number of Northeast states and sub-state regions has long been stagnant. While the US population grew by 38 percent since 1970, the Northeast's population (61.57 million) grew only 11 percent over this period. This is consistent with long-term trends. Since 1950 the Northeast's population increased by just 39 percent, while the US has grown by 86 percent. In 1950 the region was home to 36 percent of the US population. By 2000 its share dropped to 22 percent. This has a number of implications, including a threat to future economic activity and the vitality and fiscal resources of certain communities that result from a brain drain of youth coupled with an aging population, as well as the region's loss of seven congressional seats from 1950 to 2000.

One of the most important causes of this relative decline in population is a substantial net out-migration from the region. According to the US Census Bureau (US Department of Commerce 2003) migration data, from 1995 to 2000, 1 840 542 people moved into the region, while 3 124 294 left the Northeast, resulting in a net loss of 1 283 752 people. The region's in-migration rate was 31.1 people per 1000 residents, versus the national state average of 45.7.

Noting the severity of this problem, policy-makers across the region have established policies to reverse the net out-migration. Their efforts have targeted young, college-educated individuals. For example, Pennsylvania has initiated a Stay Invent the Future campaign (<http://stay.inventpa.com/>) which targets recent college graduates from the state. The program touts both amenity and employment opportunities: 'Pennsylvania has the exciting job opportunities you're looking for, with the world-class companies you want to work with, and world-class quality of life. Pennsylvania is the

ideal place to work, play and raise a family, and it is time-now-to Stay, Invent the Future in Pennsylvania’.

Although programs such as Pennsylvania’s initiative acknowledge many of the important factors affecting migration decisions, little is known about the relative importance of the various factors. More specifically it is not known whether migrants look for places with good amenities and then assess employment opportunities in those places, or, if migrants look first and foremost to regions offering ample job opportunities, which may happen to also be places with good amenities. Yet distinguishing the relative importance has profound policy implications, as it can help flesh out the details of the program functions. For example should a program focus on employment internships, or marketing the amenity attributes of a region? The focus here is to inform the specifics of such initiatives by differentiating between the relative importance of employment and amenities in explaining out-migration flows.

In the remainder of this chapter we take a closer look at gross out-migration for Northeast states over the period 1995 to 2000. Specifically we examine the Census Bureau’s county-to-county migration data using a family of econometric models in an attempt to better understand the relative importance of various factors hypothesized to affect household location decisions, particularly amenities and employment opportunities. Overall, we find that out-migration from Northeast counties is driven by employment opportunities, earnings differentials and, especially, amenity differentials. This is an important finding because it provides clues about the relative likelihood of success of alternative strategies for reversing out-migration.

The rest of the chapter proceeds as follows: we next review the migration literature; we then offer descriptive statistics on amenities, earnings and unemployment and employment growth. Next, we develop econometric models to examine gross out-migration for the Northeast counties, each examining the three sets of relative variables as well as several other local characteristics. In the final section we offer preliminary conclusions and directions for future research.

LITERATURE

Regional migration theory is rooted in the random utility framework of microeconomics. The fundamental theory is that households choose to locate in the region that offers the greatest expected level of utility. Utility depends on a variety of factors that can vary significantly across space, including income and employment opportunities, cost of living, amenities

and other regional attributes. Accordingly, in this framework, the household's problem is to choose the location (r) that maximizes its satisfaction subject to the associated prices and income it will face in each potential location:

$$v_r(\mathbf{p}, y; \theta) = \max u_r(\mathbf{x}; \theta) \quad \text{st } \mathbf{p}_r \mathbf{x} = y_r$$

The function $v(\mathbf{p}, y; \theta)$ is an indirect utility function which gives the maximum utility attainable at given local prices (p) for the consumption vector of goods (\mathbf{x}) and income (y) for a household with tastes and preferences characterized by θ .

If a household expects to attain greater utility in a different region or if a household is choosing between its current location and an alternative it will choose to move only if it sees a net improvement in satisfaction. Mathematically, the probability that a household will move to region i from region j is:

$$\Pr(\text{migrate}) = \Pr(E(v_j(\mathbf{p}, y; \theta)) > E(v_k(\mathbf{p}, y; \theta)))$$

where $E(v_r(\mathbf{p}, y; \theta))$ is the expected indirect utility of the household. Given this simple framework, the relevant migration factors are those that affect both what a household can afford to purchase (regional prices and income) and the taste and preference arguments of the household utility function (local natural and cultural amenities, proximity to family).

A number of studies have investigated aggregate regional migration flows focusing on how regional differences in expected income and amenities determine migration behavior. Typically such studies posit that inter-regional migration will be observed as long as households can increase expected satisfaction by moving elsewhere. In terms of amenities, it is expected that migration will continue until regional income differences sufficiently compensate for local amenity differences (Graves 1979; Molho 1995). For example a worker might be willing to move to a job that pays them less than what he or she earns in their current region if the new region offers better climate or other desired amenities (Roback 1982). Such moves would continue until wage differences are equal to how much the household values the additional amenities. Greenwood (1975; 1985; 1997), Goetz (1999) and Cushing and Poot (2004) each give detailed histories of the theoretical and empirical developments in migration theory. Rupasingha and Goetz (2004) provide further extensions to sets of amenities that have not been considered previously.

Empirical Evidence on the Income and Employment Determinants of Migration

There are two important factors that influence the role of expected household income in the migration decision – the expected wage in a region and the probability of receiving that wage (Treyz et al. 1993). Regarding expected wages, migration theory focuses on the role of regional wage differences in an individual's expected earnings. According to the neoclassical model of regional economic growth (Borts and Stein 1964; Smith 1974; 1975), production factors flow to the region that offers greatest return. In terms of labor migration, these flows continue until labor receives real wages – potentially adjusted for regional differences – that are equalized across space. While regional earnings differentials have generally declined over time (Dickie and Gerking 1989), empirical evidence suggests they have not yet fully converged (Carlino and Mills 1996; Eberts and Schweitzer 1994). It is clear that migration has led to a decline in inter-regional wage variations, though the process has been fairly lengthy (Drennan and Lobo 1999).

One difficulty with the early migration studies is that they tended to assume long-term full employment with the only adjustment mechanism being changes in wages until the labor market clears. However it is often the case that labor markets remain both unstable and uncertain. Thus, when investigating expected income it is also important to examine the probability that a household will receive the regional wage. Accordingly, the second component of relative economic opportunity is the probability of getting a job.

Although the basic concept is simple, developing an appropriate measure of the regional likelihood of employment has proven tremendously difficult. As noted by Isserman et al. (1986), information is needed on job vacancies and the number of people seeking jobs (including discouraged workers who would re-enter the job market should a job become available). From an empirical standpoint, these data are not generally available at any level. Because of these difficulties, a number of proxies for opportunity have been used as determinants of migration. These opportunity measures include population (Greenwood and Sweetland 1972), the employment-to-population ratio (Dahlberg and Holmlund 1978), and the number of new hirings (Fields 1976; 1979).

The most prevalent measures of opportunity, though, are employment and employment growth (Bartik 1993; Duffy-Deno 1998; Deller et al. 2001; Muth 1971; Plaut 1982). Muth (1971) provides an early investigation into the importance of job opportunities in explaining net migration. Using data for urban areas in the 1950s, Muth finds that both jobs and

the wages that they pay are important in the household migration decision. Treyz et al. (1993) provide support for the importance of relative regional wage differences and employment opportunities on migration in the US.

When examining the effect of employment on migration it is necessary to also consider local unemployment. Typically, areas with high relative local unemployment offer a lower expected probability of employment, which can lead to lower expected earnings. Thus, regions with high unemployment are unlikely to attract in-migrants, while current residents who are currently unemployed may move elsewhere. Graves (1979) provides evidence that in-migration is minimal in areas with relatively high local unemployment rates.

Empirical Evidence on the Location-specific Determinants of Migration

A second aspect considered in migration studies is the importance of location-specific amenity factors such as climate, recreational opportunities, cultural amenities and public services. The theoretical argument is that amenities provide households with satisfaction unrelated to income and thus may attract new residents (Graves 1979; Graves and Linneman 1979; Muesser and Graves 1995). In this framework the system evolves such that households move into amenity-rich regions, thus increasing the local labor supply. As labor supply increases, local wages are reduced to the point where differences in regional wages are exactly offset by the local amenity differences.

Graves (1979) provides one of the earliest examinations into the importance of climate in household location decisions. Examining net population migration in the 1960s, Graves demonstrates that when income levels and unemployment rates are taken into account certain climatological amenity variables are important. These variables include heating and cooling-degree days, annual temperature variance, relative humidity and wind speed. Other researchers have investigated the importance of local public services on the migration decision. In a survey of migration and the level of local public services Charney (1993) concludes that higher levels of public expenditures on a number of goods serve as an incentive for migration. Of course, higher expenditures could also mean higher taxes, a factor that can discourage household migration.

In sum the theoretical and empirical evidence suggests that expected earnings, regional employment opportunities and amenities influence migration. From this, the basic migration model is:

$$\text{migration} = m(\text{empgrow}, \text{relwage}, \text{relunemp}, \mathbf{A})$$

where *empgrow* is local employment growth, *relwage* is the relative average local wage, *relunemp* is relative local unemployment, and **A** is a vector of location-specific amenities.

CONDITIONAL EXPECTATIONS

As the recent literature suggests, regional scientists continue to struggle with sorting out the relative importance of amenities and employment opportunities in household migration decisions. In this section we provide descriptive analysis of select relative conditions in order to provide an initial investigation into these factors. Specifically, we examine the proportion of movers who migrated to better places, considering several separate regional factors.

Data

The first step is to create a specific data set for each US county. This dataset contains information on a set of amenities, employment growth, unemployment rates and earnings per worker. We then merge this data set with the county-to-county migration data from the 2000 Census, which tracks the number of people moving between 1995 and 2000. We then have several attributes of the origin and destination counties and a count of the number of people who moved from one county in the Northeast states to another county outside of the Northeast states. We derive population estimates at the county level for 1995, the population at-risk for migrating. With this information we are also able to construct out-migration rates. For this chapter the Northeast is defined to consist of Pennsylvania, New York, New Jersey, Maryland, Delaware, Massachusetts, Connecticut, Rhode Island, New Hampshire, Maine, Vermont and West Virginia.

Several indicators of labor market performance are considered. The unemployment rate is for 1995 and is drawn from the Bureau of Labor Statistics Local Area Unemployment Statistics (LAUS) for each county. The employment growth variable is the average of annual percent change in total employment for 1994, 1995 and 1996. The earnings per worker are calculated by dividing total personal earnings by total employment for each county in 1995. The employment and earnings data are drawn from Bureau of Economic Analysis – Regional Economic Information System (BEA-REIS) for US counties.

The natural amenities data are from the Economic Research Service of USDA (McGranahan 1999), which assigns each county a score for six environmental qualities that people are purported to prefer. These variables

include the (1) average January temperature measured over the period from 1941 to 1970; (2) average days of sunshine in January (1941–1970); (3) mean temperature for July (1941–70); (4) mean humidity levels in the summer (1941–1970); (5) the amount of water as a percentage of total county area; and (6) a topographical scale compiled from the National Atlas of the United States of America. In operation, each county is assigned a score for each amenity, which is standardized on a scale of 1 to 7 with a higher score indicating a better amenity. Because they are standardized scores, it is possible to make comparisons across amenities as well as places.

Housing affordability is calculated as the median housing value divided by the median household income for each county in 1989 and it is drawn from the 1990 US Census: the higher the ratio, the less affordable the housing. The recreational service variable is measured using establishment counts of amusement and recreational facilities and museums, zoological and botanical gardens. This is extracted from the County Business Patterns CD for 1995. Political competition is defined as the absolute value of the difference between a county's vote for the Democratic candidate in 1992, and the national vote (Rupasingha and Goetz 2003); a higher value of this variable indicates less local competition among the political parties. For example if 50 percent of a county's 1992 presidential vote was cast in favor of Bill Clinton then its political competition score would be seven, as Clinton won 43 percent of the popular vote in the US (George H.W. Bush won 37 percent and Ross Perot won 18 percent).

The cancer risk variable represents the index of the average individual's added cancer risk per 1000000, which is the individual's estimated additional risk of getting cancer due to lifetime exposure to outdoor hazardous air pollutants in a county. These data are based on Environmental Protection Agency exposure estimates derived from 1990 emissions data (Rupasingha and Goetz 2004). The crime rate is measured as serious crimes per 100000 people, and is drawn from the US Counties CD-ROM for 1995. The student-to-teacher ratio is derived from National Center for Educational Statistics Common Core of Data for each county for school year 1995.

Summary statistics for the relative values of the variables described above are provided in Table 6.1. From this table we see that the average migration rate to another state from a Northeast county was 0.02 percent. For the hypothesized migration factors we look at differences between the origin and destination counties, assuming that households consider relative regional differences when making migration decisions. All relative characteristics are calculated by subtracting the value of the origin county's attribute from the destination county's attribute value. For example, a household moving to a county with a 4 percent unemployment rate from

Table 6.1 Summary statistics for northeast counties as origin counties

Variables	Mean	Std. dev.	Median
Out-migration rate (per 10 000)	2.03	4.37	0.80
Unemployment rate (%) difference	-0.67	3.26	-0.85
Employment growth rate difference	1.87	2.53	1.70
Earnings per worker (\$1000) difference	-3.99	9.13	-3.52
January temperature difference	0.85	1.13	0.85
January sunlight difference	0.69	1.33	0.63
July temperature difference	-0.09	1.26	-0.20
July humidity difference	0.30	1.10	0.07
Land surface typography difference	-0.43	1.41	-0.46
Percent water area difference	-0.36	1.27	-0.36
Housing affordability difference	-0.78	1.91	-0.54
Recreational service difference	-52.67	439.67	-32.00
Political competition difference	0.35	9.21	1.01
Cancer risk difference	7.65	34.41	2.57
Crime rate difference	11.98	29.98	12.40
Student-teacher ratio difference	1.81	4.26	1.50

a county with a 5 percent unemployment rate would have a difference of minus one percentage point.

The destination counties, on average, had lower unemployment rates (-0.67 percentage points), higher three-year average employment growth rates (1.87 percentage points), better natural amenities in terms of January temperature, January sunlight and July humidity, and better housing affordability (a lower ratio of housing value to household income). However, the destination counties, on average, also had lower average earnings per worker (an average of -\$3990), less natural amenities in terms of July temperature, land surface typography, and percent water area, lower recreational services, less political competition, as well as a higher cancer risk, crime rate and student-to-teacher ratio (classroom size). Overall these results provide mixed support for the theoretical model when examined individually. While factors such as employment growth, unemployment rates and warmer winters appear important destination characteristics, the overall means of other hypothesized factors such as wages and cancer and crime risks run counter to the hypotheses.

Conditional Means

Rather than look at overall means it is more informative to study the means weighted by the number of migrants. The next step is to examine the

proportion of members of the population who improve their lot with respect to each of the hypothesized factors. Specifically we examine the frequency of the two possible outcomes:

$$\text{IMPROVE}_{i,j} = 1 \quad \text{if } \text{CONDITION}_i > \text{CONDITION}_j; \text{ else} \\ \text{IMPROVE}_{i,j} = 0$$

Here, *CONDITION* refers to characteristics of the destination county *i* and origin *j*. The variable *IMPROVE* takes on a value of one if the destination county is better than the origin county with respect to a particular indicator. For example, if a destination county has a higher level of amenities than the origin county, then the move is said to be improving.

In the third step we sum the number of people who make an improving move and divide it by the total number of people who move to determine the proportion of the population that potentially sought and obtained a particular attribute.

For the *CONDITION* variable we consider the following attributes: unemployment rate, recent employment growth, earnings per worker, natural amenities, housing affordability, recreational services, political competition, cancer risk, crime rate and student-to-teacher ratio. The results for the share of out-migrants from the Northeast who make improving moves support the hypothesis that regional differences matter (Table 6.2).

Table 6.2 Percent of northeast out-migrants making improving moves, by migration factor

	Percent
Unemployment rate	63.37
Employment growth rate	78.66
Earnings per worker	32.65
January temperature	74.51
January sunlight	69.25
July temperature	39.85
July humidity	50.96
Land surface typography	31.23
Percent water area	38.01
Housing affordability	71.45
Recreational services	36.21
Political competition	45.32
Cancer risk	43.14
Crime rate	34.08
Student-teacher ratio	29.00

Turning first to amenities, the percentage of migrants making amenity improving moves ranges from 31 to 75 percent. The January temperature means appear to be stronger attractors than either the summer climate or natural amenity variables. Seventy-five percent of regional out-migrants moved to places with a higher average January temperature and 69 percent moved to a place with more January sunlight. This is consistent with the general sunbelt migration trends that the country has been undergoing for the past 30 years.

Of all out-migrants, 79 percent moved into labor markets with faster employment growth and 63 percent moved into labor markets with lower unemployment rates. Consistent with the results in Table 6.1, only 33 percent made earnings-improving moves; a finding which could reflect movements from high cost of living areas to low cost of living areas. Greater housing affordability (71.5 percent) also is an important factor, while fewer than 44 percent of movers went to places with lower cancer risks. Overall we find preliminary evidence that people leaving the Northeast states were responding in a manner that was fairly consistent with the hypotheses.

Econometric models

In this section we return to the theoretical migration framework described above, and present an econometric model of gross out-migration rates for Northeast states. Our individual level model is implemented at the county level, adopting the common assumption that the empirical model captures the representative household in the theoretical model. The dependent variable is defined as the county-to-county flow of out-migrants between 1995 and 2000 per 10 000 people in a county. For example, the data show that 65 people moved from Schuylkill County, Pennsylvania to Los Angeles County between 1995 and 2000. The 1995 population of Schuylkill County was approximately 151 000. The dependent variable here takes the value 0.043 (= 65/1510). Based on this definition, the minimum possible value of the dependent variable is 0, which signifies that no individual moved between the corresponding county pairs (at least in one direction). For most of the independent variables of the model, we look at the difference between the various indicators in the destination county minus those in the origin county. We model the following (with Δ denoting the simple difference):

1. Migration rates $_{i,j} = f(\Delta$ unemployment rates $_{i,j}, \Delta$ employment growth rate $_{i,j}, \Delta$ earnings per worker $_{i,j}, \Delta$ natural amenities $_{i,j}, \Delta$ housing affordability $_{i,j}, \Delta$ recreational service $_{i,j}, \Delta$ political competition $_{i,j})$

Δ cancer risk $_{i,j}$, Δ crime rate $_{i,j}$, Δ student teacher ratio $_{i,j}$, distance $_{i,j}$, residence $_i$, residence $_j$).

Most measures capture the differences between a particular indicator in the destination county and the origin county. In addition to the above described variables, four rural dummy variables (residence) are included to control for urbanization and adjacency to metropolitan areas. Specifically, we control for rural counties (1) adjacent to metro counties and (2) not adjacent to metro counties, considering both the origin and the destination county. These variables are derived from the 1993 rural–urban continuum code (Beale code) from the Economic Research Service.

For the total Northeast out-migration equation (1) we examine all instances where a positive county-to-county out-migration flow is observed (migration rates $_{i,j} > 0$). For the Northeast, this criterion yields 57 731 observations. This restricted model is specified as:

$$y_{i,j} = X'_{i,j}\beta_0 + \varepsilon_{i,j}, \quad \varepsilon_{i,j}|X_{i,j} \sim N(0, \sigma_0^2)$$

2. where

$$y_{i,j} > 0$$

We use two separate estimation techniques for (2). The first is an Ordinary Least Squares (OLS) regression. However, because the regression is truncated, OLS can yield inefficient parameter estimates. Instead, a truncated regression via a maximum likelihood estimator may be the appropriate method.

Results of these estimations are provided in Table 6.3. Overall, there is very little difference in the parameter estimates under OLS and the truncated model, so we focus our discussion only on the truncated model results. Because of the large sample size, it is not surprising that most variables are statistically significant at the one percent level.

In order to sort out the relative importance of the variables we refer to the standardized (or beta) coefficients. In practice a beta coefficient is sometimes used to compare the relative strength of the various predictors within the model. Because they are measured in standard deviations instead of the units of the variables they can be compared to one another. Beta coefficients would be obtained if the outcome and predictor variables were all transformed to standard scores before estimating the regression.

Because the specified empirical model is quite comprehensive, we discuss only select findings. Turning first to amenities, one of the largest amenity effects on county-to-county out migration flows, *ceteris paribus*, is the

Table 6.3 Out-migration estimation results for the northeast counties

Variable	OLS		Truncated	
	Coeff.	Beta coeff.	Coeff.	Beta coeff.
Intercept	2.274***	0	2.272***	0.000
Unemployment rate difference	-0.078***	-0.060	-0.076***	-0.058
Employment growth rate difference	-0.0002	-0.0001	-0.0004	-0.0002
Earnings per worker difference	0.024***	0.045	0.032***	0.061
January temperature difference	0.551***	0.150	0.551***	0.150
January sunlight difference	0.278***	0.089	0.278***	0.089
July temperature difference	0.303***	0.091	0.305***	0.091
July humidity difference	0.517***	0.135	0.517***	0.135
Land surface typography difference	0.042***	0.014	0.044*	0.015
Percent water area difference	0.084***	0.025	0.083***	0.024
Housing affordability difference	-0.150***	-0.046	-0.149***	-0.046
Recreational service difference	0.001***	0.125	0.002***	0.191
Political competition difference	-0.003	-0.005	-0.003	-0.006
Cancer risk difference	-0.021**	-0.172	-0.026***	-0.208
Crime rate difference	0.005***	0.036	0.008***	0.054
Student-teacher ratio difference	0.027***	0.027	0.027***	0.027
Distance	-0.001***	-0.182	-0.002***	-0.324
Origin county, rural adjacent to metropolitan county	0.869***	0.075	0.868***	0.075
Origin county, rural not adjacent to metropolitan county	1.404***	0.102	1.404***	0.102
Destination county, rural, adjacent to metropolitan county	-0.224***	-0.021	-0.224***	-0.021

Table 6.3 (continued)

Variable	OLS		Truncated	
	Coeff.	Beta coeff.	Coeff.	Beta coeff.
Destination county, rural, not adjacent to metropolitan county	0.272***	0.023	0.273***	0.023
Adj- R^2	0.176			
LogL			-126 224	
Number of observations	57 731		57 731	

Note: * $p < .1$, ** $p < .05$, *** $p < .01$

average January temperature difference. A one standard deviation increase in the January temperature amenity score leads to a 0.150 standard deviation increase in predicted net out-migration rates with the other variables held constant. A one standard deviation increase in the July humidity difference leads to a 0.135 standard deviation increase in predicted net out-migration rates. Overall, these findings are consistent with climate-based differentials being important factors in explaining out-migration.

Recreational service opportunities are another important amenity difference. A one standard deviation increase in the difference in the number of available recreational services leads to a 0.191 standard deviation increase in predicted net out-migration rates, *ceteris paribus*. This suggests that recreational service differences are an important pull factor.

Turning to the economic variables we find mixed support for the hypotheses. Our important findings are that while unemployment rate and earnings per worker differences are important attractors to out-migrants, the employment growth rate difference is not statistically significant. A one standard deviation increase in the unemployment rate difference leads to a 0.058 standard deviation decrease in predicted net out-migration rates, with the other variables held constant. This suggests that households find relative unemployment rates to be important economic indicators in migration decisions. Also important is the difference in earnings per worker. A one standard deviation increase in this difference leads to a 0.061 standard deviation increase in predicted net out-migration rates. This suggests that households are attracted to places with higher average wages.

Perhaps our most surprising finding is the lack of statistical significance of the employment growth difference effects on out-migration. Taken with

the other economic findings we conclude that migrants pay more attention to unemployment and earnings differences between regions than they do to employment growth. This suggests that migrants are not necessarily attracted to rapidly-growing economies so much as they are to good earnings opportunities and those that offer expected stability in employment. This has important policy implications: when policy-makers try to stem out-migration they should focus less on high job growth and more on avoiding substantial job losses and offering well-paying jobs.

The final results to comment on are spatial aspects. First, our results suggest that out-migrants from the region tend to move to nearby counties. This suggests that migrants are likely to first consider nearby areas. Two plausible explanations are that out-migrants try to minimize the psychological costs of moving by remaining proximate to their origin county. This would indicate that push factors are potentially important. The second result is that adjacency seems to be an important destination characteristic. Residents living in rural counties (both adjacent and not adjacent to metro areas) are less mobile compared to their urban counterparts.

There are two other notable sets of results. First, recognizing that there are potential interactions among key independent variables we also include a number of variables that are the product of the individual amenity measures and the earnings per worker and unemployment rate difference variables in order to control for joint effects of these factors. Overall, we find that nearly all of the interaction terms are statistically different than zero, suggesting that there are important interdependencies. Evaluating these interactions at the means of the independent variables provides little impact on the overall marginal effects shown in the OLS model of Table 6.3. We choose not to report these results as it is generally not recommended to run standardized regression models with interaction terms, thus we are unable to compare the relative magnitudes of the parameter estimates in this larger model.

CONCLUSIONS

Our out-migration results support a number of conclusions. First, our findings suggest that winter climate variables such as sunlight and temperature are relatively more important amenity variables than either the summer, topographic or water variables. This is consistent with the overall US domestic elderly migration patterns – first to Florida and more recently to other southern coastal states.

Of course climate is outside the realm of factors influenced by policy-makers. Our results do suggest that differences in the availability of

recreation services also matters with respect to out-migration. Efforts to stem population loss can include the development of non-climate-based recreational amenities. Furthermore, we find that lower student-to-teacher ratios lead to lower out-migration flows, all other things equal, suggesting that high quality public services can be an important means of retaining population.

The results from the economic variables are also informative. Out-migrants from the Northeast are not so much drawn to regions with relatively faster job growth as they are to places with relatively lower unemployment rates and higher earnings. This suggests that it is not so much employment growth as employment stability and higher income opportunities that influence county-to-county flows. In essence, people are either pushed out of a region by a bad economy or attracted to higher pay. People do not appear to be strongly attracted to job growth per se. It is important to note, however, that there are differences in the findings on economic variables at the state-level. Here, we find several instances where unemployment rate differences do not matter, whereas employment growth rate differences are often statistically significant. Further work needs to be done to clarify the exact nature of the labor market effects.

Finally, we find that distance matters at both the regional and state level, with people tending to not move far when all other things are equal. This indicates a relative importance of psychological costs in the migration decision, with individuals seemingly expressing a desire to stay near their origin county.

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7. Amenities and change in the well-being of nonmetropolitan localities

W. Richard Goe and Gary Paul Green

INTRODUCTION

A growing body of recent research has linked the presence of amenities in nonmetropolitan localities to changes in migration patterns and business location (Beale and Johnson 1998; Goe et al. 2003; Gottlieb 1994; McGranahan 1999). Overall the findings from this body of research suggest that nonmetropolitan localities that possess high levels of amenities have enjoyed an increase in their well-being. An examination of this literature, however, indicates that there has been little consistency in how the concept of amenities has been defined and operationalized in empirical research. There is a need for a more comprehensive theoretical specification of the processes by which amenities may exert causal influence on the process of rural development. The purpose of this chapter is to move toward this goal by: (a) providing a more comprehensive analysis of the concept of amenities, and (b) investigating how different types of amenities are related to changes in the well-being of nonmetropolitan US localities in the 1980 to 2000 period.

Defining Amenities

There is some ambiguity as to the definition of amenities. The concept has been used to refer to the climatic conditions found in nonmetropolitan areas (McGranahan 1999). It has also been used to refer to the available stock of natural resources such as forests, mountains, hills, lakes and rivers (English et al. 2000). Finally the concept of amenities has also been used to refer to the availability of opportunities for recreational activity (Beale and Johnson 1998). We define amenities as qualities of a locality that make it an attractive place to live and work. Amenities provide benefits (or in economic terms, utility or use value) to people through the direct consumption

of specific aspects of land, natural resources and human activity. Amenities include wildlife and flora, recreational areas, cultivated landscapes, unique settlement patterns, historic sites, and social and cultural traditions, among other aspects.

Power (1988) contends that amenities are nonmarketed qualities of a locality. Qualities such as climatic conditions and the local stock of natural resources (for example, presence of mountains and rivers) are not necessarily allocated through markets. Such non marketed qualities can be viewed as components of the landscape of a locality. We contend that a definition of amenities must include marketed qualities of a locality as well. Access to recreational activities, historical sites and areas containing natural resources is frequently allocated through markets. A local landscape rich in nonmarketed amenities can allow for the development of marketed forms such as recreational services, historical sites and cultural attractions. This represents one important way in which amenities can contribute to the development of nonmetropolitan localities and communities by promoting business formation, job growth and inducing income from tourism. In addition, amenities can promote unrelated forms of economic development. For example, an attractive landscape can induce investment in new housing developments, shopping centers and office complexes.

Defining Locality Well-being

A locality is defined as a spatially bound system of social relationships within which households and their constituent members engage in work and other activities in order to meet their material living needs (Bradley and Lowe 1984; Jonas 1988). A locality is a geographic territory that encompasses a local labor market, residential spaces, business spaces and other essential institutions, within which a local population meets its material living needs. It could encompass one or more communities (here defined as a geo-political settlement) and their surrounding trade areas.

We define locality well-being as based upon the extent of access, and level of equity in access, to key societal resources required for a locality to provide for the material living needs of human beings. The first dimension of this construct – extent of access – refers to the stock of key societal resources held by a locality that may be applied to meeting material living needs. This dimension is hereafter referred to as the absolute dimension of locality well-being.

In societies organized on the basis of a capitalist market economy such as the United States, the material living needs for the population are predominantly met through formal employment in a labor market in exchange for wages and other forms of income. The earned income allows

population members to meet sustenance needs and other wants and desires through procuring goods and services through markets. Key resources affecting locality well-being include the local stock of jobs and income. In addition to these economic resources, the competitive status of a locality within the context of a market economy would be dependent upon the stock of persons required to innovate, staff, form, maintain, and expand local business enterprises and other institutions focused on meeting living needs.

The second dimension of locality well-being – level of equity in access – refers to extent to which the stock of local economic resources is equitably distributed among households within the locality. This second dimension is hereafter referred to as the relative dimension of locality well-being. Households are used as the social unit of reference because they represent the primary unit under which the process of meeting material living needs is organized within a locality. Localities in which the local stock of resources is more equitably distributed among households would have higher levels of well-being. Based on the logic presented, localities that possess a larger stock of societal resources with economic resources being more equitably distributed among households would have the highest levels of locality well-being.

Amenities and Change in Locality Well-being

Amenities possessed by a nonmetropolitan locality have the potential to promote change in the well-being of nonmetropolitan localities. This is accomplished through influencing the pattern of local economic development and by engendering desirable lifestyles and experiences for residents and tourists. The possession of an attractive stock of amenities has the capacity to promote the expansion of the population within a nonmetropolitan locality, both permanently and/or on a temporary basis. Such amenities can serve as an important pull factor inducing the in-migration of permanent or seasonal residents into a locality where they can enjoy the lifestyles and experiences that the amenities permit. In support of this proposition, Beale and Johnson (1998) and McGranahan (1999) found that nonmetropolitan counties that possessed higher levels of amenities had higher rates of in-migration and population growth. English et al. (2000) found higher levels of amenities in counties with high levels of tourism.

The stock of amenities possessed by a nonmetropolitan locality and the population growth associated with it, can influence the pattern of economic development within a nonmetropolitan locality (Deller et al. 2001). The presence of a particular stock of amenities may influence investment in infrastructure (for example, ski areas) and business start-ups (for example,

whitewater rafting services) that allows the population to engage in recreational activities and/or interface with the local amenity base. The amenity base also may serve as a backdrop, or part of the local landscape, which induces and enhances investment (local or exogenous in origin) in other types of business or commercial endeavors (such as housing developments, shopping complexes and commercial buildings). Such investment can create new jobs within the locality. In support of this logic, McGranahan (1999) found employment growth to be higher in nonmetropolitan counties with high levels of amenities.

It has been proposed that amenities are an important factor influencing the location of business firms, particularly in industries with a highly skilled, and mobile workforce such as professional services, finance and high technology (Gottlieb 1994). Business owners seek to locate firms from these industries in amenity-rich areas because of the lifestyles and leisure experiences they allow the business owners, managers and employees to enjoy.

With amenity-related growth of the local population, tourism and the number of businesses and jobs in the local economy, the income base within the locality expands as well. The interaction and reinforcement of these factors increases the absolute well-being of the locality. Simultaneously, the nature of the income stream brought into the locality by new in-migrants, and the characteristics and wage rates of the new jobs being created can have important effects on inequality and the relative well-being of the locality. In-migration of large numbers of wealthy residents into a locality with little previous wealth, combined with the creation of large numbers of low-wage jobs, could serve to increase inequality and reduce relative well-being. Alternatively in-migration of new residents with similar incomes to existing residents combined with the creation of large numbers of higher-paying jobs, may serve to reduce inequality and increase relative well-being.

We now turn to an empirical analysis of the relationship between the changes in the well-being of nonmetropolitan localities that took place during the 1980–2000 period and the presence of different types of amenities.

DATA AND RESEARCH METHODS

To examine the relationship between the presence of amenities and change in the well-being of nonmetropolitan localities, a panel data set was constructed for the 1980–2000 period from multiple data sources. This time period was selected because (a) it was a period in which the well-being of nonmetropolitan localities in the US tended to increase, (b) it encompasses two long-term expansions in the US economy, and (c) it corresponds

to scarce, available data on the presence of amenities in the nonmetropolitan US.

An Operational Definition of Locality

Identifying an empirical referent for the theoretical concept of locality poses a difficult problem for social science research. The territory of localities may not match the geographic spaces for which social science data are commonly collected. Given that a labor market represents a central institution of a locality we have conceptually defined, the commuter zone geography delineated by Tolbert and Sizer (1996) was used to approximate localities in nonmetropolitan America. Using data drawn from the 1990 Census of Population and Housing that measures the location where residents of a county commute to work, Tolbert and Sizer (1996) delimited 394 labor market areas in the United States. A labor market area consists of a set of counties that (a) are interdependent as a result of having strong commuting ties among residents, and (b) have a minimum population of 100 000 persons.

Contained within each group of counties comprising a labor market area are subsets of counties entitled commuter zones. The subset of counties comprising a commuter zone exhibited strong interdependence in terms of the commuting patterns of residents, but had less than 100 000 in combined population. A comparison of commuter zones versus labor market areas for the nonmetropolitan US indicated that the size of the geographic space of many labor market areas was much too large to be considered a reasonable approximation for the space in which a labor market would function. This was likely the result of having to meet the criterion of 100 000 in combined population. Given their smaller geographic size, commuter zones were deemed to represent a better approximation of the geography of labor markets in the nonmetropolitan US. Due to changes in county definitions and the lack of available data, nonmetropolitan commuter zones in Alaska and Hawaii had to be eliminated from the analysis. The study population consists of the 466 nonmetropolitan commuting zones in the continental US.

Operationalization and Measurement of Locality Well-being

The absolute dimension of locality well-being was measured through the development of an index comprised of three indicators of the key economic and human resources (a) total employment, (b) aggregate income (in constant 1999 dollars), and (c) total population. Data for these three indicators were collected for the years 1980 and 2000 for all 466 nonmetropolitan

commuter zones in the continental US. These data were collected from the Census of Population and Housing (US Department of Commerce, Bureau of the Census 1983; 2003).

The relative dimension of locality well-being was measured through the development of a statistical index that was comprised of four indicators (a) the percent of households with incomes that were less than or equal to one half of the average household income within a locality (the half-share coefficient), (b) the percent of households with incomes that were less than or equal to the average household income within a locality (the equal-share coefficient), (c) the percent of households with incomes that were greater than or equal to twice the average household income in the commuter zone (the double-share coefficient) and (d) the percent of households with incomes below the poverty threshold. The data for these four indicators were also collected for the years 1980 and 2000 for all 466 nonmetropolitan commuter zones in the continental US from the Census of Population and Housing (US Department of Commerce, Bureau of the Census 1983; 2003).

The dimensionality of these indicators as measures of the two dimensions of locality well-being was tested with factor analysis using a principal components method of extraction. The reliability of each index was tested through correlational analysis and the computation of Chronbach's alpha. Results of the confirmatory factor analysis supported the two-dimensional measurement model of the locality well-being construct. Both indices were found to have a high degree of reliability for the years each index was measured.

Operationalization and Measurement of Amenities

Key amenities of nonmetropolitan localities include natural resources, outdoor recreational opportunities and cultural/historical attributes. In effort to measure these types of amenities, data were collected from the National Outdoor Recreation Supply Information System (NORSIS) compiled by the Forest Service of the US Department of Agriculture. NORSIS is a county-level database that contains a wide range of indicators measuring outdoor recreational facilities, natural resources and cultural/historical attractions. The majority of the variables in this database were measured during the mid-1980s to the early 1990s (Betz 1997). NORSIS data were first extracted for all nonmetropolitan counties in the US. These data were then aggregated into the 466 nonmetropolitan commuter zones (Tolbert and Sizer 1996) as approximations of all nonmetropolitan localities in the continental US. Statistical indices were then constructed to measure the extent to which different types of amenities were present in these nonmetropolitan localities.

The NORSIS data indicated that a wide range of natural resources are present in the nonmetropolitan US. It was reasoned that in order to be considered an amenity, the natural resources present within a nonmetropolitan locality must somehow contribute toward providing an appealing visual landscape or climate for residents and tourists. Natural resources fulfilling this role could be either land-based, such as mountains or forests; or, they could be water-based, such as rivers, lakes or oceans. An index of land-based, natural resource amenities was constructed from the following indicators: (a) acres of mountains, (b) acres of forest and grassland managed by the US Department of Agriculture-Forest Service, (c) acres of federal land managed by the National Park Service and (d) total acreage under the National Wilderness Preservation System.

Analysis of the NORSIS data indicated that the spatial patterning of the different types of water-based natural resource amenities was not highly correlated across nonmetropolitan localities. This resulted in the delineation of three categories of amenities. The first type was river-based natural resource amenities. An index measuring the presence of this type of water-based natural resource amenity was constructed from the following indicators: (a) total river miles, (b) river miles with recreational value, (c) river miles with scenic value and (d) river miles with wildlife value. The second type of water-based amenity was lake-based natural resource amenities. An index measuring the presence of this type of water-based amenities was constructed from the following indicators: (a) acres of water bodies in lakes greater than or equal to 40 acres in size, (b) acres of lakes and streams and (c) acres designated as primary or secondary use in water-based recreation. The third type of water-based amenity was ocean-based natural resource amenities. Unfortunately, the NORSIS database did not include measures of land or natural resource features that were unique to the beaches or coastlines of oceans. Based upon the data that were available a binary variable was created that measured whether or not a nonmetropolitan locality had at least one county that abutted the ocean coast.

Seasonal climate is an important factor influencing the types of outdoor recreational activities that can be found within a nonmetropolitan locality. Many forms of outdoor recreation are predominantly conducted in warm weather (as is golf), while other recreational activities are predominantly conducted in cold weather (as is snow skiing). The concept of recreational amenities refers to the infrastructure and services that permit outdoor recreational activities to be conducted. An index of warm weather outdoor recreational amenities was constructed from the following set of indicators: (a) number of parks and recreation departments, (b) number of local, county, or regional parks, (c) number of amusement places, (d) number of

public and private golf courses, (e) number of riding academies and stables and (f) number of organized camps.

A second index of cold weather outdoor recreational amenities was constructed from the following set of indicators: (a) number of skiing centers/resorts, (b) number of cross-country skiing firms, (c) number of downhill skiing areas and (d) lift capacity per hour.

Any aspect of the historical legacy or culture of a nonmetropolitan locality could be considered an amenity if it results in the development of a facility, service, or some form of infrastructure for the purposes of educating and/or entertaining local residents and tourists. An index of historical/cultural amenities was constructed from the following indicators: (a) number of historic/cultural tourist attractions, (b) number of amusement/entertainment tourist attractions and (c) number of natural resource tourist attractions.

The dimensionality of each index was tested through factor analysis using the principal components method of extraction. While this procedure assumes that variables are normally distributed, the distributions of the amenities comprising each index were found to be highly skewed across the geography of the nonmetropolitan continental US. Therefore, prior to conducting the factor analysis, power transformations were used to correct the asymmetries in the distributions of the variables comprising each index (Fox 1997). Given the differences in measurement scales used in measuring the amenity indicators, the variables comprising each index were then standardized into z scores, multiplied by their factor loadings, and summed to form an index score.

Other factors that were deemed likely to influence change in the well-being of nonmetropolitan localities included the structural attributes of the local labor market, the composition of households, the educational attributes of the labor force and the spatial context of the locality. Indicators of the structure of the local labor market that were utilized included measures of the sectoral distribution of employment during the study period. These included the percentage of total employment in a nonmetropolitan locality accounted for by: (a) construction, (b) non-durable manufacturing, (c) durable manufacturing, (d) transportation, (e) wholesale trade, (f) retail trade (except eating and drinking places), (g) eating and drinking places, (h) repair services, (i) entertainment and recreation services, (j) health care, (k) educational services, (l) social services, (m) producer services and (n) government.

In addition we included the percentage of total employment accounted for workers employed on a temporary basis. A worker was considered employed on a temporary basis if he/she worked less than 40 weeks during the previous year. The percentage of the working age population (18 to 65 years of age) that held a college degree or had engaged in graduate work of

some type was used as an indicator of the educational attributes of the local labor force. Three indicators of household composition were used. These included the percentage of households headed by females, the percentage of households headed by elderly persons (65 years of age or older), and the percentage of households headed by persons who were minorities. Spatial context was measured by a binary variable indicating whether or not a nonmetropolitan locality had at least one county that was adjacent to a metropolitan area.

RESEARCH FINDINGS

The locality surrounding Fredericksburg, Virginia experienced the largest increase in absolute well-being over the 1980 to 2000 period. Located in northern Virginia approximately half way between Washington, DC and Richmond this locality consists of the City of Fredericksburg and the four county areas of Stafford, King George, Spottsylvania, and Caroline counties. During the 1980 to 2000 period, the total population within the Fredericksburg locality increased by 122 370 persons, total employment increased by 69 367 jobs and real aggregate income increased by an estimated \$4.1 billion.

Over the course of the 1980 to 2000 period relative well-being increased and inequality tended to decline within nonmetropolitan localities. Income inequality and the poverty rate declined. It is important to note that these data do not address changes in inequality between nonmetropolitan localities. They indicate that the central tendency was for inequality to decline within nonmetropolitan localities. Overall, 442 (94.8 percent) of the 466 nonmetropolitan localities experienced a decline in inequality over the 1980 to 2000 period while only 24 (5.2 percent) experienced an increase. This finding may be due to the fact that nonmetropolitan areas had fewer good jobs to lose during this period of restructuring, and that the new jobs that were created provided wages that were higher than those that were lost.

The commuter zone surrounding Lake Providence, Louisiana had the largest decline in inequality among all nonmetropolitan localities in the US over the 1980 to 2000 period (Table 7.1). Located in the northeast corner of Louisiana, this two-county area consists of East Carroll Parish and West Carroll Parish. During the 1980 to 2000 period the percentage of households with incomes less than or equal to one half of the average household income declined by 7.3 percent, households with incomes less than or equal to the average household income declined by 2.9 percent and households with incomes greater than or equal to twice the average income increased by 11.7 percent. Finally, households with incomes below the poverty

Table 7.1 Amenities present in nonmetropolitan commuter zones with the highest scores on each amenity index

Index	Largest city within commuter zone with highest score	Actual amenities present
Land-based natural resource	Altamont, OR	Cascade Mountains; Fremont, Winema, Deschutes, Modoc, Klamath, Shasta, and Lassen National Forests; Crater Lake National Park, Clear Lake National Wildlife Refuge; Lassen Volcanic National Park; Lava Beds National Monument
River-based natural resources	Flagstaff, AZ	Colorado River (Grand Canyon National Park); Prospect, Kanab, Havasu, Little Colorado, Paria, Kaibito and Navajo rivers
Lake-based natural resources	Washington, NC	Pamlico Sound, Albemarle Sound, Lake Phelps, Alligator Lake, Lake Mattamuskeet
Warm weather, outdoor recreation	Claremont, NH	Numerous recreational camps, golf courses, horseback riding academies and stables
Cold weather, outdoor recreation	Glenwood Springs, CO	Vail, Breckenridge, Copper Mountain, Aspen, Keystone and Beaver Creek ski resorts
Historical/cultural amenities	Vicksburg, MS	Vicksburg National Military Park, Old Court House Museum, Cairo Museum, numerous historic homes

threshold declined by 11.5 percent. In Table 7.1 we report the localities with the highest values for each type of amenity.

The results of the linear panel analysis for change in the absolute well-being index over the 1980 to 2000 period are presented in Table 7.2. The results for the panel model including only the seven amenity variables are listed under Model 1. This model fits the data with a strong goodness-of-fit (F statistic significant at the .001 level, adjusted R^2 is .679). The level of warm weather, outdoor recreation amenities was found to be positively related to the growth in absolute well-being that occurred during the 1980 to 2000 period among nonmetropolitan localities. A positive relationship was also found for the level of historical/cultural amenities. The other amenities were not related to change in the absolute dimension of locality well-being. Growth in population, employment and constant aggregate income tended to take place in nonmetropolitan localities that had high levels of warm weather, outdoor recreation and historical/cultural amenities. Warm weather and outdoor recreation amenities were found to have the strongest effect on change in absolute well-being.

The introduction of the control variables did not change the effects of these amenity variables (see Model 2 in Table 7.2). The effects for both variables diminished in magnitude, particularly that of historical/cultural amenities. Although the introduction of the control variables into the model also changed the magnitude of the effects of several of the other amenity variables, none were found to be significant as a result of statistical suppression. The addition of the control variables modestly increased the goodness-of-fit of the panel model (adjusted R^2 increased from .679 to .760). Out of the control variables, the percentage of 1990 employment in nondurable manufacturing, durable manufacturing, producer services, and government were found to be positively related to growth in absolute well-being over the 1980 to 2000 period. The percentage of 1990 employment in social services, and the percentage of households in 1990 headed by elderly persons were both found to be negatively related to change in absolute well-being. Location adjacent to a metropolitan area was found to be positively related to change in absolute well-being.

The results of the linear panel analysis for change in the relative well-being index over the 1980 to 2000 period are presented in Table 7.3. Again, the results for the panel model including only the seven amenity variables are listed under Model 1. This model fits the data with a relatively weak goodness-of-fit (F statistic significant at .001 level, adjusted R^2 is .162). The level of land-based, natural resource amenities was found to be positively associated with the change in scores on the relative well-being index over the 1980 to 2000 period. A positive relationship indicates that nonmetropolitan localities with high levels of land-based natural resource amenities tended

Table 7.2 Ordinary least squares estimates from regression of change in the absolute well-being index, 1980–2000, on amenity and control variables

	Model 1	Model 2
Independent variables	b/S.E.	b/S.E.
Index of land-based natural resources amenities	0.0638 (0.1475)	0.1027 (0.1544)
Index of river-based natural resources amenities	0.0894 (0.0582)	0.0637 (0.0553)
Index of lake-based natural resources amenities (sqrt)	0.0067 (0.0068)	0.0111 (0.0065)
Locality abuts ocean coast	3.8375 (3.7862)	-0.2627 (3.7785)
Index of warm weather outdoor recreation amenities	17.4801*** (0.7653)	15.0301*** (0.9489)
Index of cold weather outdoor recreation amenities (log)	-5.7899 (3.1187)	-1.4781 (3.0417)
Index of historical/cultural amenities (log)	25.2947* (9.9795)	18.7578* (9.1544)
Control variables:		
Percent total employment in construction, 1990 (log)	-	1.5742 (4.6238)
Percent total employment in nondurable manufacturing, 1990	-	0.5885** (0.1949)
Percent total employment in durable manufacturing, 1990	-	0.3698* (0.1488)
Percent total employment in transportation, 1990 (log)	-	-11.0072 (5.9485)
Percent total employment in wholesale trade, 1990	-	0.9770 (0.7702)
Percent total employment in retail trade, 1990	-	-0.7343 (0.4882)
Percent total employment in eating and drinking places, 1990	-	0.2006 (0.7007)
Percent total employment in repair services, 1990 (log)	-	-4.6406 (8.0438)
Percent total employment in entertainment and recreation services, 1990 (log)	-	-10.8976 (8.1298)
Percent total employment in health care, 1990	-	0.1992 (0.4102)
Percent total employment in educational services, 1990 (log)	-	-7.6897 (8.1242)

Table 7.2 (continued)

	Model 1	Model 2
Percent total employment in social services, 1990	–	–4.1248*** (0.9316)
Percent total employment in producer services, 1990	–	1.6479** (0.6019)
Percent total employment in government, 1990 (log)	–	12.6614* (5.8748)
Percent total employment in temporary jobs, 1990	–	–0.2437 (0.3448)
Percent working age population with college degree, 1990	–	0.4750 (0.2623)
Percent households headed by females, 1990	–	–0.4296 (0.2729)
Percent households headed by elderly persons, 1990	–	–0.4011* (0.1727)
Percent households headed by minorities, 1990	–	0.1781 (0.0999)
Locality adjacent to metro. area, 1993	–	3.0154* (1.5069)
Intercept	134.8963***	152.8195***
F statistic for model	141.47***	51.44***
Adjusted R ²	0.679	0.760

Note: *** $p < .001$, ** $p < .01$, * $p < .05$.

to experience an increase in inequality over the 1980 to 2000 period. The level of lake-based natural resource amenities was negatively associated with change in relative well-being over the 1980 to 2000 period. Nonmetropolitan localities with high levels of lake-based, natural resource amenities tended to experience declines in inequality over the 1980 to 2000 period.

The level of river-based natural resource amenities, location on the ocean coast, warm weather outdoor recreation amenities, cold weather outdoor recreational amenities and historical/cultural amenities were not found to have a relationship with change on the relative dimension of locality well-being during the study period. The level of land-based natural resource amenities was found to have the strongest effect on change in relative well-being during 1980 to 2000.

The introduction of the control variables into the linear panel model changed the relationships between the two significant amenity variables and change in relative well-being. The effect of land-based natural resource amenities was substantially diminished in magnitude but remained positive

Table 7.3 Ordinary least squares estimates from regression of change in the relative well-being index, 1980–2000, on amenity and control variables

	Model 1	Model 2
Independent variables	b/S.E.	b/S.E.
Index of land-based natural resources amenities	0.4250*** (0.0537)	0.2786*** (0.0570)
Index of river-based natural resources amenities	-0.0376 (0.0212)	-0.0358 (0.0204)
Index of lake-based natural resources amenities	-0.0054* (0.0025)	-0.0043 (0.0024)
Locality abuts ocean coast	1.2432 (1.3775)	1.3741 (1.3937)
Index of warm weather outdoor recreation amenities	0.2693 (0.2784)	-0.2409 (0.3500)
Index of cold weather outdoor recreation amenities	0.7674 (1.1346)	-0.0321 (1.1219)
Index of historical/cultural amenities	-0.4309 (3.6307)	-2.1522 (3.3767)
Control variables		
Percent total employment in construction, 1990	-	-4.1086* (1.7055)
Percent total employment in nondurable manufacturing, 1990	-	-0.0051 (0.0719)
Percent total employment in durable manufacturing, 1990	-	-0.0613 (0.0549)
Percent total employment in transportation, 1990	-	6.5047** (2.1941)
Percent total employment in wholesale trade, 1990	-	-0.3138 (0.2841)
Percent total employment in retail trade, 1990	-	0.3544* (0.1800)
Percent total employment in eating and drinking places, 1990	-	0.4399 (0.2585)
Percent total employment in repair services, 1990	-	-7.0335* (2.9670)
Percent total employment in entertainment and recreation services, 1990	-	-1.1972 (2.9987)
Percent total employment in health care, 1990	-	0.2398 (0.1513)
Percent total employment in educational services, 1990	-	-1.6665 (2.9967)

Table 7.3 (continued)

	Model 1	Model 2
Percent total employment in social services, 1990	–	–0.1229 (0.3436)
Percent total employment in producer services, 1990	–	0.1974 (0.2220)
Percent total employment in government, 1990	–	–2.9517 (2.1669)
Percent total employment in temporary jobs, 1990	–	0.2374 (0.1272)
Percent working age population with college degree, 1990	–	–0.0451 (0.0968)
Percent households headed by females, 1990	–	0.0455 (0.1007)
Percent households headed by elderly persons, 1990	–	–0.4140*** (0.0637)
Percent households headed by minorities, 1990	–	0.0004 (0.0368)
Locality adjacent to metro. area, 1993	–	–0.1015 (0.5558)
Intercept	–9.1686***	–5.3746
F statistic for model	13.87***	9.01***
Adjusted R ²	0.1623	0.3174

Note: *** p < .001, ** p < .01, * p < .05.

and significant (see Model 2 in Table 7.3). The effect of lake-based natural resource amenities remained negative and was slightly diminished but was no longer significant. While the introduction of the control variables into the model also changed the magnitude of the effects of several of the other amenity variables, none were found to be significant as a result of statistical suppression.

The introduction of the control variables increased the goodness-of-fit of the linear panel model from a weak to a moderate level (the adjusted R² increased from .162 to .317). Among the control variables, the percentage of total employment in construction, the percentage of total employment in repair services, and the percentage of households headed by elderly persons were all found to be associated with declines in inequality over the 1980 to 2000 period. Finally, the percentages of total employment in transportation and retail trade were found to be associated with an increase in inequality during the study period.

DISCUSSION

The findings indicate that the spatial distribution of amenities is highly skewed across the nonmetropolitan US. A small subset of nonmetropolitan localities typically possesses inordinately higher levels of amenities compared to others. A number of nonmetropolitan localities were found to have inordinately high levels of two or more types of amenities. Flagstaff, Arizona was found to rank among the top ten localities on four types of amenities – land-based natural resource amenities, river-based natural resource amenities, warm weather outdoor recreation amenities, and historical/cultural amenities – while having the second highest increase on the absolute well-being index during 1980 to 2000. Nonmetropolitan localities that ranked among the top ten on two types of amenities included Altamont, OR; Lewiston, ID; Okanogan, WA; Port Angeles, WA; Rhinelander, WI; Claremont, NH; Glenwood Springs, CO and Morristown, TN. All of these localities also experienced substantial increases on the absolute dimension of locality well-being.

High levels of multiple types of amenities increase locality well-being. Across all nonmetropolitan localities only two types of amenities were related to change on the absolute dimension of locality well-being and only one type of amenity was related to change on the relative dimension of locality well-being. Controlling for the structural attributes of the local labor market, high levels of warm weather outdoor recreational amenities and historical/cultural amenities had the highest increases on the absolute dimension of locality well-being over the 1980 to 2000 period. Nonmetropolitan localities with high levels of land-based natural resource amenities experienced higher levels of inequality over the study period.

Amenities were much more strongly associated with change on the absolute dimension of locality well-being compared to the relative dimension. Excluding the control variables, the seven amenity variables explained a much higher proportion of the variation in the change scores on the absolute well-being index compared to the relative well-being index. This finding suggests that the intervening processes by which amenities influence the local pattern of economic development and the lifestyles and experiences available to residents and tourists are more strongly tied to change on the absolute dimension of locality well-being.

The stock of amenities within a locality are often consciously used to promote local development. Local amenities can be used as a central element in the social construction of the image of a locality thereby prompting persons to perceive it as an attractive place in which live, work, visit, locate a business or invest in certain types of economic activity. Given that the specification of the panel models is partly determined and limited

by data availability, the empirical findings do not directly examine these intervening processes.

The panel models assume that there is a lag of approximately five to ten years before the effects of amenity, labor market structure, household composition, education attributes and spatial context variables on locality well-being are felt. Although this panel model specification is useful for identifying net long-term effects, it seems reasonable that the actual time lag in these effects may be shorter in duration. Considered over time there would likely be a feedback loop in these effects. For example, the local stocks of specific types of amenities may promote an increase in absolute well-being in a shorter time frame, which in turn, would promote investment and growth in particular types of amenities. This would seem particularly likely with those amenities that require investment in infrastructure and services in order that they be consumed or experienced or those that may be depleted as a result of the expansion of the built environment that would likely accompany growth.

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8. The role of wilderness and public land amenities in explaining migration and rural development in the American Northwest

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INTRODUCTION

Neoclassical migration models were based traditionally on the assumption that people moved for economic reasons such as employment or increased income. In a classic article Sjaasted (1962) set the decision to move within a cost-benefit framework where individuals evaluated the relative tradeoffs as the basis to move or stay. He was aware of noneconomic, or what he called psychic costs. These costs included attachments people had to the places where they were currently living. However, because measuring psychic costs would be very difficult we should 'ignore psychic costs of migration since they involve no resource cost; likewise we should ignore non-money returns arising from locational preferences.'

The noneconomic facets of people's lives in the decision to move were not part of the cost-benefit calculus. Economic motivations and income maximization drove migration trends. Places were important in the sense that they attract or repel people to produce resources for the larger economy. No attempt was made to understand why people live in places. The role of the physical environment and its major component, land, was dismissed, as was the social and cultural environment. This limited view of migration was soon to change as the role of nature and its environmental components, especially climate, became the means of incorporating a physical environment variable into statistical models.

Perhaps the earliest statement of the importance of amenities in regional growth was a 1954 article by geographer Ullman. Studies in the 1960s and 1970s began to cast doubt on the traditional neoclassical model. Also the growth of nonmetropolitan counties at faster rates than

metropolitan counties for the first time in the nation's history was unexpected, and needed to be explained. Some of this early research was done at the University of Chicago (Berry 1978; Gillard 1981; Lamb 1975; Morgan 1978).

The economist Tolley and a cadre of his students, postdoctoral and visiting scholars began asking questions about the environment, and how to value it. Amenities that are location-specific became a central focus of migration research. Because of their tie to specific places people usually have to migrate to attain the particular combination of amenities they desire (Diamond 1980; Diamond and Tolley 1982; Graves and Linneman 1979; Graves 1979; 1980; 1983; Harris, Tolley and Harell 1968; Krumm 1983; Tolley 1974).

This approach, sometimes called the quality of life model, argues that people migrate and live where they do for noneconomic reasons and that jobs follow people. If given a choice people and firms live and locate where they do for reasons having to do with the social, cultural and physical environment. Such noneconomic amenities attract and retain people and businesses. Consequently, maintaining a place's unique character can be an important economic development strategy. It puts quality of life and environmental quality at center stage instead of off stage or in a peripheral and minor supporting role.

The Graves and Linneman (1979) location-specific amenity model provided a theoretical framework that focused on differences between places. Graves and Linneman following Tolley (1974), defined amenity as a non-traded or location-specific good that cannot be traded across space or between regions. Variation in consumption is feasible only through relocation. The amenity approach also extends the traditional neoclassical approach in allowing for tradeoffs between income and location-specific amenities.

The conventional approach assumes migration is a response to a disequilibrium situation where people move because of the higher incomes they can get elsewhere. Wage differences between regions encourage migration from low to high wage areas until the differences between areas decrease substantially. Migration in the location-specific amenity approach serves as an equilibrating reaction to a non-optimal location. Unlike the traditional disequilibrium model, differences between areas in wages and income need not result in migration from low to high wage areas since interregional wage differences are assumed to be compensating differentials. Areas with lower levels of amenities have to pay more to attract people than areas with higher levels of location-specific amenities. The advantage of the amenities and compensating differentials approach has been reinforced theoretically and empirically by other researchers

(Roback 1982; 1988; Blanchflower and Oswald 1995; Power 1995; 1996; Power and Barrett 2001; von Reichert and Rudzitis 1994a). This work shows that families will move as a result of either a rise or fall in income because they are willing to accept lower wages and pay higher rents to live in high-amenity areas. People in high amenity areas are also more likely to risk higher periods of unemployment than those who live in low amenity areas.

Most studies used secondary data and a regression-modeling format to try and explain migration patterns. At the same time sociologists were conducting survey research suggesting that, during the 1970s people's preferences were changing toward a desire to live in rural areas. Previously people had moved to metropolitan areas for urban amenities. Those leaving metropolitan areas during the 1970s were more likely to list quality-of-life factors than economic ones as part of their migration decision (Williams and Sofranko 1979). Fuguitt and Zuiches (1975) found that people who show a preference for rural living may be looking for particular community attributes not associated with metropolitan life. Attributes such as low crime rate, good air and water quality, a good environment for raising children and a lower cost of living were desired.

MIGRATION TOWARDS PUBLIC LANDS, WILDERNESS AND THE WILD

During the 1960s, wilderness counties had population increases three times greater than other nonmetropolitan areas. In the 1970s wilderness counties grew at twice the rate of other non-metropolitan counties (Table 8.1). In the 1980s their population increased 24 percent or six times faster than the national average of 4 percent for nonmetropolitan counties as a whole and almost twice as fast as counties in the nonmetropolitan West (Rudzitis 1996). These trends have continued into the 1990s as wilderness counties

Table 8.1 Percent county population change

	Metropolitan	All nonmetropolitan	Wilderness
1960–70	17.1	4.3	12.8
1970–80	10.6	14.3	31.4
1980–90	11.6	3.9	24.0
1990–2000	13.9	10.2	29.9

Source: Rudzitis (1996) and calculations by authors.

grew three times faster than the national average and more than twice as fast as metropolitan areas.

The amenities of these protected wilderness areas and other public lands (Frentz et al. 2004) appeared to keep residential populations stable and attract new migrants. While research into why people moved during the 1970s showed the importance of amenities and other noneconomic factors, little survey research was done in the 1980s that could be compared with the previous research.

Rudzitis and Johansen (1989) replicated some of the 1970 survey research showing noneconomic reasons important in the decision to move to non-metropolitan wilderness counties. They found that public lands – and particularly the presence of federal wilderness – were an important reason why people moved or lived in these counties (Rudzitis and Johansen 1991). Duffy-Deno (1998) examined whether local economies may be adversely affected by designation of federally-owned wilderness in the eight states of the intermountain western United States. He found no evidence that the existence of federal wilderness is directly or indirectly associated with population or employment growth between 1980 and 1990.

Much of the economic concern over the designation and presence of federal wilderness is its perceived effect on resource-based industries. The Duffy-Deno study found no empirical evidence that county-level resource-based employment is adversely affected by the existence of federal wilderness. Indeed there is some evidence of a positive association between federal wilderness and non-resource, non-federal county employment growth. From a utilitarian perspective, wilderness designation causes little aggregate economic harm to county economies. It has been found to promote increases in total population and employment (Lorah and Southwick, 2003).

In the Northwest, Morrill and Downing (1986) found environmental characteristics to play a major role in pulling people to the small towns of the region. More recent research also indicates that migrants are citing reasons other than employment opportunity as to why they moved or live in the American West. Social and natural amenities continue to be important in their decision. Counties with amenities continue to grow and migration decisions are increasingly being based on natural and social amenities, and quality-of-life factors (Booth 1999; Beyers and Nelson 2000; Carlson et al. 1998; Deller et al. 2001; Johnson and Rasker 1995; Johnson 1998; Johnson and Beale 1994; McGranahan 1999; Nelson 2002; Ohman 1999; Rasker 1994; Rudzitis 1996; 1999; Rudzitis and Streatfeild 1992–1993; Shumway and Davis 1996; Shumway and Otterstrom 2001; Wardwell and Lyle 1997).

INCOMES, CHICKENS AND EGGS

A basic assumption of the neoclassical model is that people move to get higher paying jobs and more incomes. Recent studies in the American West have shown that many migrants move to amenity-rich areas despite a decrease in income (von Reichert and Rudzitis 1994; Morrill and Downing 1986; Wardwell and Lyle 1997). For example, von Reichert and Rudzitis (1994b) found that almost 50 percent of the migrants reported lower incomes and only 28 percent had increased their income, with the remainder showing no change.

Migration and regional development models also normally assume that people follow jobs. Firms migrate into a region and create job opportunities. Then people move in seeking the newly created jobs. Or do people migrate first, and then jobs follow? This is the old chicken or egg analogy (Carlino and Mills 1987). A few studies have tried to get at this issue for non-metropolitan counties within a simultaneous equations framework (Mead 1982). Whether looking at wilderness counties (Rudzitis and Johansen 1989), the Pacific Northwest (von Reichert 1992) or the interior Rocky Mountain West (Vias 1999) these studies find that jobs are following people. Other studies have also found that up to a third of the people migrating into the rural American West move first and plan to find or create jobs after moving to an area (Rudzitis 1996; von Reichert and Rudzitis 1994b).

WILDERNESS AND AMERICAN NORTHWEST MIGRATION MODELS

We test county-level regression-based models of migration into the American Northwest for the decades of the 1970s, 1980s and 1990s. The regression models include economic, demographic, social and amenity county-level variables. The models attempt to see how well these variables explain net migration into the interior Northwest region. The 100-county interior Northwest region includes Washington and Oregon east of the Cascade Mountains, all of Idaho, western Montana and Wyoming as well as parts of northern Utah and Nevada.

There is no consensus on which functional form is the most appropriate for migration modeling. We tested linear, semi-log and log-log migration models and found that the linear formation consistently had the highest adjusted R^2 values, and so report those results (Table 8.2).

In the 1970s model neither the manufacturing nor the services variables are significant, suggesting that prior changes in the economic structure of these counties was not very important in attracting migrants. The income

Table 8.2 American Northwest net migration models

	1970–80 Net-Migration	1980–90 Net-Migration	1990–2000 Net-Migration
Constant	-0.1010	-0.0436	-17.473
Lagged manufacturing jobs, percent change in	-0.0077 (0.717)	0.0016 (0.928)	-0.104 (0.104)
Lagged service jobs, percent change in	-0.0307 (0.162)	-0.0065 (0.732)	-0.220 (0.587)
Median family income 1999 (US dollars)	-0.0002 (0.027)	-0.0005 (0.087)	-0.0010 (0.003)
Unemployment rate, percent	0.0074 (0.008)	-0.0003 (0.938)	-0.546 (0.527)
Crime rate, per thousand	-0.0007 (0.839)	0.0000 (0.396)	0.0006 (0.453)
Median rent, (US dollars monthly)	0.0024 (0.000)	0.0009 (0.020)	0.145 (0.000)
Percent of persons age 65 or older	-0.9090 (0.077)	-0.4760 (0.210)	-0.407 (0.236)
Percent public lands	0.0014 (0.979)	0.0133 (0.764)	0.0037 (0.464)
Metropolitan/ nonmetropolitan dummy	-0.0309 (0.583)	-0.0023 (0.955)	-7.086 (0.136)
Adjusted R^2	0.31	0.10	0.41
F	4.51	1.98	7.66

Note: Numbers in () are significance levels.

variable is significant, with a negative sign. People are not moving towards places with higher incomes. Instead they appear to be trading off amenities and lifestyle for either lower incomes or the expectation that their incomes will rise in the near future. The unemployment variable is significant but with a positive sign. Migration increased in counties with higher unemployment rates. A portion of this migration might explain the lower income levels of these counties suggesting a supply of excess labor in these areas.

The rent variable, serving as a surrogate for amenities (Graves 1983; Roback 1982; 1988) is highly significant with a positive sign. The percent public land variable is not significant, perhaps because of the large amounts of different kinds of federal lands in the region. For example, Idaho has 62 percent federal lands including both forested and grazing lands. The metropolitan–nonmetropolitan dummy variable and the crime variable also are not significant. The percentage of population aged 65 years and

older is significant at the 0.07 percent level with a negative sign. Counties with higher concentrations of older persons do not attract migrants, nor do those with younger age structures. The popular notion that much of the immigration and population growth of counties in the inner West is driven by retired people moving towards places with higher concentrations of older persons is not borne out in the Northwest. The R^2 is 0.31.

The 1980s migration model has a much lower R^2 of 0.10. The only significant variables are income with a negative sign and rent with a positive sign. The unemployment and the percent aged 65 and older variables significant in the 1970s model are not significant in the 1980s model. The recessions at the beginning and end of the decade might provide a partial explanation for the poorer explanatory power of the model.

The 1990s migration model has the highest R^2 of 0.41. Again, income with a negative sign and rent with a positive one are significant. The metropolitan–nonmetropolitan dummy is closer to being significant (0.15), but with a negative sign, suggesting that net migration rates are higher for non-metropolitan counties. The 1990s model is similar to the 1970s model suggesting that events such as the recession and subsequent shutdowns of timber mills during the 1980s may have played a role as people and the region adjusted to these changes taking place.

The models illustrate the difficulties of explaining migration shifts in the region. The use of lagged (or period) employment changes did not explain migration trends suggesting again that migration either is independent of or leads such changes. It provides some indirect evidence for the job-follow-people model of regional development.

We also tested models for the 1990s for the same region using more detailed distance and public lands variables. The distance to high amenity lands was calculated using Geographic Information System (GIS) software to estimate how far each county centroid was from the nearest such county. The composite high amenity lands variable was defined as the sum of federal wilderness, national forests, national parks and national wildlife refuges in a county. We also derived a GIS based metropolitan accessibility variable calculated as the distance from each county to the nearest of the regions three first-order metropolitan areas. The high amenity variables are significant in the regression models with the right signs at the 5 percent or 10 percent levels (Table 8.3).

Distance to high amenity lands is negative and significant in equation 1. Equation 2 indicates the positive influence of larger amounts of high amenity lands in a county. The metropolitan accessibility (equation 3) is not significant suggesting there is no systematic difference between counties proximate to urban areas and the more remote rural counties that comprise the majority in the region.

Table 8.3 1990–2000 net migration models

	Equation 1	Equation 2	Equation 3
Constant	0.342	−4.071	−2.195
Unemployment	−0.670 (0.174)	−0.636 (0.199)	−0.524 (0.305)
Median family income	−0.0001 (0.000)	−0.0001 (0.000)	−0.0001 (0.000)
Median rent	0.106 (0.000)	0.105 (0.000)	0.108 (0.000)
Distance to high amenity lands	−2.126 (0.050)		−1.936 (0.078)
Percent high amenity lands		13.661 (0.095)	
Metropolitan accessibility			−1.658E-05 (0.279)
Adjusted R^2	0.38	0.37	0.38
F	7.10	7.07	7.06

Note: Numbers in () are significance levels.

There appear to be two relatively separate migration research literatures. One strand of migration research is based on economic aggregate statistics from the US Census Bureau and the other on the analysis of individual data collected using scientific surveys. We turn to a consideration of survey data to see if they complement or contradict the county-level regression models in explaining migration in the northwest. We also wanted to gain greater insights into the motivations of people moving into the region, and whether significant attitudinal differences exist between in-migrants and long term residents.

NORTHWEST SURVEY RESULTS

The survey data is based on 1000 random respondents selected within the same region using a stratified cluster sampling method. Using a modified total design method (Dillman 1978) there were a total of 574 completed returned questionnaires out of 926 deliverable surveys for a 62 percent response rate. The margin of error was plus or minus 4 percent at the 95 percent confidence level.

Only 29 percent had lived in the region all their lives compared to 71 percent who had moved to the area. Of the newer residents in their

Table 8.4 Why did you move to this county?

	Frequency	Percent
Moved here for job opportunity	189	33.1
Wanted to live here, then looked for job	148	25.9
Lived here most/all of life	92	16.1
Parents/Family moved when young	19	3.3
Educational opportunity	10	1.8
Access to family and friends	31	5.4
Change in marital/family status	6	1.1
Returning to area	3	0.5
Job transfer	5	0.9
Retirement	5	0.9
Other	23	4.0
Missing	40	7.0
Total	571	100.0

county, most, or approximately 25 percent moved in since 1990, followed by 18 percent who moved in between 1985 and 1989 and 13 percent between 1980 and 1984. About 43 percent moved in during the last ten years and 55 percent since 1980. Clearly migration is an important component in the changes taking place in the region. The largest group came from California (18 percent) followed by Idaho (17 percent), Washington (16 percent) and Oregon (11 percent). These four states provide 62 percent of the migrants moving into the region, although there are in-migrants from 40 states in the United States and abroad. A greater percentage (57 percent) moved from metropolitan areas than nonmetropolitan areas (43 percent).

We asked a partially open-ended question of why people moved to or live in their present county (Table 8.4). They were given two statements from which to choose, as well as an 'Other' category in which they could write in their own response. The latter were then combined into distinct categories. Thirty-six percent of the respondents chose the first statement ('I decided to move here because of a job opportunity') while the second statement ('I decided to move here because I wanted to live here, and then I looked for/created a job') was chosen by 28 percent. People live in the region largely for reasons related to the social and physical environment. The responses under 'Other' were divided into distinct types. The most cited of these was 'lived here all or most of my life' (17 percent). Access to family/friends was given by just 6 percent of the respondents.

Another means used to determine the relative importance of different reasons for moving/living in their county was the use of a scaled question

asking respondents the relative importance of each of the factors. The question used a scale that ranged from 1 (not important) to 7 (extremely important). Table 8.5 shows the seven-point scale collapsed into three categories, Unimportant, Neutral, and Important for each of the factors.

The employment category was cited by 64 percent as an important reason for being in the county. Clearly having a job underlies the ability of people to be able to live where they want to whether or not employment is their primary motivation for being in the region. The other social and physical environmental scaled questions show the relative importance of the individual factors. Under the social environment category, social services are cited as important by only 22 percent. Other social environment factors include cost of living (54 percent), quality of schools (56 percent), family and friends (62 percent), crime/safety (75 percent), and pace of lifestyle (76 percent). Under the physical environment category, landscape, scenery and environment are given by 78 percent, followed by outdoor recreation (72 percent), and climate (65 percent). The use of a scaled approach shows a consistent emphasis on the importance of area characteristics associated with the physical environment.

Overall the survey findings show that employment is not the only important factor for why people move to the Northwest. People also consider factors related to the social and physical environment. The most important

Table 8.5 Relative importance of factors in decision to move to or stay in area

	Important	Neutral	Unimportant	Mean*
	(Percentage of respondents)			
Landscape, scenery and environment	77.5	13.5	9.0	6.06
Pace of lifestyle	76.4	16.0	7.6	6.06
Crime rate	75.4	17.7	6.9	6.05
Outdoor recreation	72.1	18.7	9.2	5.89
Climate	65.2	25.5	9.3	5.68
Employment opportunity	64.1	17.3	18.6	5.37
Access to family and friends	61.5	17.8	20.6	5.23
Quality of schools	55.5	25.8	18.7	5.10
Cost of living	54.3	38.1	7.6	5.40
Social services	22.3	46.7	31.0	3.74

Note: * The mean was figured based on values given on the seven-point scale in which 1, 2 and 3 = unimportant; 4 = neutral; 5, 6 and 7 = important. This is not a percentage.

social factors include crime/safety and pace of lifestyle. The most important physical factors include landscape, scenery and environment and outdoor recreation. It appears people value the quality of the social and physical environments in which they live, in addition to wanting to be able to support themselves through employment.

We conducted a stepwise discriminant analysis to determine if an equation could be generated to correctly categorize people as migrants and residents. We also wanted to test the relative importance of attitudinal and demographic variables in differentiating between newcomers and long-term residents. The discriminant function as shown in Table 8.6 was highly significant.

Table 8.6 Stepwise discriminant analysis

	Migrant v. non-migrant	
	Standardized discriminant function	Total canonical structure
Age category	0.7188	0.6690
Educational attainment	-0.4083	-0.3229
Yearly gross income	0.3614	0.1185
Sex	-0.0845	-0.1933
Employment opportunity	-0.0021	-0.0891
Cost of living	-0.2503	-0.2188
Quality of schools	0.3024	0.1155
Climate	-0.3720	-0.0754
Social services	0.0910	0.0571
Access to family and friends	0.3848	0.2950
Outdoor recreation	0.4381	0.0774
Crime rate	-0.3331	-0.1579
Landscape, scenery and environment	0.1171	-0.0131
Pace of lifestyle	-0.0805	-0.0806
Percent classified correctly	65.42	
Eigenvalue	0.1281	
Percent of variance	100.0	
Cumulative variance	100.0	
Canonical correlation	0.3369	
Wilk's lambda	0.8865	
Degrees of freedom	14	
Significance level	0.0000	

Note: These are the only standardized discriminant function values reported by the analysis.

The discriminant function shows that migrants and non-migrants can be differentiated primarily based on age, educational attainment, cost of living and the importance of access to family and friends. The value of the standardized discriminant function for age is almost two times larger than any of the other factors suggesting that the major differences between migrants and long-term residents is demographic rather than attitudinal. Other variables such as outdoor recreation, climate, income, quality of schools and crime rate have relatively high values for the standardized discriminant function but low values for the total canonical structure, and thus less influence. Other selected variables such as sex, employment opportunity, social services, landscape and pace of life had much less influence in the equation. These findings are consistent with other recent research (Smith and Krannich 2000; Nelson 2002) that also found little attitudinal differences between recent migrants and long-term residents.

The findings of the macro regression and micro level survey analysis are compatible, which is encouraging. Often macro modeling efforts using aggregate data ignore the findings of survey-based research that focuses on individual migration decisions. Researchers who use macro models may not put much faith in survey results or in what people say they will do or why they did what they did. Hopefully, these results can help to alleviate some of the suspicions that exist between the two groups. Our results for the American Northwest suggest that the two approaches can result in similar conclusions. Each approach supports and informs the findings of the other.

CONCLUSION AND FUTURE RESEARCH DIRECTIONS

Our results contribute to a growing literature showing that the amenities modeling approach better explains recent growth trends in the Northwest and elsewhere. However we also need to consider the attachments people form with places or their sense of place. It is attachment to a place or region that keeps people from moving away during times of economic distress, a loyalty to landscapes and communities (Tuan 1977; Relph 1986; Bolton 1992; Rudzitis 1993; 1996; Feldman 1990; Gustafson 2001). In the American Northwest this uniqueness is rooted in a physical environment that interacts with the social lives of the people who live there. The interaction with wilderness and other wildlands creates a sense of place and roots.

There have been some recent attempts to extend theory and develop models that incorporate sense of place and culture in developmental models (Rudzitis 2005; Tolley and Rudzitis 1999; Tolley et al. 2000; Stedman 2003). Some indirect evidence of the potential importance of

sense of place as shown in our regression models and survey research is in the willingness of people to accept lower wages to live in such places. Apparently the difference in incomes between the places is compensated by greater amenities and other noneconomic factors. Areas surrounding wilderness and other public lands also have lower real wages. Despite having lowered incomes, migrants to these counties are highly satisfied with where they presently live.

Another indirect indicator of a greater attachment and sense of place is the high level of agreement when people in high-amenity counties are asked if their lives are now happier, less stressful and more enjoyable (Rudzitis and Johansen 1991). People who are more satisfied with where they live feel more attached to their communities and are less likely to move (Fernandez and Dillman 1979; Heaton et al. 1979; Sampson 1988; Rudzitis and Johansen 1989; Stinner et al. 1990; Carlson et al. 1998).

Sense of place may be an important variable in explaining regional growth. However measurement of it in quantitative terms may not always be possible. Developing hypotheses based on the existence of sense of place may have to rely on indirect evidence, requiring efforts at least as challenging as attempts to actually measure it. Regardless, the amenity-based evidence supports the potential benefits of moving towards a more place-based theory of migration and regional development within which sense of place or home might be the ultimate amenity. Clearly there is a need both for further conceptual and empirical work.

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9. Regional economic growth with a focus on amenities

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INTRODUCTION

Natural amenities such as lakes, forests and mountainous areas along with built amenities that add value to those natural amenities, such as marinas, are becoming more important in explaining rural growth patterns (Deller et al. 2001; Fulton et al. 1997; Green 2001; Isserman 2000; Marcouiller et al. 2002; McGranahan 1999; OECD 1994; 1996; 1999; Power 1988). Both descriptive analysis (Beale and Johnson 1998; Johnson and Stewart (Chapter 11, this volume); McGranahan 1999; Nord and Cromartie 1997) and more advanced statistical modeling approaches (Deller et al. 2001; Goe and Green (Chapter 7, this volume); Rudzitis 1999) have found that rural areas that are endowed with amenities such as scenic beauty, wildlife and recreational and tourism attributes experience higher rates of growth than the US average. Among the first to suggest that the presence of wilderness and large expanses of open space were an important reason why people moved to or lived in remote rural counties were Rudzitis and Johansen (1991).

Not all studies support the notion that natural amenities have strong effects on economic growth. Keith and Fawson (1995) examined the effects of wilderness on local economic characteristics in Utah and found little statistical evidence supporting the central hypothesis. Duffy-Deno (1997) analysed the local economic impact of state parks in the eight intermountain Western states and found a relatively weak effect on population and employment growth. In a related study Duffy-Deno (1998) also failed to find an association between the existence of federally-owned wilderness areas and population and employment growth between 1980 and 1990. In Chapter 10 of this volume, Dissart and Marcouiller find that when attention is turned to remote rural areas, the role of amenities is weaker and not as clear.

When considering broader notions of economic development, specifically levels of income distribution and changes in income distribution in the Upper Great Lake States, Marcouiller et al. (2004) found that the role of amenities was not clearly identified. In addition, Goe and Green (Chapter 7, this volume) find that the presence of certain types of amenities is associated with higher levels of inequality. Although much work remains and significant debate continues, it is fair to conclude that from an empirical perspective, natural-amenity-based economic development appears to be an important determinant in population, employment, and income growth (Deller et al. 2001; English et al. 2000; McGranahan 1999).

The earlier work of Power (1988; 1996 (Chapter 5, this volume)), Marcouiller (1998) and most recently Marcouiller and Clendenning (Chapter 2, this volume) lays out a theoretical basis for why amenities and quality of life attributes broadly defined, play such an important role in rural economic growth patterns. Using traditional growth theory Marcouiller suggests that the growth of a regional economy is not only dependent upon marketable endowments of land, labor and capital but also non-market attributes. No longer are traditional extractive industries (agriculture, mining and forestry) forming the backbone of the rural economy (Freudenburg 1992; Galston and Baehler 1995; Pulver 1995; Weber 1995).

Today capital is no longer viewed as simply the machinery or public infrastructure used in production, but rather there is a latent non-market attribute that is becoming increasingly important, specifically natural amenities and quality of life attributes (Shaffer et al. 2004). Also, the economic restructuring of most developed economies toward a service base has significantly reduced the importance of natural raw materials as inputs for production (Bluestone and Harrison 1982; Chevan and Stokes 2000). Finally, environmental awareness and political activism of urban residents have provided strong criticism of extractive productive practices by emphasizing adverse environmental impacts, threats to bio-diversity and sustainability and global environmental change (Buttel 1995; Castle 1993; Copeland and Taylor 2004).

The concept of amenities playing an increasingly important role in regional growth and development is not necessarily a new idea. The earlier work on migration by Graves (1979; 1980; 1983) and Porell (1982), the capitalization theories of Roback (1982; 1988) and the work of Blanchflower and Oswald (1996), who expanded the ideas of Roback to include levels of local unemployment, all represent attempts to explicitly model the role of amenities and quality of life broadly defined into economic growth and development. Unfortunately the empirical literature examining rural economic growth is plagued with several problems that need to be addressed before sound policy recommendations can be advanced.

First, how do we define economic growth? If we define growth narrowly in terms of population growth, then the literature is clear; high amenity areas experience more growth. If we define growth as including employment, income levels and unemployment, the literature is not as clear (Deller and Tsai 1999; Deller et al. 2001; Dissart and Deller 2000). Goe and Green (Chapter 7, this volume) argue that the literature needs to worry more about how we define growth and pay greater attention to the notion of economic development. Should our focus include notions of income distribution as was the focus of Marcouiller et al. (2004)?

Second, amenities and quality of life are extremely difficult to define and empirically measure. A common practice within the literature is to confine amenities to a single dimensional attribute, such as climate or crime rates, or to introduce a list of selected attributes (Andrews 1980). For example, the widely referenced work on rural growth by the Economic Research Service within the US Department of Agriculture define natural amenities as a summary index of mild sunny winters, moderate summers with low humidity, varied topography, mountains and the abundance of water (McGranahan 1999; Nord and Cromartie 1997). In his review of the earlier literature, Gottlieb (1994) concluded that the literature attempting to link amenities and quality of life with economic growth has tended to be ad hoc and not sufficiently matured, either theoretically or empirically.

Perhaps more fundamental is the common practice within this literature to confuse natural amenities with built amenities and even cultural amenities. Some studies narrowly define amenities to include only a single dimension such as wildlife refuges or national parks while others are more focused on tourism and recreational opportunities. Still others are more interested in natural amenities such as access to water, forests and mountainous terrain. As this literature has developed greater concern over what we mean by amenities and quality of life must come to the forefront. Amenities that help define the quality of life within a region include natural, built and cultural attributes.

Third, the unit of analysis for empirical work is not clear. Some quality of life attributes, such as museums and/or historical sites, are specific to one spatial location while other natural amenities, such as a forest or ecosystem, cover large regions. Further complicating the issue is the range of influence of the attribute under consideration. For example the Chicago Art Institute has a much larger geographic draw than does the Elvehjem Museum in Madison, Wisconsin. Unfortunately, the data used in the literature are reported at the municipal and/or county level. The issue has two elements: what is the relevant unit of analysis and should site-specific amenities such as golf courses be grouped together and compared to regional amenities such as a national forest?

The introduction of the NORSIS (National Outdoor Recreation Statistical Information System) compiled by the USDA Forest Service, which contains a wide range of data on outdoor recreational facilities, natural resources and cultural/historical attraction, among other variables, has opened a wide range of research possibilities. The NORSIS data along with the Bureau of Economic Analysis employment and income data are reported at the county level. A natural approach to address this problem is to capture spatial relationships in the error structure using spatial econometric techniques. We do not directly address the unit of analysis issue in this applied research. We use data at the county level. We attempt to control for some spatial error by using a standard spatial econometric method with our post-Bayesian analysis.

Fourth, the rural growth literature is subject to the same critique that the larger macroeconomic growth literature has been subject to, which is the specification of the commonly referred to conditional variables. As argued by Brock and Durlauf (2000), Doppelhofer et al. (2000), Durlauf and Quah (1999), Islam (2003), Levine and Renelt (1992), Pack (1994), Sala-i-Martin (1997), and Schultz (1999), the growth literature is awash with studies that document the correlation of a host of variables with growth, while there is little if any theoretical foundation for the selection of regressors. The lack of any theoretical insights, or in the case of conflicting theoretical predictions, the determinants of growth reduce to an empirical question. To a large extent the commonly followed approach is to throw everything we have against the wall and see what sticks.

One of the goals of this applied research project is to more formally introduce the problem of model specification into the rural growth literature with a focus on amenities broadly defined. We do this by using a Bayesian Modeling Average approach suggested by Brock and Durlauf (2000) and Durlauf (2000). We specify and estimate an expanded regional adjustment model in the spirit of the now classic model of Carlino and Mills (1987). We also expand our notion of amenities by employing a multidimensional view of amenities based on some of our previous work (Deller et al. 2001; English et al. 2000; Marcouiller et al. 2004).

Beyond these introductory comments, the chapter is composed of six parts. First, we review our expanded Carlino and Mills model and discuss the problem of model specification. Next we outline the Bayesian modeling averaging (BMA) applied to growth models. We then present our measures of amenities and review some of the shortcomings of amenity measurements. Our empirical results based on reduced forms of our expanded Carlino and Mills model are then presented and the chapter closes with a summary of our findings and an outline of future work.

A STRUCTURAL MODEL OF GROWTH

Models of regional economic growth often focus on the interdependencies of house residential and firm location choices. Often this view addresses the notion of whether people follow jobs or jobs follow people (Steinnes and Fischer 1974). To address this issue of causation and interdependency, Carlino and Mills (1987) constructed a now classic two-equation system. This model has subsequently been used by a number of regional scientists to examine regional economic growth (Barkley et al. 1998; Boarnet 1994a; 1994b; Clark and Murphy 1996; Deller et al. 2001; Duffy 1994; Duffy-Deno 1998; Henry et al. 1997; Henry et al. 1999).

In this research we expand upon the original formulation of the Carlino and Mills model to explicitly capture the role of income. We expand the people versus jobs debate from two dimensional to three dimensional: people versus jobs versus income. In the traditional migration literature, people migrate to capture higher wages or income. By expanding the classic Carlino and Mills model to explicitly trace the role of income in regional growth we more fully capture the growth process. The expanded model also explicitly captures the increasing concern about job quality as measured by income levels those jobs can support.

Precisely, we construct three central hypotheses in this research:

- H1** Growth is conditional upon historical growth patterns.
- H2** Growth is conditional upon initial conditions.
- H3** Growth is conditional upon regional amenity factors.

The first two hypotheses are drawn from the Carlino and Mills framework and are consistent with other studies which have adopted this general theoretical approach. The latter hypothesis speaks to one of the central aims of the research agenda. Specifically, factors defining amenities are playing an increasingly important role in regional economic performance. Our goal is to formally and rigorously examine the level and degree of this hypothesized relationship as it relates to amenities.

Building upon Carlino and Mills the general form of the model is:

$$P^* = f(E^*, I^* | \Omega^P) \quad (9.1)$$

$$E^* = g(P^*, I^* | \Omega^E) \quad (9.2)$$

$$I^* = g(P^*, E^* | \Omega^I) \quad (9.3)$$

where P^* , E^* and I^* are equilibrium levels of population, employment and income, and Ω^P , Ω^E and Ω^I are a set of variables describing initial conditions

and other historic information. Contained in the latter set of information are measures of amenity attributes. The equilibrium levels (P^* , E^* , I^*) represent a theoretical level of population, employment and income where the economy has matured and is no longer growing. This formulation expands the model of Carlino and Mills by explicitly introducing income into the structural framework. This addition to the general Carlino and Mills framework is intended to explicitly draw attention to the question about job quality and wage levels.

Relying on the equilibrium conditions laid out above, a simple linear representation of those conditions can be expressed as:

$$P^* = \alpha_{op} + \beta_{1p}E^* + \beta_{2p}I^* + \sum \delta_{Ip} \Omega^P \quad (9.4)$$

$$E^* = \alpha_{oE} + \beta_{1E}P^* + \beta_{2E}I^* + \sum \delta_{IE} \Omega^E \quad (9.5)$$

$$I^* = \alpha_{oI} + \beta_{1I}P^* + \beta_{2I}E^* + \sum \delta_{II} \Omega^I \quad (9.6)$$

Moreover, population, employment and income likely adjust to their equilibrium levels with substantial lags (initial conditions). Partial adjustment equations to the equilibrium levels are:

$$P_t = P_{t-1} + \lambda_P (P^* - P_{t-1}) \quad (9.7)$$

$$E_t = E_{t-1} + \lambda_E (E^* - E_{t-1}) \quad (9.8)$$

$$I_t = I_{t-1} + \lambda_I (I^* - I_{t-1}) \quad (9.9)$$

The level of change (or growth) is a direct function of the difference between the observed level at the beginning of the period and the theoretical equilibrium level. The greater the distance observed or initial levels are from the equilibrium the greater the level of growth to the equilibrium level. After slight rearrangement of terms:

$$\Delta P = P_t - P_{t-1} = \lambda_P (P^* - P_{t-1}) \quad (9.10)$$

$$\Delta E = E_t - E_{t-1} = \lambda_E (E^* - E_{t-1}) \quad (9.11)$$

$$\Delta I = I_t - I_{t-1} = \lambda_I (I^* - I_{t-1}) \quad (9.12)$$

with λ_P , λ_E and λ_I are speed of adjustment coefficients to the desired level of population, employment and income, respectively and are generally positive with larger values indicating faster growth rates; ΔP , ΔE and ΔI are the region's changes in population, employment and per capita income respectively; P_{t-1} , E_{t-1} and I_{t-1} are initial conditions of population, employment and per capita income.

Again, substituting and rearranging terms allows us to express the linear representation of the model which is to be estimated as:

$$\Delta P = \alpha_{op} + \beta_{1p}P_{t-1} + \beta_{2p}E_{t-1} + \beta_{3p}I_{t-1} + \gamma_{1p}\Delta E + \gamma_{2p}\Delta I + \sum \delta_{Ip}\Omega^P \quad (9.13)$$

$$\Delta E = \alpha_{oE} + \beta_{1E}P_{t-1} + \beta_{2E}E_{t-1} + \beta_{3E}I_{t-1} + \gamma_{1E}\Delta P + \gamma_{2E}\Delta I + \sum \delta_{IE}\Omega^E \quad (9.14)$$

$$\Delta I = \alpha_{oI} + \beta_{1I}P_{t-1} + \beta_{2I}E_{t-1} + \beta_{3I}I_{t-1} + \gamma_{1I}\Delta E + \gamma_{2I}\Delta P + \sum \delta_{II}\Omega^I \quad (9.15)$$

Note that the speed of adjustment coefficient (λ) becomes embedded in the linear coefficient parameters, α , β , γ and δ . This framework is particularly useful for this analysis because it allows us to capture structural relationships while simultaneously isolating the influence of amenity attributes on regional economic growth. In essence, we are modeling short-term adjustments (ΔP , ΔE and ΔI) to long-term equilibrium (P^* , E^* and I^*). In order to employ our Bayesian estimator described in the next section, we estimate reduced forms of equations (9.13)–(9.15).

Following the logic of Deller and Tsai (1999), Deller et al. (2001), Duffy (1994), English et al. (2000) and Wagner and Deller (1998) we hypothesize that there are ten broad classifications of factors influencing regional economic growth: historical growth patterns, market demands (regional demand characteristics), market supply (regional supply, specifically labor characteristics), credit markets, infrastructure, government, economic structure, agglomerations, geographical location, and politics. Within many of the classification there are subsets of characteristics. For example, the market supply, or labor classification, includes labor force participation and education measures along with health and crime measures. All but amenities are deemed to comprise the control variable matrices Ω^P , Ω^E and Ω^I .

Given such a large list of potential control variables modeling growth becomes cumbersome. To develop the most reasonable control or base model we employ Bayesian methods as described below. Prior to using BMA we reduce the laundry list of variables by using simple correlation coefficients. If two or more potential control variables are highly correlated, logic dictates that the correlated variables are capturing the same affects and only one should be considered in the Bayesian estimator. For example, nearly all of the individual crime measures were highly correlated with the general crime rate. Therefore, rather than include all 11 crime variables we introduce only the overall crime rate into the BMA method.

BAYESIAN MODEL AVERAGING

BMA is a method developed to deal with the problem of making reliable inferences about a given theoretical hypothesis, which can be based on a number of alternative statistical models presenting similar explanatory power. Model uncertainty may be the result of the openness of the theory from which those models are built. Openness, as described in Brock and Durlauf (2000), is related to the idea that one causal theory does not imply the falsity of another. It may also be the result of theory contingency, sensitivity of theoretical predictions and/or historical or geographical contexts.

For linear regression models, theory openness can be translated into the uncertainty regarding the appropriate set of regressors that should be included in the model, whereas theory contingency can be reduced to the uncertainty about how the values of such parameters should vary for a given sample either over time or within units of analysis (Fernandez et al. 1999). Testing a theoretical hypothesis in this case is often reduced to testing the statistical significance of regression parameters.

The conventional and frequentist approach has usually bypassed the issue of openness while totally ignoring the issue of contingency. Their treatment of model uncertainty has consisted of the imposition of some information criteria in order to select a single best model regarded as the true model from which regression parameters are estimated. Comparing determination coefficients (R^2) across alternative linear regressions with this purpose is the canonical example.

The Bayesian solution to this problem starts by assuming that each regression parameter is drawn from a distribution function conditional on the model as well as on the dataset used. Based on this prior assumption, it then proceeds to estimate the posterior probability of occurrence of each model given the dataset. A final estimate of the regression parameter is made by averaging its expected value over the set of all possible models weighted by each model's posterior probability of occurrence. This methodology is thus often referred as Bayesian model averaging.

By recognizing the existence of model uncertainty, BMA seeks to integrate out the dependence of the regression parameter on any particular model. Estimation of each individual model is still based on frequentist estimation methods (Ordinary Least Squares or maximum likelihood). Interpretation of the parameters to be estimated, however, are made only after its posterior distribution given only the observed data is calculated by the law of total probability. This problem was originally solved in a more general framework in Leamer (1978). Initial approximation of the BMA were derived in Raftery (1995) and was then extended to linear

regression by Raftery et al. (1997) and Hoeting et al. (1999) while Brock and Durlauf (2000) introduced it into the analysis of empirical growth models.

All BMA calculations in this study were performed using the methods outlined by Raftery (1995). Once the user has specified the set of regressors and the dependent variable, the routine generates all possible combinations on this set. All models are assumed to have equal priors, which is equivalent to say that all regressors have a probability of 0.5 of being included in any model. The program then proceeds by implementing a search algorithm to explore only a subset of the model space.

Amenity Indices

Within the literature the empirical representation of amenity attributes has tended to be single-dimensional, simplistic and to a large extent ad hoc (Gottlieb 1994). One of the two methods proposed here builds on the work of Deller et al. (2001), English et al. (2000), Goe and Green (Chapter 7, this volume) and Wagner and Deller (1998) among others. The approach we adopt was advanced by Miller (1976), who suggested that blocks of variables describing a particular attribute can be condensed into a single scalar measure that captures the information contained in the original data. For example, Dorf and Emerson (1978) reduced more than 100 different variables to 16 components that together serve as fairly reasonable predictors of each of the original variables. They then used these components to predict firm location. More recently Henry et al. (1997) compressed several blocks of variables into single regressor components to isolate the influence of local quality of life attributes on the spread effects of metropolitan growth on surrounding rural areas. Wagner and Deller (1998) use principal component analysis to compress 29 separate variables into five broad indicators of regional economic structure that are then used as controls in a study of the influence of economic diversity on regional economic performance.

The principal component is a method of compressing a set of related variables into a single scalar measure. These measures are, in essence, linear combinations of the original variables where the linear weights are the eigenvectors of the correlation matrix between the set of factor variables. Each factor is constructed orthogonal to the others. In other words, principal component is a mechanical method of inspecting the sample data for directions of variability and using this information to reduce a collection of variables into a single measure. Ideally, the final measure captures the essence of the original collection of variables. While the pros and cons of principal component analysis are well known, and a range of alternative

approaches are available, we suggest that the approach used here moves the literature forward.

To build our amenity measures we use the National Outdoor Recreation Supply Information System data set developed and maintained by the USDA Forest Service's Southern Research Station. As an outflow of the 1998 Resource Planning Act, the Forest Service maintains an extensive county-level data set documenting facilities and resources that support outdoor recreation activities. Many of these same resources are precisely the amenities that contribute to overall regional quality of life. The NORSIS data set contains over 300 separate variables. The data reflect the year 1990. Our set of amenity measures are focused on climate, land-based amenities, water-based amenities, winter-based amenities and built or value-added amenities.

Spatial Modeling

As argued above, the effective supply of many amenities does not correspond to county boundaries. Rather the amenity is more of a regional resource. By constructing a spatially weighted amenity measure we hope to better capture the regional effects of these amenities. At the same time other amenities have a very localized affect and a spatially weighted measure may be inappropriate. The spatial spillover of amenities is not clearly understood. For example, in some parts of the county golf courses may serve a very localized market and a spatially weighted measure may be incorrect. But in other parts of the country, such as the central sands region of North Carolina (Pinehurst), golfing supports not only the local market, but also draws golfers from around the country. It is the quality of the golfing and the critical mass of golfing opportunities that make the central sands of North Carolina unique. Because many of the amenities that we examine are regional, such as a national or state forest, the influence of the amenity does not respect county boundaries. At a minimum we should allow for spatial correlation in our estimation and allow the data to dictate the best fit.

In this applied study we estimate the growth models in a two-step manner. First we use the Bayesian methods described in detail above to develop a base model. In other words the Bayesian approach determines the set of control variables to be used when testing our central hypothesis on the role of amenities. Second, once the base model is established then the amenity measures are introduced. In this second stage we employ traditional spatial econometric methods. We estimate three spatial models:

$$\text{Spatial autoregressive error: } y = x\beta + u; \quad u = \lambda Wu + \varepsilon; \quad \varepsilon \sim N(0, \sigma^2 I) \quad (9.16a)$$

$$\text{Autoregressive-regressive model: } y = \rho W y + x\beta + \varepsilon; \quad \varepsilon \sim N(0, \sigma^2 I) \quad (9.16b)$$

$$\text{General spatial model: } y = \rho W_1 y + x\beta + u; \quad u = \lambda W_2 u + \varepsilon; \quad \varepsilon \sim N(0, \sigma^2 I) \quad (9.16c)$$

Where W is a simple adjacency spatial weight matrix. By explicitly allowing for and capturing spatial correlation we hope to improve the efficiency of the estimated growth models.

EMPIRICAL RESULTS

For this analysis there are three distinct sets of empirical results. First, the principal component analysis used to construct the measures of amenity attributes. Second, the Bayesian approach to deriving the base model and third, the spatial estimation of the amenity growth equations.

Amenity Measurement

The results of the principal component analysis for the five broad measures of amenity attributes are reported in Table 9.1. For climate the final measure accounts for 46.2 percent of the variation of the six separate input variables. Of the six variables, only January sunny days and July temperature do not play an important role in the final measure. Counties that have higher average winter and year-round temperatures, precipitation levels as well as higher levels of July humidity will have higher values of the final principal component derived measure. Higher values of the climate measure tend to be associated with southern coastal regions such as Alabama and Florida while lower values with more northern regions such as Maine and Wyoming. Based on the cumulative variance of all six variables explained by the final measure, the climate measure is the strongest performing, accounting for 46.2 percent of the variation.

The developed recreational infrastructure measure is intended to capture the role of amenities that are more artificial, or built. Fourteen separate variables are used to construct this particular amenity attribute measure. Individual variables that determine the final amenity measure include number of park and recreational departments within the county, the number of tennis courts, number of establishments defined as amusement oriented and number of golf courses. Number of swimming pools, playgrounds and recreational centers and fairgrounds, does not contribute significantly to the final developed recreational infrastructure measure of

Table 9.1 Construction of amenity variables

Climate variables	Eigenvector
Average temperature	0.5016
Average annual precipitation	0.5387
January temperature	0.5160
January sunny days	0.0391
July temperature	0.0747
July humidity	0.4300
Cumulative variance explained	46.2%
Urban facilities variables	
# parks and recreational departments	0.4168
# tour operators and sightseeing tour operators	0.2884
# playgrounds and recreation centers	0.0187
# private and public swimming pools	0.0785
# private and public tennis courts	0.4950
# organized camps	0.2739
# tourist attractions and historical places	0.1559
# amusement places	0.3534
# fairgrounds	0.0035
# local or county parks	0.0313
# private and public golf courses	0.3908
# ISTEA funded greenway trails	0.3300
Estimated of acres of built up land from 1995 National Resources Inventory (NRI)	0.0680
Cumulative variance explained	16.7%
Land variables	
# guides services	0.3186
# hunting/fishing preserves, clubs, lodges	-0.0276
BLM public domain acres	0.1593
Acres of mountains	0.4021
Acres of cropland, pasture and range land	-0.3403
USDA-FS National Forest and Grassland acres	0.4495
FWS refuge acres open for recreation	0.1129
Woodalls # private campground sites	0.2983
Woodalls # public campground sites	0.1449
NPS federal acres	0.2617
NRI estimate of forest acres	0.0981
Acres managed by Bureau of Reclamation, Tennessee Valley Authority, Corps of Engineers	0.0014
Total rail-trail miles	0.0993
State park acres	0.0420
The Nature Conservancy acres with public access	0.0231

Table 9.1 (continued)

Climate variables	Eigenvector
National Wilderness Preservation System acreage: total 1993	0.4240
Cumulative variance explained	18.7%
Water variables	
# Marinas	0.4219
# Canoe outfitters, rental firms and raft trip firms	0.3269
# diving instruction or tours and snorkel outfitters	0.1908
# guides services	0.4776
# fish camps, private or public fish lakes, piers and ponds	0.5482
# American Whitewater Association total white water river miles	0.1184
Designated wild and scenic river miles: total 1993	0.1367
National Resources Inventory (NRI) acres in water bodies 2–40 acres, <2 acres, and \geq 40 acres (lake or reservoir)	0.1597
NRI acres in streams < 66 ft wide, 66–660 ft wide and \geq 1/8 miles wide	-0.0364
NRI water body \geq 40 acres (bay, gulf, or estuary)	0.2665
NRI wetland acres	0.0654
NRI total river miles, outstanding value	0.1235
Cumulative variance explained	16.8%
Winter variables	
Cross-country Ski Areas Association number of cross-country ski firms, and public cross-country ski centers	0.3496
International Ski Service skiable acreage	0.3206
Federal land acres in counties with > 24 inches annual snowfall	0.5233
Agricultural acres in counties with > 24 inches annual snowfall	0.1381
Acres of mountains in counties > 24 inches annual snowfall	0.5864
Acres of forestland in counties > 24 inches annual snowfall	0.3717
Cumulative variance explained	35.9%

amenities. The central sands region of North Carolina, the location of numerous golfing communities, scores highly on this amenity measure. Given the nature of most of rural America, the majority of counties score rather low on this measure. Due to the relatively large number of variables introduced into this measure and the large number of variables not loading into the final principal component measure, only 16.7 percent of the cumulative variance is explained.

The land measure is intended to describe the nature of the terrain and land resources within the county. The principal component-derived final measure appears to separate mountainous areas that have high levels of

National Forest and Grassland acres and national wilderness preservation land acreage from those that tend to be more agriculturally oriented. Given these results, counties from the western states would tend to score higher on this measure while lands in the corn-belt or Great Plains would tend to score lower. Again, due to the relatively large number of variables introduced into this measure, coupled with the large number of variables not loaded into the final principal component measure, only 18.7 percent of the cumulative variance is explained.

The water measure is intended to capture the water resources available within the county. The principal component derived final measure used for this analysis tends to emphasize value added businesses associated with water resources. Counties with a higher number of marinas, guide services, businesses that cater to fishing activities and canoe or rafting rental firms tend to score higher on this measure. Counties with undeveloped pure water resources do not appear to rank high in this measure. This measure captures water resources that are more highly developed for recreational uses. The Ozark region of Missouri tends to score highly on this measure while more pristine regions such as the Boundary Waters of Minnesota tend to score lower. Arid places such as eastern Colorado score the lowest. As with the developed recreational infrastructure and land measures, the large number of variables introduced into the analysis reduced the cumulative variation explained to 16.8 percent.

The fifth and final measure of amenity attributes used in this analysis captures winter recreational opportunities. Results strongly separate counties with developed commercial facilities, both downhill and cross-country skiing, from areas with limited snowfall or those areas with snowfall that are not developed. This principal component derived final measure is separating winter recreational destination areas, such as Teton County, Wyoming, from all others. The cumulative variation explained is 35.9 percent.

The measures as defined by the principal component analysis appears to be identifying those counties that tend to have a higher level of recreational development (both urban and rural) as opposed to those area that have higher levels of raw amenities. The interpretation of the empirical results in the next section must be sensitive to the fact that the measures developed here tend to capture more highly developed amenities. Remote counties with pristine lakes and untouched wilderness will tend to score lower on our measures than more highly developed areas. Moreover, remote areas with lakes, forests and varied terrain will score higher in these measures than remote flatlands regardless of the level of commercial development. One possible explanation for this pattern is the relative homogeneity of most rural counties. Rural counties which have high amenities and are more commercially developed, tend to stand out in a statistical sense. From a

regional growth perspective, there may be mild agglomeration economies at play with these counties.

Growth Models

The results of the amenity argued growth models are reported in Table 9.2. Recall that the results presented in Table 9.2 are the second part of a two-step process. Step one involved the estimation of the base models using the BMA method and step two involved the introduction of the amenity measures and then the re-estimation of the model using spatial econometric

Table 9.2 *Amenity growth models*

	Per capita income	Employment	Population
Intercept	38.13261 (123.95)	9.790436 (2.21)	-18.114509 (5.92)
Historical patterns			
Percent change in per capita income 1979-89	n/a	n/a	0.05507 (4.32)
Percent change in employment 1979-89	n/a	0.059131 (2.25)	0.044447 (3.15)
Percent change population 1979-89	-0.00173 (2.48)	0.517686 (13.71)	0.537958 (26.54)
Per capita personal income 1989 (2000 dollars)	0.00000 (0.98)	n/a	n/a
Total population 1989	0.00000 (1.51)	n/a	n/a
Total employment 1989	0.00001 (0.81)	n/a	n/a
Markets (demand)			
Percent of the population non-white	n/a	0.006766 (0.23)	-0.048212 (3.00)
Percent of the population over 65 years of age	n/a	-0.450985 (4.88)	-0.274509 (5.16)
Entropy measure of income inequality	-0.000001 (0.03)	n/a	n/a
Percent of the population living in poverty	n/a	n/a	0.212456 (5.77)
Unemployment rate	0.009593 (2.75)	n/a	n/a
Number of vehicles per household	n/a	11.134639 (5.27)	17.825539 (12.50)

Table 9.2 (continued)

	Per capita income	Employment	Population
Health care			
Deaths per 1,000 persons	0.005322 (1.28)	n/a	n/a
Hospital beds per 100 000 persons	n/a	n/a	-0.001765 (3.87)
Markets (supply)			
Percent of the population living on farms	0.001289 (0.77)	n/a	-0.255976 (6.59)
Percent of the population foreign-born	-0.025948 (6.22)	-0.471024 (3.99)	-0.013026 (0.22)
Percent of the population over 25 with at least a high school degree	0.006855 (2.85)	n/a	n/a
Percent of the population over 25 with at least a B.A.	-0.004455 (1.72)	0.338546 (4.64)	n/a
Government			
Local taxes per capita	0.000013 (0.37)	-0.008551 (6.73)	-0.004916 (7.42)
State and local govt employment per 10 000 persons	0.000077 (2.48)	-0.004947 (3.79)	-0.003656 (5.82)
Civilian federal employees per 10 000 persons	n/a	-0.010035 (4.89)	n/a
Military employment	n/a	-0.000322 (3.48)	-0.000225 (4.82)
Amenities			
Climate amenity	-0.242175 (14.16)	-0.693306 (2.34)	-0.006987 (0.04)
Built amenity	-0.005828 (1.06)	0.895024 (3.61)	0.353525 (2.80)
Land-based amenity	-0.008297 (1.02)	0.151852 (0.52)	0.026918 (0.17)
Water-based amenity	-0.011763 (1.90)	1.051637 (4.11)	0.385808 (2.93)
Winter-based amenity	0.029377 (3.10)	0.286959 (0.87)	0.668294 (3.90)
Spatial relationship			
λ	0.95609 (347.83)	0.074673 (8.82)	0.10698 (7.81)

specifications of the error structure. As described above we estimated three different specifications of the spatial error structure (equations 9.16a–9.16c) and the data supported the spatial autoregressive error (equation 9.16a) specification. In each growth equation the estimated λ is significantly different from zero at or above the 95 percent level of confidence.

Consider first the historical variables. Change in per capita income from 1979 to the base year 1989 did not enter into either the income or employment equations based on the BMA, but has a positive and significant impact on population growth through the 1990s. Change in employment from 1979 to the base 1989 has a positive and significant impact on both employment and population growth through the 1990s but not on per capita income. Population growth through the 1980s has a strong and negative influence on growth in per capita income in the 1990s, but a positive impact on employment and population growth. The BMA approach did not enter any of the Carlino and Mills base variables, per capita income, employment and population in 1989, into either the employment or population growth equations, but did introduce them into the per capita income growth equation. But once spatial dependency is included, none of these three variables remained significant.

Consider now the market variables. The percent of the population that is non-white appears to have a negative affect on population growth, but does not seem to impact either employment or income growth. An older population in the base year, however, places downward pressure on employment and population growth, but does not seem to influence income growth based on the BMA estimator. Again based on the BMA estimator, income distribution plays no role in employment or population growth. Once the spatial dependency is considered income distribution does not seem to affect per capita income growth either. Poverty rates do not impact income or employment growth, but surprisingly are positively associated with population growth. Equally surprising is that higher levels of unemployment seem to place upward pressure on income growth but play no role in either employment or population growth. Number of vehicles per household as a measure of wealth does not influence income growth but has a strong positive association with employment and population growth. The Bayesian approach suggests that the death rate has an impact on income growth, but not on employment or population. Once spatial dependency is accounted for in the error structure, however, the death rate appears to play no role in economic growth. The number of hospital beds per 100 000 persons appears to be negatively associated with population growth, but plays no role in either income or employment growth.

Four market supply variables are introduced into our expanded Carlino and Mills growth model. Per cent of the population living on farms has

a strong negative influence on population growth but does not appear to impact either income or employment growth. Percent of the population foreign born in 1990 has a negative impact on both income and employment growth but does not appear to impact population growth once spatial dependencies are considered. In terms of education attainment, we have a mixed set of results. Percent of the population over age 25 with at least a high school degree does not influence population or employment growth but does have a positive impact on income growth. Percent of the population over age 25 with at least a bachelor's degree again does not seem to influence population growth, but does have a positive impact on employment growth. Surprisingly, a higher level of a college degree seems to place some downward pressure on income growth.

Nearly across the board, the measures of government that entered into the base models via the Bayesian estimator have a dampening affect on growth. Higher local taxes per capita places downward pressure on employment and population growth, but do not seem to affect income growth. The number of state and local government employees per 10 000 persons negatively affects employment and population growth but positively impact income growth. The number of civilian federal employees per 10 000 persons does not influence either income or population growth, but it does negatively affect employment growth. Federal military employment levels do not influence income but does negatively impact employment and population growth.

The results of the amenity measures are particularly interesting. Our climate measure, which separates out warmer and more humid areas of the US, is negatively associated with income and employment growth and does not appear to impact population growth. Our built amenity measure does not impact income growth, but does have a positive and statistically significant impact on employment and population growth. Land-based amenities as we have measured them here do not seem to play a role in income, employment or population growth. Water-based amenities are negatively associated with income growth but positively associated with employment and population growth. Finally, the winter-based amenity measure is positively associated with income and population growth, but appears to have no role in employment growth.

The patterns of growth that are revealed here are complex and at times somewhat contradictory. For example, based on historical growth patterns, regions that were growing faster during the 1980s seemed to have sustained that growth into the 1990s. But this is not the case with per capita income, where historical growth had no influence or a dampening affect. Similarly, contrary to the standard interpretation of the classic Carlino and Mills model, initial values of population, income or employment do not seem to

influence growth in the 1990s. Some results are as expected, such as higher local taxes dampening growth, but others are counter-intuitive. Consider for example higher poverty rates being associated with faster population growth or higher unemployment rates associated with faster income growth.

The amenity results are fortunately somewhat cleaner and more consistent with our hypotheses. Higher levels of amenities tend to be associated with faster growth rates. Only the case of climate has a negative impact on growth. The results presented in this applied research provides strong evidence that the most robust growth in the 1990s occurred in areas that were endowed with high levels of amenities, but had also added value to those amenities through investments in amusements and recreation services. These are the areas that are now experiencing faster growth. Higher-end amenities generally associated with a wealthier population, such as golf courses and tennis courts, have experienced their growth period and are now more stable than areas in the middle tier.

CONCLUSIONS

This applied research has moved the empirical regional economic growth literature forward in two important ways. First, the problem of model specification is directly addressed through the use of Bayesian model averaging methods. Through a consistent and rigorous variable reduction process a wealth of potential control variables are reduced to a manageable number. Second, the role of amenities and quality of life attributes are explicitly modeled beyond the traditional scalar measure of a single dimensional attribute, such as number of sunny days. Finally, we explicitly recognize the spatial spillover of amenities by employing a spatial autoregressive model.

The results of our modeling point to several important conclusions. First, by expanding the traditional Carlino and Mills growth model to include income we reveal that growth policy is sensitive to the metric of growth used. For example, many of the control variables identified by the BMA estimator have opposite affects on income, employment and population. This is particularly evident with investments in human capital as measured by education attainment levels. Second, county-level models of growth that do not account for spatial dependency can lead to erroneous results. Finally, and perhaps most important, amenities have a strong and positive impact on county economic growth.

The measures as defined by the principal component analysis appear to be identifying those counties that tend to have a higher level of recreational development (both urban and rural) as opposed to those area that have higher levels of raw amenities. The interpretation of the empirical results is

sensitive to the fact that the measures developed here tend to capture more highly developed amenities. Remote counties with pristine lakes and untouched wilderness will tend to score lower on our measures than more highly developed areas. Moreover, remote areas with lakes, forests and varied terrain will score higher in these measures than remote flatlands regardless of the level of commercial development. One possible explanation for this pattern is the relative homogeneity of most rural counties. Rural counties with high amenities that are more commercially developed tend to stand out in a statistical sense. From a regional growth perspective, there may be mild agglomeration economies at play within these counties.

These results are consistent with previous studies examining the role of amenities in rural economic growth. The work of Dissart and Marcouiller (Chapter 10, this volume), Duffy-Deno (1997; 1998), Keith and Fawson (1995), and Keith et al. (1996) finds that rural areas with undeveloped natural amenities are not experiencing the same levels of growth as those areas that have a developed tourism and/or recreational base. This makes intuitive sense: if there is no mechanism to capture dollars, the ability of the region to grow is limited (Shaffer et al. 2004).

Clearly there is much room for additional work. Both theory and the data support the notion that there is spatial dependency when modeling amenities and economic growth and development. The spatial autoregressive model used here with a simple adjacency weight matrix is not sufficient. Greater attention must be paid to the nature of the amenity considered and the spatial elements of that amenity. Second, the measurement of amenities is still unsatisfactory. While the measures used here represents an improvement over what is available in the literature, the simple scalar metric approach must be improved upon. Third, while the evidence explaining the role of amenities in rural economic growth is becoming clearer, there is significant work to be done when one thinks about economic development. To this end we applaud the work of Goe and Green (Chapter 7, this volume) who focus attention on broad notions of economic well-being. Is the growth that is occurring sustainable or will the growth consume and destroy the amenity that fostered the growth in the first place (Howe et al. 1997)? Finally, the two-step method of Bayesian and then spatial estimation is less than satisfactory and the integration of spatial modeling into the Bayesian estimator is necessary.

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10. Impact of outdoor recreation facilities on remote rural income growth

J.C. Dissart and David W. Marcouiller

INTRODUCTION

Despite the population turnaround of the 1970s, considerable public policy effort, and generally increasing demands for rural land, US rural areas still lag behind urban ones with respect to many socioeconomic indicators, including housing, transportation, educational attainment, health care and income. This statement, however, is not generally applicable to all rural areas. Rural America actually offers a diverse, contrasted picture of regions both in economic decline and in generally improving economic conditions (Castle 1995; Drabenstott and Smith 1995; Lapping et al. 1989). The latter are typified as either located near major metropolitan areas, benefiting from agglomeration economies and economic spillover, or offering outstanding natural, cultural or social amenities that attract people and firms.

During the past 50 years, the rural economy has transitioned away from traditional natural resource extraction activities and its related processing to services (both personal and professional) and retail sectors. With rising per capita incomes, transportation improvements and environmental awareness, rural land is increasingly seen as a reservoir of natural resources for amenity use such as recreation and tourism, rather than for extractive use such as forestry, mining, agriculture or fisheries. Recreation and tourism is currently a popular rural development strategy because of the apparent ease of tourism in creating jobs and income, its low requirement in labor training and infrastructure investments, and its seemingly nonconsumptive nature (Frederick 1993).

The chief interest of rural tourism and recreation for rural areas, though, is that it capitalizes on land, a resource for which rural areas naturally enjoy a comparative advantage over urban places. Hence, rural tourism could provide a venue for competitiveness within market economies and long-term development. Those rural regions that are more remote (not adjacent

to metropolitan areas) are those that stand to benefit most from tourism development because of the lack of economic spillovers from those areas. Tourism development, however, is not without negative economic, social and environmental impacts.

Whereas an empirical connection between natural amenities and rural economic growth has been established (English et al. 2000; Deller et al. 2001), debate surrounding the efficacy of nature-based tourism as a rural community development strategy exists (Marcouiller et al. 2004). In terms of economic growth in particular, natural-resource-based recreation strategies rely on both land (natural amenities) and a host of nature-based tourism businesses and their supporting supply structure (Marcouiller and Green 2000). Also, recreation resources may be differentiated in terms of natural amenities (undeveloped) and outdoor recreation facilities (developed) that allow access to natural amenities. The latter may accompany natural resources and facilitate their enjoyment, thus attracting visitors and constituting a source of economic activity (Marcouiller and Prey, forthcoming). This distinction is critical to rural development planning because recreation facilities may be planned and acted upon whereas natural amenities are often considered as fixed endowments in the short-term.

English and Bergstrom (1994) established the conceptual link between recreation site development and regional economic impact. Empirical assessment of the relationship between outdoor recreation facilities and rural economic growth, however, is only now beginning to appear in the literature (Marcouiller and Prey 2005). Consequently, the question this research attempts to answer is the following: to what extent do outdoor recreation facilities impact economic growth in remote rural counties across the US?

Our empirical work proceeds in a three-stage fashion. First, we build amenity metrics to identify regional characteristics for comparative purposes. We then use these metrics as mechanisms by which regional amenity clusters are formed. Finally, we estimate the effect of recreational sites on economic characteristics using explanatory regression models by each of these resulting clusters.

The presentation of our work is organized into five subsequent sections. The first section reviews the literature on income issues, the specific situation of remote rural areas, and factors that impact economic growth. In the next section, data and methods are outlined. Following this methods section, we present the results of these two analyses. The study concludes with policy recommendations based on a discussion of the results and a summary of limitations, contributions of the analysis and further research needs.

LITERATURE REVIEW

The focus of this applied research on rural income growth reflects an interest in an important dimension of contemporary American income inequality. Since 1970, there has been a strong, persistent and increasing income divide between urban and rural economies (Renkow 1996). Economic and demographic indicators suggest a growing disparity between urban and rural areas (Hansen 1995; Redman et al. 1992). Even though the 1990s witnessed a strong national economic expansion with urban regions experiencing declines in unemployment, increase in per capita income, and increases in weekly earnings, the performance of rural regions has lagged.

The income gap between urban and rural regions has remained both significant and persistent. The net per capita income gap between metropolitan and nonmetropolitan regions increased since the 1970s in the US. In 2000, nonmetropolitan regions lagged behind metropolitan regions by at least \$9000 in per capita income (BEA 2001). The per capita income ratio of nonmetropolitan to metropolitan regions has declined since the mid-1970s, except during the 1988 to 1994 period. Strong economic growth in the six-year period may have led to an increase in the per capita income ratio. In 2000, the per capita income ratio of nonmetropolitan to metropolitan regions decreased to an all-time record low of 69.7.

Income disparities grow as distance from metropolitan area increases. Indeed, while there is an overall pattern of economic disadvantage for rural areas, deeply rural regions (those that are not adjacent to metropolitan areas) face an even more challenging planning context due to remoteness.

Distance from and access to major metropolitan areas is only one of several factors that shape rural American diversity (USDA-ERS 1995). Despite improvements in communication and transportation, however, remoteness specifically affects rural well-being (USDA-ERS 1995). First, small-scale, low-density settlement patterns increase per capita costs of critical services such as education and health care, making them more difficult to maintain. Then, by impeding rural areas from being connected to the urban centers where most information, innovation, trade and services take place, remoteness creates a barrier to development. Lastly, as extractive industry employment has declined and has not been entirely replaced by other industries, the younger, wealthier and more educated population has left to seek jobs elsewhere, impeding economic development.

Thus, Feser and Sweeney (1998) found that out-migration/population loss (OPL) could impair the local development potential by depleting regions of critical human capital, and by increasing fiscal pressure on local governments. They also found that over the 1985 to 1994 period, most

communities facing severe OPL were located in the Great Plains and Mountain regions of the United States. Indeed, the Great Plains have been losing population for decades, and the more remote the counties, the worse the population loss (Rathge and Highman 1998; Rowley 1998). The situation is quite different in the West because the region is natural amenity-rich. Thus, the rural West experienced a 15 percent population gain over the 1990 to 1997 period versus 5 percent for other rural areas. Rapid growth in the rural West is likely to continue with the growth of western cities, the coming retirement of many baby boomers and the region's own youthful population (Cromartie and Wardwell 1999).

A significant body of literature has examined the relationship between regional growth and amenities. Amenities may be generally defined as location-specific features that are conducive to convenience, attractiveness or value. Amenities constitute a category of determinants of growth, and one of the important dimensions of quality of life along with other environmental, social and economic factors (Dissart and Deller 2000). Regional growth has been studied from specific perspectives, namely human migration (e.g., Greenwood 1985) or firm location (Blair and Premus 1987), but may be considered as resulting from both human migration and business location (Knapp and Graves 1989).

Kusmin (1994) reviewed empirical studies of factors associated with the growth of regional economies, and found that substantive conclusions were sensitive to research design issues. Wong (1998) found that traditional economic factors (land, labor, capital, location) had to be satisfied first before intangible factors (business culture, community image, quality of life) mattered for economic development. Carlino and Mills (1987) analysed the effects of economic, demographic, and climatic variables on population and employment growth in a simultaneous-equation framework. Among their findings were that location-specific amenities affected population and total employment. Subsequently, other studies have examined employment and population using simultaneous equation modeling (Boarnet 1994; Clark and Murphy 1996; Crown 1991; Henry et al. 1997), and indicated a significant but complex role of amenities in regional economic growth and development.

There has been a growing stream of literature on outdoor recreation and regional economic development. Rudzitis and Johansen (1991) found that a majority of residents of wilderness counties had moved to or lived in the area because of wilderness. Using simultaneous-equation modeling, Duffy-Deno (1997a; 1997b; 1998) found no negative effect of the Endangered Species Act, state parks, and federally-owned wilderness areas, respectively, on the economies of western nonmetropolitan U.S. counties. Using input-output multipliers based on surveys of wilderness users in Utah, Keith and

Fawson (1995) assessed that visitors' expenditures did not significantly influence these economies. On the contrary, using the same approach, Bergstrom et al. (1990) found that spending associated with outdoor recreation contributed significantly to output, income, value added, and employment in the rural areas they studied.

Despite the significant literature generated on amenities and rural development, there is still a knowledge gap regarding the empirical relationship between outdoor recreation facilities and rural economic development. Deller et al. (2001) empirically assessed the role of amenities and quality of life in rural economic growth in the United States. Based on county-level secondary data, they used principal component analysis to derive five amenity vectors: land, water, winter, climate and developed recreational infrastructure. They integrated these principal components in a structural model of regional economic growth, along with other variables thought to impact regional development (markets, labor, government), and showed that predictable relationships between amenities, quality of life and local economic performance exist.

Focusing on household microeconomics of recreation trip expenditure behavior, English and Bergstrom (1994) examined the conceptual links between recreation site development and regional economic impacts. They argued that assessing regional economic impacts of recreation trips was important to public agencies' decisions about using recreation as a rural development tool. Basically, a recreation site contributes to a region's economic growth through household purchases of both trip specific inputs and durable recreation equipment. This analysis empirically examined the connection between recreation facilities and rural growth.

Lacking is a broader and more theoretically consistent approach that looks at the supply attributes that link recreation and tourism incidence. The supply of recreation and tourism is a complex combination of natural amenities, recreational sites, access, and private sector business activity that is influenced by an array of factors which act to provide opportunities to satisfy leisure-based travel demands. Marcouiller and Prey (2005) used measures of recreational site density that accounted for both physical/geographic size and population, or social capacity as explanatory variables in models of tourism incidence. Their results suggest that measures of recreational carrying capacity vary widely depending on the metric used and that capturing a broader geographic realm is critical to understanding the spatial supply patterns of amenities, certain types of recreational sites and the phenomenon of tourism.

Indeed, there is ample opportunity for further work that more consistently places the presence of natural amenities and related value-added regional recreational site attributes against the incidence of local economic

activity (most often associated with the tourism sectors) to evaluate economic change over time.

DATA AND METHODS

The conceptual approach for analysis contained in this study rests on a rural tourism modeling framework. The main variables of interest were natural amenities, outdoor recreation facilities, economic growth measured over the 1989 to 1999 period, and a set of factors related to the recreation area and its potential users. Methods involved a two-step approach: cluster analysis then regression analysis. Indeed, despite abundant literature that stresses the diversity of rural America, most rural economics studies tend to lump together all counties, regardless of their remote or metro-adjacency situation. In addition, America enjoys varied natural resources and landscapes that condition tourism and recreation activities. Consequently, cluster analysis of remote counties was used to reflect and account for the diversity of rural resource endowments, a critical element of this analysis. Cluster and regression analysis are detailed in turn.

Our conceptual approach is illustrated by Figure 10.1 below. Basically, natural amenities and outdoor recreation facilities, as major components

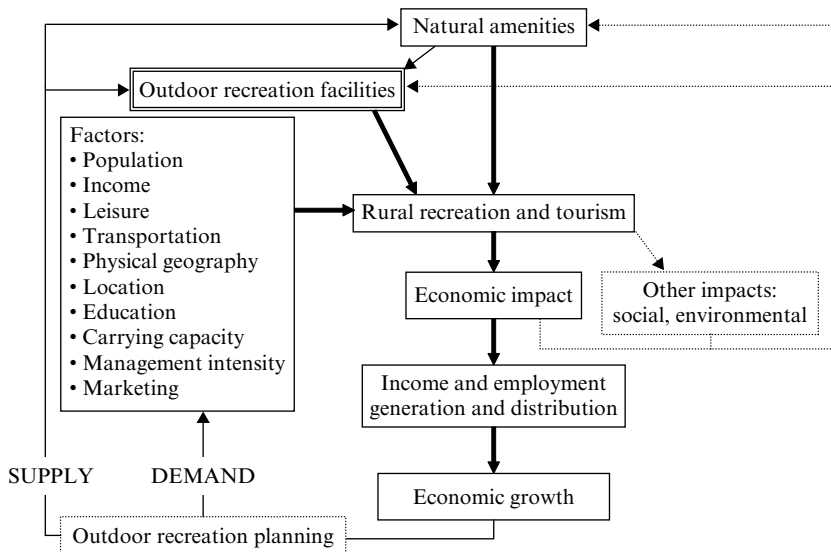


Figure 10.1 Conceptual approach: a tourism model

of the supply side, are thought to impact the level of recreation and tourism in a given area. A specific area with natural amenity-based recreation potential attracts capital, labor and technology to develop specific recreation facilities (for example, a ski resort or marina) as well as second homes and hotel/motel units to house visitors (Lapping et al. 1989). This increased population of consumers (both temporary and permanent) leads to an increased aggregated demand for goods and services in the local economy. In order to match this increased demand, an increase in the local supply of goods and services is necessary. In turn, increased supply requires more capital and labor. Thus, a nature-based tourism development strategy may increase local economic growth. The conceptual model also features a series of factors related to the potential recreation users and the recreation area itself that may affect the demand for a specific recreation area. As summarized by Daniels et al. (1995, p. 275), '[T]o achieve lasting success with tourism, a town must be accessible to fairly affluent tourists who live within 200 miles.'

A feedback mechanism shows the interdependence between natural amenities, outdoor recreation facilities and economic development (Figure 10.1). Thus, mismanagement of the natural resource base (overuse) or changes in people's preferences for certain types of recreation areas and activities, may lead to a contraction of local economic activity, which could lead to local economic decline.

A study of the specific planning process that provides outdoor recreation facilities and manages natural amenities was beyond the scope of the study. Rather, we focused on selected observable outcomes of the rural planning process, as illustrated by levels of outdoor recreation facility development and levels of economic growth, while controlling for natural amenity and various demand factors.

Our primary geographic unit was limited to remote rural America. Specifically, units of analysis were US nonmetropolitan, and non-adjacent to metropolitan counties. This type of geographic limitation focuses attention on those counties both in need of economic growth and with relatively high comparative advantage in terms of open space (able to capitalize on their land base). Determination of the nonmetropolitan status of a county was based on the rural-urban continuum code established by the Economic Research Service of the United States Department of Agriculture (USDA-ERS 1997). Codes of nonmetropolitan counties that were of interest for this study were 5 (urban population of 20 000 or more, not adjacent to a metro area), 7 (urban population of 2500 to 19 999, not adjacent to a metro area), and 9 (completely rural or fewer than 2500 urban population, not adjacent to a metro area). The states of Alaska and Hawaii were excluded from the analysis.

Economic growth was the dependant variable of interest, and operationalized by the change in median household income over the 1989 to 1999 period. Income statistics were available from the US Census Bureau (USCB 2002): median household income in 1989 (variable P080A) and in 1999 (P53); 1999 data were adjusted for inflation. Percent change over the 1989 to 1999 period was calculated to yield INCOME, the economic growth indicator of interest.

Conceptually, we assume a tacit link between recreation activities, natural amenities and recreation facilities. For example, downhill skiing requires elevation and snow (topography and climate) but swimming, whilst requiring water, does not necessarily require a beach. Therefore, outdoor recreation facilities play a supporting role for a number of outdoor recreation activities that do need a natural amenity base.

Data regarding natural amenities (and outdoor recreation facilities) were available from the National Outdoor Recreation Supply Information System (NORSIS), a county-level database that documents facilities and resources that support outdoor recreation activities in the US (USDA-FS 1997). Each NORSIS variable is derived from a source dataset and aggregated to a summary measure at the county level. Typically, these measures are either the sum total of land or water acreage in the county or the sum total of outdoor recreation facility counts.

Natural amenity variables were primarily used to describe land forms, land covers and land resources that condition the extent to which certain types of recreation activities can take place, hence the outdoor recreation facilities that may support them. As such, they constitute a measure of supply for outdoor recreation and tourism, assumed not to vary over the study period.

Also, as there is a wide variation in county land area across the United States, and the objective was to group homogeneous counties in terms of physical environment, the following ratios were calculated, in proportion to total county area (NRITOTAL): (1) proportion of water acreage; (2) proportion of mountainous acreage; (3) proportion of forested acreage; (4) proportion of wetland acreage; and (5) proportion of wildlife acreage. After standardization, six criterion variables were available for cluster analysis: (1) PROPWAT (water), (2) PROPMTNS (mountains), (3) PROPFOR (forest), (4) PROPWETL (wetlands), (5) PROWILDL (wildlife), and (6) AVGTEMP (temperature).

Outdoor Recreation Facility (ORF) variables were used to describe certain types of recreation activities that can take place, as conditioned by the natural resource base. As such, like natural amenities, they constitute a measure of supply for outdoor recreation and tourism opportunities. ORF variables were categorized according to the enabling natural resource base,

then the supported recreation activity. For example, the resource base 'water' comprised six recreation activities: boating, fishing, swimming, diving, canoeing/rafting and water general. The boating activity itself comprised variables related to the number of boat ramps, boat launches, refuges with motorized or motorized boating, marinas, boat rental firms, boating and sailing instruction firms, from multiple sources (Forest Service, National Park Service, Corps of Engineers, Bureau of Land Management, Bureau of Reclamation, Tennessee Valley Authority, State Parks, Fish and Wildlife Service, and American Business Information).

To obtain a relative measure of supply of these facilities, all ORF variables were first divided by total county area (NRITOTAL); they were then standardized to a mean of 0 and a standard deviation of 1; finally, they were summed by the corresponding natural amenity base to form six ORF indices: (1) WATER, (2) CLIMATE, (3) TOPOG, (4) LAND, (5) WILDLIFE, (6) NATURE. Thus, for example, the ORF index WATER is the sum of all variables related to the boating, fishing, swimming, diving, canoeing/rafting, and water-general activities, these activities being themselves aggregations of ORF variables extracted from NORSIS. One important feature of the research design was that the time at which the development of facilities took place was not known. Since economic growth was measured over the 1989 to 1999 period, the treatment may have happened before or during the study period, a definite data limitation of the study.

Last, a number of key control variables, related to both potential recreation users and the recreation area itself were identified from the literature review. Population characteristics included education, age and growth. Education and age data were available from the *County and City Data Book* (USCB 1994). As the modern wilderness enthusiast is better educated than the less frequent visitor to the wilderness (Hendon 1991), the variable retained for the study was persons 25 years and over, percent with bachelor's degree or higher in 1990: EDUCOL. Population age was estimated by the percent of population aged 65 years and over in 1990 (USCB 1994): POPOV65. The choice of this variable reflected the extensive documentation of amenity migration by retirees. Yearly population numbers were available from the Regional Economic Information System (BEA 2001), and used to calculate the percent change in population between 1989 and 1999: POP8999.

Data regarding transportation infrastructure were obtained from the Highway Performance Monitoring System, Federal Highway Administration, US Department of Transportation (FHWA 2001). The extent of interstate mileage per county was divided by total county acreage (NRITOTAL) to yield a variable that described density of interstate infrastructure in a given county: INTRSDEN.

Location, or distance from markets, is a theoretically important variable for tourism-based development strategies. Distance between nonmetropolitan and metropolitan areas can also serve as a proxy for agglomeration economy effects. Here, distance was defined as the Euclidean, straight-line distance between two objects, in this case two county centroids. Distance (B02MDIST) was calculated between a given remote rural county and its closest metropolitan county, which was defined as counties in metropolitan areas of 250 000 population or more.

Management intensity was approximated by resource ownership. Proportion of public (municipal, county, state, federal) ownership of land with respect to total county acreage (NRITOTAL) was calculated: PROP-PUBL. Last, data on marketing efforts to stimulate demand for recreation areas were available at the state level only. The Travel Industry Association of America conducts an annual survey of state and territory tourism offices (TIAA 2000). A county-level tourism marketing variable was created by allocating a share of a given state tourism office budget for 1989 to every county in that state based on the county's share of the 1989 state population: TRSM89PO.

Beyond calculating appropriate ratios and indices, the analysis involved two major steps. First, cluster analysis was used to group similar counties based on their type and level of natural amenity endowment. Cluster analysis is a set of techniques for accomplishing the task of partitioning a set of objects or units of analysis into relatively homogeneous subsets based on the inter-object similarities (Kachigan 1991). Consequently, the formed regions have more in common, in terms of their values on prespecified variables, with one another than they do with other observations (Plane and Rogerson 1994).

In the literature, English et al. (2000) used cluster analysis to group similar counties in terms of population density, distance from metropolitan areas, and proportion of county acres in cropland, forests, pasture/range and mountains. They estimated export employment in tourism-sensitive sectors for every cluster. Drawing on cluster analysis, Isserman elaborated quasi-experimental control group methods for regional analysis and project evaluation. The method was applied with various treatments, including regional development planning (Isserman and Rephann 1995).

Among the many clustering procedures available, we used PROC FASTCLUS in SAS®. FASTCLUS performs a disjoint cluster analysis on the basis of Euclidean distances computed from one or more quantitative variables (SAS Institute 1990a). Thus, the study clustered counties based on the standardized natural amenity variables presented previously. Though there is no satisfactory method to determine the number of clusters for any type

of cluster analysis, an approach combining heuristics and various statistics was retained, including removing severe outliers.

Second, within each of the formed clusters, income growth was regressed on variables of outdoor recreation facilities and other control variables, to assess the relative importance of the latter in explaining the variation of the former. The study used Ordinary Least Squares (OLS) to estimate six models (one for each cluster formed) as shown in equation (10.1).

$$INCOME_{i \in C} = \alpha_0 + \sum_{j=1}^m \beta_{ij} ORF_{ij} + \sum_{k=1}^p \beta_{ik} CONTROL_{ik} + \varepsilon_i \quad (10.1)$$

Where $INCOME_i$ is the change in median household income over the 1989–99 period for county i in the set $C = 1, \dots, 6$ which represents the six cluster regions; α_0 is the regression line intercept; ORF_{ij} is a given j (from 1 to m , i.e., from 1 to 6) outdoor recreation facility index for county i , and refers to WATER, CLIMATE, TOPOG, LAND, WILDLIFE, and NATURE for county i ; $CONTROL_{ik}$ is a given k (from 1 to p , i.e., from 1 to 7) control variable for county i , and refers to EDUCOL, POPOV65, POP8999, INTRSDEN, B02MDIST, PROPPUBL, and TRSM89PO for county i ; and β_{ij} and β_{ik} are partial regression coefficients for ORF indices (j) and control variables (k), respectively, and for county i . ε_i is the error term for county i .

Because the research focused on the impact of ORF variables on economic development indicators, emphasis was put on the stability of the estimated ORF parameters, in terms of sign, magnitude and level of significance. Therefore, the analysis checked and corrected for two common problems that impact stability of the estimated parameters and are associated with a cross-section analysis of data: multicollinearity and heteroskedasticity.

Several approaches were used to detect multicollinearity, including the change in size and sign of the parameters from one model to another, the presence of unstandardized partial regression coefficients with large standard errors, the use of a correlation matrix and the condition index of the data (Judge et al. 1988; Kennedy 1998; SAS Institute 1990b; 1991). Given that increasing the sample size was not an option, multicollinearity was addressed by combining any two independent variables that presented a multicollinearity problem, or by dropping all but one of the correlated independent variables. Heteroskedasticity was detected by performing a test (the SPEC option in SAS[®]), and addressed by re-calculating parameter t statistic values when heteroskedasticity had been found (using the diagonal elements of the heteroskedastic-consistent covariance matrix given by the ACOV option in the REG procedure).

RESULTS

As the objective of the research was to study the impact of outdoor recreation facilities on economic growth – regardless of the initial endowment in natural amenities – even regions that featured few natural resources were included in cluster analysis. The set of remote rural counties comprised 1272 county units (Alaska and Hawaii counties excluded by research design). Preliminary analysis revealed four outliers (McIntosh and Ware, GA; and Dare and Hyde, NC) that were consistently singled out in the clustering process, and were dropped from further analysis.

The final choice of clusters involved a tradeoff between maximizing the number of clusters to allow for regional diversity, and not retaining clusters with less than 30 observations (degrees of freedom issue in subsequent regression analysis). Based on these criteria, the final delineation of clusters was obtained when PROC FASTCLUS was run with a maximum number of six clusters on 1268 counties (1272 minus four outliers). While there is no universally accepted method to determine the best number of clusters, or whether real clusters were uncovered, several indicators were used to reach that decision: overall R^2 , F statistic, approximate expected overall R^2 , and cubic clustering criterion.

Descriptive analysis for the six clusters illustrated their natural resource characteristics (Table 10.1). Statistics included the frequency of the cluster as well as its mean, standard deviation and coefficient of variation for each criterion variable ($CV = \text{standard deviation}/\text{mean} * 100$). The lower the coefficient of variation, the higher the consistency of the data for a given variable in a given cluster, which illustrated the salience of a natural resource theme across that region, thus enabling its labeling.

Cluster 1, with 687 counties, was the largest region. It scored negative on all of the natural resources variables, indicating low endowments in water, mountains, forests, wetlands, wildlife and temperature. The latter indicated that Cluster 1 might feature, to a small extent, snow resources to support winter-based recreation activities. Except for PROPMTNS, PROPFOR and PROPWETL, all standard deviation values were greater than mean values (in absolute terms). Therefore, Cluster 1 was mostly characterized by a flat topography, the lack of forested coverage and the lack of wetlands. With a coefficient of variation of -56 , PROPFOR gave Cluster 1 its predominant feature: absence of forests or conversely, abundance of cropland, pasture and rangeland. Cluster 1 was also characterized by the lack of mountains and wetlands. Cluster 1 appeared the most deprived of all regions in terms of opportunities for natural-resource-related recreation activities, hence the label natural amenity lacking.

Table 10.1 Descriptive statistics of final clusters

Cluster	Frequency	PROPWAT	PROPMTNS	PROPFOR	PROPWETL	PROWILDL	AVGTEMP
1 Natural amenity lacking	687	-0.21 ^(a) 0.39 ^(b) -183.41 ^(c)	-0.38 0.23 -58.66	-0.66 0.37 -55.92	-0.36 0.28 -77.47	-0.18 0.31 -168.97	-0.09 0.85 -929.50
2 Mountains	181	-0.24 ^(a) 0.37 ^(b) -151.03 ^(c)	2.33 0.58 24.91	0.22 0.98 440.21	-0.42 0.30 -72.48	-0.09 0.48 -531.87	-0.60 0.73 -121.23
3 Forests	249	-0.03 ^(a) 0.55 ^(b) -2017.18 ^(c)	-0.40 0.24 -59.54	1.27 0.63 49.85	0.53 1.30 246.72	-0.18 0.37 -209.06	1.02 0.58 57.20
4 Snowfall	85	0.46 ^(a) 0.73 ^(b) 157.27 ^(c)	-0.36 0.42 -117.07	0.87 0.94 107.33	1.24 1.31 105.09	-0.03 0.43 -1530.51	-1.32 0.36 -27.15
5 Wildlife	36	0.26 ^(a) 0.70 ^(b) 271.66 ^(c)	-0.32 0.38 -117.26	0.21 0.98 473.04	0.33 0.98 298.97	3.35 1.67 49.86	0.29 1.19 404.10
6 No mountains, water	30	3.99 ^(a) 1.70 ^(b) 42.68 ^(c)	-0.44 0.00 0.00	0.46 0.62 136.28	2.12 1.81 85.45	0.82 1.71 208.46	0.47 1.13 240.71

Notes:

- (a) Cluster mean.
- (b) Cluster standard deviation.
- (c) Cluster coefficient of variation.

Cluster 2, with 181 counties, scored high on the presence of mountains, with original values 2.3 standard deviations above the mean. Cluster 2 also featured a lack of wetlands, as illustrated by a mean of -0.42 . Save for PROPMTNS and PROPWETL, all other criterion variables featured standard deviation values that were greater than mean values. With a coefficient of variation of 25, Cluster 2 was mostly characterized by the presence of mountains, which provided opportunities for topography related recreation activities (climbing, downhill skiing and so on). To a lesser extent, Cluster 2 was also characterized by the lack of wetlands.

Cluster 3 had 249 counties. In contrast to Cluster 1, Cluster 3 featured a proportion of forested acreage that was above average (mean value of 1.27). AVGTMP was the only other criterion variable that featured original values over 1 standard deviation above the mean, indicating warmer temperatures (and therefore less snowfall). Other criterion variables were largely unremarkable with mean values around 0. The lowest coefficient of variation value was 50 for PROPFOR; then, above average temperatures and below average proportion of mountains followed. Therefore, Cluster 3, with its forests, could provide more opportunities for recreation activities (related to trails or wildlife, for example) than Cluster 1.

Cluster 4, with 85 counties, was mostly characterized by below average temperatures, with a mean value of -1.32 and a standard deviation of 0.36. Conversely, this indicated above average snowfall. PROPWETL was the only other criterion variable with a mean value above 1 (1.24), but its standard deviation value (1.31) was slightly greater than its mean value. With a coefficient of variation of -27 , Cluster 4 was first and foremost a region characterized by snowfall, providing opportunities for winter-based recreation activities (for example, skiing and snowmobiling) and to a lesser extent a region with more wetlands, more forests, and less mountains than average.

The one feature that characterized Cluster 5 (36 counties) was wildlife resources. PROWILDL had original values over 3.35 standard deviations above the mean, and a standard deviation of 1.67. With mean values less than 0.33 in absolute value, other criterion variables were largely unremarkable, confirming the dominant wildlife resource feature (coefficient of variation equal to 50). Cluster 5 presented ample opportunities for activities such as hunting and viewing.

Cluster 6, with 30 counties, was the smallest of the six regions. It scored high on the presence of water (mean value of 3.99 for a standard deviation of 1.70) and wetlands (mean value of 2.12 for a standard deviation of 1.81). But the central feature of this region was the lack of mountains, with a mean of -0.44 , and a standard deviation of 0: all 30 counties in that region shared the characteristic of featuring no mountainous acre. With

coefficients of variation of 0 and 43 for PROPMTNS and PROPWAT, respectively, Cluster 6 featured a flat topography, and to a lesser extent above-average water resources. Cluster 6 held potential for water-related recreation activities, including boating, fishing and swimming.

Regression analysis was performed on 1263 observations: some variables had missing values, but this situation affected Clusters 1 and 2 only. As a general interpretation of regression results, if outdoor recreation facility variables were significant at the 10 percent level (or less) in a given model, the hypothesis that outdoor recreation facilities impact rural economic development was not rejected for that model. This implied that estimated parameters for the ORF variables were not only consistently significant but also stable in sign and magnitude. A summary of regression results for the six clusters are summarized in Table 10.2. Generally speaking, results showed that few outdoor recreation facility variables were statistically significant in a given model, and the impact of ORF variables on economic development indicators varied by region.

Results indicated that ORF variables were associated with an increase in median household income over time (INCOME) in Clusters 1 and 2 (WILDLIFE and WATER, respectively, both significant at the 10 per cent level). The model for Cluster 4 showed contradictory results, with WILDLIFE statistically significant at 10 per cent and associated with an increase of INCOME, whereas TOPOG was statistically significant at 5 per cent and negatively associated with INCOME. The model for Cluster 5 featured no statistically significant ORF variable, and the model for Cluster 6 was statistically not significant overall ($Pr > F = 0.21$). Therefore, recreation facilities had no apparent impact on rural economic growth in three regions out of six (Clusters 3, 5, 6), and recreation facilities were unambiguously associated with increased economic growth in two regions out of six (Clusters 1 and 2). These regional differences tended to underline the relevance of conducting the analysis by cluster, taking into account those regional differences.

Control variables were variously associated with INCOME. Distance from metropolitan areas, as expected, was associated with a reduction in INCOME in Clusters 1 and 5 (not significant in other models): the more remote the county, the weaker the economic growth. More surprising was that tourism budget (TRSM89PO) and college education (EDUCOL) were also negatively associated with income reduction in Clusters 1, 3 and 4 and Clusters 1, 4 and 5, respectively. On the contrary, proportion of population over 65 years (POPOV65) and population growth (POP8999) were both associated with an increase in median household income in Clusters 1, 2, 3 and 6 and Clusters 1, 2 and 4, respectively. This tended to underline the potential impact of amenity migration by retirees. Public ownership of

Table 10.2 Results of the regression analysis

Variable	INCOME (1)	INCOME (2)	INCOME (3)	INCOME (4)	INCOME (5)	INCOME (6)
Intercept	6.90107** ^(a) (2.47) ^(b)	-4.38606 (-1.10)	5.07610 (1.24)	23.98238*** (3.25)	12.41506 (1.20)	-0.91348 (-0.10)
LAND			0.00694 (0.10)	0.25110 (1.08)		
WILDLIFE	0.13530* (1.70)	-0.12833 (-0.65)	0.06652 (0.51)	0.49431* (1.71)		
WATER	0.00305 (0.07)	0.10405* (1.74)			0.09643 (0.47)	
CLIMTOP	0.02816 (0.29)		-0.65213 (-1.23)			
TOPOG		0.02307 (0.15)		-1.18141** (-2.30)		
NATURE						-0.16508 (-1.56)
TRSM89P	-0.00002** (-2.14)	-0.00000658 (-0.58)	-0.00006** (-2.22)	-0.000128*** (-2.68)	0.0000048 (0.08)	-0.00000804 (-0.18)
B02MDIST	-0.0101*** (-3.17)	-0.01190 (-1.17)	0.00967 (0.36)	-0.01459 (-1.38)	-0.0219** (-2.22)	-0.03186 (-0.81)
INTRSDEN	-0.02778 (-0.26)	-0.34999 (-1.50)	-0.20932 (-1.12)	-0.55909 (-1.15)	-0.01064 (-0.02)	0.12922 (0.18)
EDUCOL	-0.18644* (-1.94)	0.17964 (1.40)	0.02493 (0.12)	-0.50509* (-1.73)	-0.60955* (-1.78)	
POPOV65	0.61381*** (5.75)	0.71180*** (3.56)	0.44538** (2.28)	0.30320 (1.06)	0.66316 (1.37)	0.84387* (1.79)

POP8999	0.24867*** (6.33)	0.23330*** (5.57)	-0.01950 (-0.34)	0.41384*** (4.04)	
PROPPUBL	-0.0767*** (-3.62)	-0.03606 (-1.29)	0.16752** (2.42)	0.02190 (0.35)	-0.08264 (-1.19)
<i>N</i>	686	177	249	85	36
<i>DF</i>	675	166	238	74	28
<i>F</i>	18.86	7.88	2.44	8.34	3.80
(<i>Pr</i> > <i>F</i>)	(<0.0001)	(<0.0001)	(0.0087)	(<0.0001)	(0.0051)
<i>R</i> ²	0.2184	0.3218	0.0930	0.5299	0.4871
Adjusted <i>R</i> ²	0.2068	0.2809	0.0549	0.4664	0.3589
Condition index	17.84063	18.87266	20.87569	22.10676	21.23758
χ^2 value ^(c)	85.92	58.90	59.09 ^(d)	65.85	35.82
(<i>Pr</i> > χ^2)	(0.0422)	(0.6892)	(0.4722)	(0.4474)	(0.4298)

Notes: * $p < .10$; ** $p < .05$; *** $p < .01$.

(a) Parameter estimate.

(b) *t* value (corrected for heteroskedasticity if $\text{Pr} > \chi^2$ is ≤ 0.05);

critical $|t|$ values for clusters 1, 2, 3 are 1.645 ($\alpha = 10\%$), 1.960 ($\alpha = 5\%$), and 2.576 ($\alpha = 1\%$)

critical $|t|$ values for cluster 4 are 1.671 ($\alpha = 10\%$), 2.000 ($\alpha = 5\%$), and 2.660 ($\alpha = 1\%$)

critical $|t|$ values for cluster 5 are 1.701 ($\alpha = 10\%$), 2.048 ($\alpha = 5\%$), and 2.763 ($\alpha = 1\%$)

critical $|t|$ values for cluster 6 are 1.714 ($\alpha = 10\%$), 2.069 ($\alpha = 5\%$), and 2.807 ($\alpha = 1\%$)

(c) Test for heteroskedasticity results before correcting covariance of estimates.

(d) For Clusters 3 and 6 the average covariance matrix for the SPEC test has been deemed singular which violates an assumption of the test. Use caution when interpreting the results of the test.

resources (PROPPUBL) had mixed impacts on INCOME: positive, in Cluster 3, but negative, in Cluster 1. Finally, interstate mileage density (INTRSDEN) had no statistically significant effect on the variation of INCOME about its mean.

Overall, these results showed that the hypothesis of the existence of a relationship between outdoor recreation facility variables and economic development indicators could not be rejected overall, but had to be treated with caution. Indeed, the level of significance of outdoor recreation facility variables varied greatly from cluster to cluster.

DISCUSSION AND POLICY IMPLICATIONS

This analysis makes two contributions to the literature. First, it focuses attention on remote rural areas. Second, by using cluster analysis it introduces a unique way to model the role of amenities on growth. This study focused on remote rural regions, a previously seldom addressed rural planning focus. Results of this study suggest that it should be acknowledged as a stand-alone and regionally-relevant focus for future policy analysis; particularly within the context of development and resource management policy.

Generally speaking, the expected significant outdoor recreation facility variables were not systematically related to the dominant natural resource theme of a given cluster. There was a lack of correspondence between a given outdoor recreation facility index and its underlying natural resource base. There might be several reasons for this. One is a variable definition issue: the way outdoor recreation facility indices were constructed might not systematically reflect the underlying natural resource theme. Another reason is that natural resources might not be developed in a systematic fashion: a given region, endowed with natural resources, might develop some resources and not others, creating a potential for disconnection between natural resource base and outdoor recreation facilities.

Also, one could reasonably hypothesize that median household income may be influenced by more factors than just tourism. Indeed, it was difficult to assess whether the set of variables suggested for the study was comprehensive enough because the relationship between natural amenities, outdoor recreation facilities, and economic development was to a significant extent an indirect one. In the conceptual approach used for the research, economic growth was a potential outcome of the economic impacts of remote rural recreation, where tourism itself is conditional upon natural amenities and outdoor recreation facilities. Such an indirect relationship created more opportunities for the existence of additional

impacting and controlling factors that might be difficult to identify and assess.

Thus, the regional economic growth process may involve a larger set of variables that may capture more variation than the tourism model used in the study. In particular, the choice of remote rural regions as units of analysis may have compromised the usefulness of a tourism model. Indeed, by definition, the chief characteristic of remote rural regions is their lack of accessibility whereas successful tourism development strategies usually happen when two conditions are met: presence of amenities and proximity to markets (that is, population centers). The choice of remote rural regions, however, was driven by need and developmental context (regions that are most in need to capitalize on their land base). Including more variables in the models, nonetheless, would not necessarily have enhanced the level of significance of outdoor recreation facility variables, which were the focus of the study, but it definitely would have created more difficulty regarding model specification, especially in smaller clusters where the number of degrees of freedom was a concern.

A major finding of this analysis was that the relationship between outdoor recreation facility variables and economic growth was region specific. The diversity of relationships made the importance of regional context obvious: using a research design analogy, different natural resource regions presented different economic responses to different treatments of outdoor recreation facilities.

All in all, one should be skeptical about cause-effect relationships between outdoor recreation facilities and economic growth in remote rural regions of the US. Wariness is in order for two main reasons: the frequency of statistically significant recreation facilities variables in the various regression models was relatively low; and the relationship between those variables and economic growth varied on a regional basis.

Making policy recommendations for clusters is difficult. The more endowed a region is with natural amenities, the more straightforward are the resulting planning implications. Our results suggest that management planning toward development of water-based facilities such as access ramps and general water-based activities could be used as a strategy to stimulate economic development. Water bodies are a much sought-after resource; adding water-related facilities, where possible, to a scenic environment would offer an attractive combination to tourists. Tourism activity generates jobs in related services and, provided such jobs were sufficiently well-paid, could contribute to increasing median household income. Control variables that seemed to have a stimulating effect on economic growth were population over 65 years and population growth. Consequently, in mountainous areas, planners could promote the development of outdoor

recreation facilities (especially water-related ones) to pursue economic growth objectives, and reinforce that strategy through efforts to attracting retirement migrants.

Although tourism is a popular development strategy, results of this research suggest there is limited empirical evidence in its support, at least via the development of recreational sites, and for remote rural counties over the 1989 to 1999 period. We suggest that the general lack of statistically significant findings is a reflection of the type of region being analysed. Namely, it is important to note that remote rural areas are at a comparative disadvantage with respect to agglomerations economies and it is plausible to think that recreation and its forward linkages to tourism are not yet at a point where we are experiencing significant interactions with rural economic characteristics.

The results of our analysis suggest that facility variables were frequently nonsignificant in regression models and the regional context was critical since different facility variables were associated with different impacts in different regions. Only in remote, mountainous rural areas did water-related outdoor recreation facilities have an overall stimulating effect on economic growth. At any rate, planners should not recommend across-the-board development of natural resources with outdoor recreation facilities for economic growth purposes. Our results suggest the importance of the regional context. Regional planning that recognizes natural resource differences is likely to be more successful at achieving economic growth objectives than either broad federal planning and/or locally specific devolved planning that would ignore them.

There is ample opportunity for further work that moves us forward on both theoretical and empirical fronts. Theoretically, there is a great need for better fundamental concepts linking natural amenities and rural development. In addition to more fully conceptualizing the role of amenities as a latent regional factor input, the theory supporting multifunctional rural landscapes should attempt to capture the potential for additivity (increasing returns to scale) resulting from complementary and supplementary land uses that include recreation.

Empirically, the need exists for additional work to more clearly measure both the incidence and quality of natural amenities and track change in these two metrics over time. Further empirical research may select counties on the basis of potential (versus need), that is, those counties that offer natural amenities and are close to tourism markets. These would probably be metro-adjacent counties. Including a dummy variable for metropolitan adjacency would enable an assessment of the extent to which adjacency to population centers matters for a natural-resource-based tourism development strategy.

The list of independent variables could be expanded to account for more factors that influence regional economic growth, such as markets, labor and government. Accounting for these variables would address the issue of using a conceptually limited tourism model as opposed to an expanded structural model.

As the rural American economy continues to shift away from natural resource extraction to nontraditional manufacturing and services, tourism has been suggested as a way for rural areas to capitalize on their land base and enhance economic development. The efficacy of nature-based tourism as a rural development strategy has not been clearly established. Our work suggests that planners be careful not to overstate the importance of recreational sites to rural economic development, which tends to happen in the practice of recreation planning, tourism promotion and economic development.

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11. Recreation, amenity migration and urban proximity

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Recent migration trends fueled in part by the nation's love of forests, lakes and other natural resources are transforming the rural landscape. The US population is deconcentrating. Such deconcentration is reflected both in the tendency of the population to sprawl outward from large, densely-settled urban cores, and in the recent rapid population gains in many non-metropolitan areas. Growth has been particularly rapid in areas endowed with amenity resources – natural resources that are valued for their recreational and esthetic qualities. Amenity resources have been recognized for their influence on migration patterns for some time (Marans and Wellman 1978). Nonmetropolitan recreation and amenity counties spread across the country have consistently produced significantly higher rates of immigration than other counties (Beale and Johnson 1998; Johnson and Beale 2002; McGranahan 1999).

The individual decisions and behaviors behind migration to recreation and amenity counties, termed amenity migration, are not yet well understood. Preliminary research suggests that the propensity to migrate is much higher among those who have vacationed and owned second homes in an area. Once visitors discover an appealing area, some follow a progression of decisions; first making return visits, then using or owning a second home in the area, and finally migrating to establish their primary residence there (Stewart 1994). Prior research found that 30 percent of second-home owners surveyed in northern lower Michigan were likely or very likely to retire to their second home within ten years (Stynes et al. 1997). Second-home ownership and use is thus a lens for viewing an area's potential for growth and social change because we know that second-home owners as a group are likely to become amenity migrants. By investigating second-home owners attitudes regarding their future community and neighbors and understanding their views on community development issues we get an early glimpse of what lies ahead for the community.

Although some recreation and amenity counties are remote and pristine locales we are interested in those located immediately adjacent to

metropolitan areas. Nationwide over 100 million people reside in metropolitan areas that are adjacent to recreation or amenity counties. Urban people become familiar with these areas through recreational visits increasing the likelihood these counties will be considered when second-home purchase, retirement or other lifestyle relocation decisions are made. Easy access to specialized urban health care facilities and cultural resources can add to the appeal of urban proximate recreation and amenity areas. In addition the growing trend toward partial retirement, the potential for different timing of the retirement decision in two-career households and the interest in taking on a new career after formal retirement (Thrush 1999) all suggest that retirees in the baby-boom generation may prefer to own a second home closer to their original home than did earlier generations.

Amenity migration coupled with second-home use and the recreational activity associated with each impacts the destination community and its economy (Stynes et al. 1997). Traffic, demand for public services, business activity and congestion at recreation sites ebb and flow with the arrival and departure of visitors (Stynes and Stewart 1990). The economic activity associated with second-home ownership and use can account for a major portion of all economic activity especially in smaller communities (Stynes et al. 1997). However the cyclical variations in visitation and in spending activity are also a source of concern (Stynes 1986; Stynes and Chen 1985). For example local government in areas with substantial recreational activity suffer more fiscal stress than elsewhere possibly because staff and infrastructure must meet peak season demands (Beale and Johnson 1998). The economic activity associated with amenity migration, second-home ownership and visitation also plays a role in population growth by slowing the outmigration of local residents who are more likely to stay as job opportunities expand in the area (Beale and Johnson 1998; Johnson and Beale 2002).

Amenity migration results in a broad array of social, cultural and economic changes, particularly in smaller communities (Harrison and Husbands 1996). Economic growth, concern over traffic congestion and vandalism, public services stretched to capacity and beyond and a feeling that the social structure of the community is shifting are not unique to recreational development – they could describe the consequences of demographic growth in any setting. But the presence of second homes in a community is thought to create discord between residents and second-home owners. Recent evidence for schisms over growth, resource management, community planning, and related issues is equivocal, however. The growing consensus is that the conflicts have been overstated; that differences of opinion are subtler and membership in pro- or anti-growth factions less predictable than was once thought (Harrill 2004; Nelson 2002; Smith and

Krannich 2000). More empirical evidence is needed to fully understand how second-home ownership affects relationships among members of and visitors to rural communities.

Much of what we know about second-home use and relations between second-home owners and the community comes from research conducted in areas distant from urban populations (Kaltenborn 1997; Marans and Wellman 1978; Stynes et al. 1997; Stynes 1998; Williams and Van Patten 1997). Urban proximate second-home communities may differ from the remote rural locations considered in previous studies in several ways. Urban proximate areas generally have more diverse economies and larger populations than remote recreation counties. Both these factors would tend to dampen the magnitude of cyclical and seasonal impacts (Stynes and Stewart 1990). It is our expectation that proximity to urban areas facilitates more frequent usage of second homes further diminishing seasonal fluctuations. In addition, proximate recreational counties could draw more day use by the large proximate population. Frequent access to second homes may also increase the probability of migration to such areas.

DATA AND METHODS

This project combines a national overview of recent demographic trends in nonmetropolitan recreation areas with an in-depth look at the dynamics and implications of such demographic trends for a prominent recreation county situated adjacent to two large urban centers.

The nationwide demographic analysis of nonmetropolitan recreation counties uses data from the 1970 to 2000 Census together with data from the Federal State Cooperative Population Estimates Series. The recreation counties were identified by Johnson and Beale (2002) using recreational employment and earnings, seasonal housing and expenditures for lodging. Counties are the unit of analysis and are appropriate for this purpose because they have historically stable boundaries and are a basic unit for reporting demographic and economic data. Counties were delineated as metropolitan or nonmetropolitan using criteria developed by the Office of Management and Budget. This metropolitan definition is used throughout; 837 counties were defined as metropolitan and 2305 were defined as nonmetropolitan. We use the terms nonmetropolitan and rural as equivalent in this chapter.

A case study of growth in Walworth County, Wisconsin is presented to illustrate some of the causes and consequences of growth in a county that is recreational, high amenity and urban proximate. It is situated among rolling hills, lakes, forests and farmland in southeastern Wisconsin. Tourism,

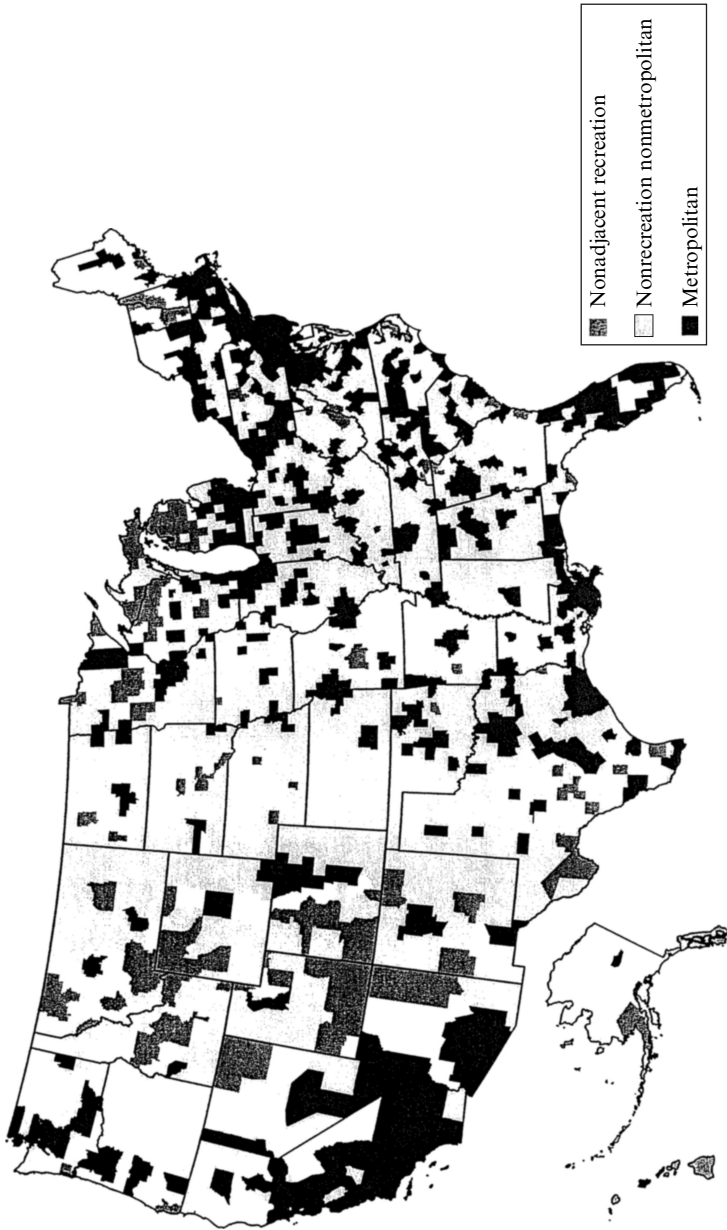
agriculture and manufacturing are the major employers. Nearly 10 million urban residents live within a two-hour drive of the county in the nearby Chicago and Milwaukee metropolitan areas.

Survey data from Walworth County was gathered using a self-administered questionnaire distributed in late 2000. The primary recreation areas in Walworth County surround lakes within the county. The sampling strategy was designed to maximize the number of second-home owners and amenity migrants. Therefore only properties that were located on or immediately proximate to one of the 12 major lakes in the county were selected (Johnson and Stewart 2001). Questionnaires with cover letters were mailed to each of the 984 randomly selected households. Two follow-up mailings were sent to those who did not respond. A total of 519 surveys were returned resulting in a response rate of 54 percent.¹ Survey questions of particular relevance to this research examine the relative importance of locational attributes, including those common to most second-home areas (such as amenity resources) and those unique to the urban proximate setting (such as distance from primary home, office and cultural resources). These items were included on prior surveys of second homeowners (Stewart and Stynes 1994; Stynes et al. 1997; Williams and Van Patten 1997).

URBAN PROXIMATE RECREATION COUNTIES

Recreation counties exist in 35 states but there are significant spatial concentrations in only a few areas (Figure 11.1). In the Upper Great Lakes region and the Northeast there are numerous lake oriented counties that are second-home summer vacation areas of long standing, although many have added winter attractions such as snowmobile trails or skiing. Recreation counties are scattered throughout the length of the Rocky Mountains. Many are best known for their national parks and ski resorts, but are also great places to hike, mountain bike, fish, climb, raft or just escape the summer heat and humidity. Upland areas of the South also include recreation counties offering many of the same activities as the West with a number of them benefiting from leisure use of the reservoirs that are the legacy of the dam-building era. Alaska and Hawaii are also well represented. Aside from a few casino counties there is a general dearth of recreation counties in the southern Great Plains, the Corn Belt, and the lower Mid-South (Johnson and Beale 2002).

The nonmetropolitan population rebound that occurred from 1990 to 2000 (Johnson and Beale 1994; Johnson 1999) was particularly widespread in recreation counties. Population growth there far exceeded the national



Source: Johnson and Beale, 2002

Figure 11.1 Nonmetropolitan recreational counties by adjacency

average. The overall population increase in recreation counties was 20.1 percent, compared with 10.3 percent in all nonmetro counties and 13.1 percent in the nation as a whole (Table 11.1). Most of the population gain in recreation counties was fueled by the net immigration of people (84 percent). The migration gain in recreation counties was 2.5 times that in nonmetropolitan counties and more than four times that for the nation as a whole. Such migration gains were extremely widespread, occurring in 88 percent of the recreation counties. These migration gains result from increased in-migration to these counties, together with higher retention of residents which often occurs because of the greater economic opportunities fostered by migrants. The rate of natural increase in the recreation counties (growth from surplus of births over deaths) was slightly lower than elsewhere. Although recreation counties have not been immune to temporal variation in factors that influence the pace of demographic change, they consistently had population and net immigration gains that far exceeded those in other nonmetro counties (Beale and Johnson 1998; Johnson and Beale 2002).

Comparing the recreation counties to a typology of counties developed by the Economic Research Service (ERS) (Cook and Mizer 1994) underscores the strong linkage between demographic change and recreation activity. In the 1990s population growth rates in recreation counties exceeded those in all but two of the ERS county types (Figure 11.2). The exceptions were retirement destination counties and those containing substantial federal holdings. Retirement counties were the fastest growing of any county type with a population gain of 28.4 percent. These counties were the only ones with a larger migration gain than the recreation counties. In fact there is considerable overlap between the two groups (55 percent of the 190 retirement counties are also recreation counties) because areas with recreational opportunities are likely to attract older migrants with the time and inclination to pursue leisure activities. Growth in recreation counties was also well ahead of that in counties dependent on manufacturing, government work, trade and services, or those with unspecialized economies. Even counties with high rates of intercounty job commuting – many of which adjoin metro areas and are incipiently suburban – did not match recreation counties in the pace of population increase. By contrast, farming counties grew just 6.6 percent during the 1990s. In sum, there is significant evidence that the presence of recreational opportunities in rural counties is strongly linked to population growth.

Among the most heavily pressured recreation counties are those immediately adjacent to a metropolitan area. Metropolitan areas are found in close proximity to recreation counties in most parts of the nation (see Figure 11.1).² Population in these 111 urban proximate recreation

Table 11.1 Population change, net migration and natural increase for recreation counties by adjacency status, nonmetro and metro areas, 1970 to 2003

	Number of cases	Initial population ('000s)	Population change			Net migration			Natural increase		
			Absolute change ('000s)	Percent change	Percent growing	Absolute change ('000s)	Percent change	Percent growing	Absolute change ('000s)	Percent change	Percent growing
1970 to 1980											
Recreation	314	4974	1221	24.5	89.8	931	18.7	85.0	290	5.8	88.5
Adjacent	108	2461	600	24.4	94.4	481	19.5	90.7	119	4.8	88.9
Nonadjacent	207	2521	621	24.6	87.4	450	17.9	82.0	171	6.8	88.4
All nonmetro	2274	43317	5790	13.4	79.6	3159	7.3	66.9	2631	6.1	88.1
Metro	834	158884	17146	10.8	88.6	5948	3.7	73.4	11198	7.0	97.8
Total	3108	202201	22937	11.3	82.0	9107	4.5	68.7	13830	6.8	90.7
1980 to 1990											
Recreation	326	6442	813	12.6	73.4	431	6.7	58.4	382	5.9	87.7
Adjacent	111	3083	423	13.7	86.5	281	9.1	71.2	142	4.6	90.1
Nonadjacent	215	3360	390	11.6	67.0	151	4.5	52.1	240	7.1	87.0
All nonmetro	2303	49520	1296	2.6	45.1	-1379	-2.8	27.4	2675	5.4	89.4
Metro	837	177012	20871	11.8	81.0	6585	3.7	57.7	14286	8.1	97.7
Total	33140	226542	22168	9.8	54.6	5206	2.3	35.5	16962	7.5	91.7
1990 to 2000											
Recreation	327	7258	1465	20.2	91.4	1226	16.9	87.4	239	3.3	67.7
Adjacent	111	3506	707	20.2	96.4	620	17.7	91.9	87	2.5	70.3
Nonadjacent	216	3750	758	20.2	88.8	606	16.2	85.1	153	4.1	67.0

Table 11.1 (continued)

	Number of cases	Initial population ('000s)	Population change			Net migration			Natural increase		
			Absolute change ('000s)	Percent change	Percent growing	Absolute change ('000s)	Percent change	Percent growing	Absolute change ('000s)	Percent change	Percent growing
All nonmetro	2 303	50 816	5 262	10.4	73.9	3 535	7.0	68.4	1 727	3.4	70.8
Metropolitan	837	197 890	27 456	13.9	90.1	12 124	6.1	77.5	15 332	7.7	94.9
Total	3 140	248 710	32 718	13.2	78.2	15 659	6.3	70.8	17 059	6.9	77.3
2000 to 2003											
Recreation	329	8 727	336	3.9	70.5	287	3.3	69.3	49	0.6	50.0
Adjacent	111	4 213	185	4.4	85.6	171	4.1	82.9	14	0.3	49.6
Nonadjacent	218	4 515	151	3.3	62.8	116	2.6	62.4	35	0.8	53.7
All nonmetro	2 303	56 072	862	1.5	51.5	423	0.8	45.5	440	0.8	61.8
Metropolitan	837	225 345	8 488	3.8	82.4	3 732	1.7	69.8	4 755	2.1	91.8
Total	3 140	281 418	9 350	3.3	59.7	4 155	1.5	52.0	5 196	1.8	69.8

Notes:

1993 metropolitan status used for all periods.

Natural increase 1990–2002 from FSCPE. Net migration is population change minus natural increase.

Alaska and Hawaii excluded from 1970–1980 analysis due to missing data; 3 Alaska counties excluded from 1980–2000 due to missing data.

Data for 2000–2003 are from 4/00 to 7/03.

Data may not always sum to totals due to rounding.

Source: Census 1970–2000 and Federal-State Cooperative Population Estimates.

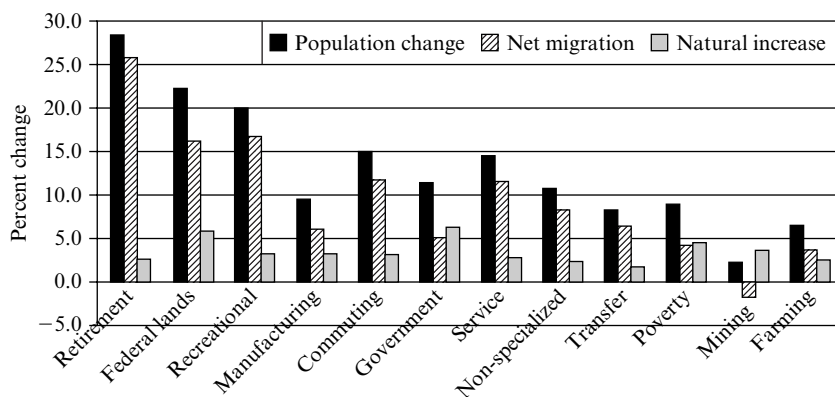


Figure 11.2 Demographic change by county type, 1990–2000

counties grew by 20 percent between 1990 and 2000. The rate of growth was the same in the nonadjacent recreational counties during the 1990s (see Table 11.1). Since 2000 the rate of population growth in the proximate recreational counties (1.4 percent annually) has been higher than that in the more remote recreational counties (1.0 percent). A similar pattern existed in the 1980s. In each period, proximate counties experienced significantly more net migration gain than their more remote counterparts. Improved transportation and the growth of population and economic activity on the periphery of metropolitan areas, together with urban residents' desire for access to recreational opportunities and second homes (Beale and Johnson 1998; Johnson 1998) suggest that urban proximate recreation counties will continue to grow and change. In the face of increasing time constraints and growing congestion around major urban centers, the proximity of these areas makes them increasingly attractive recreation destinations. With more than 100 million residents these nearby metropolitan areas represent an enormous pool of future recreation migrants.

Recreation counties attract a substantial number of migrants of retirement age, but they also appeal to a broader cross-section of the population (Figure 11.3). There is a significant flow of older adults to recreation counties, but the migration gains for adults in their 30s (and the children associated with these adults) are also quite large. Among older adults the median rate of migration gain accelerated throughout the period implying that retirement migration streams are less sensitive to changing economic conditions than are those for working age adults. The general pattern of age-specific migration to recreation counties is consistent with that of

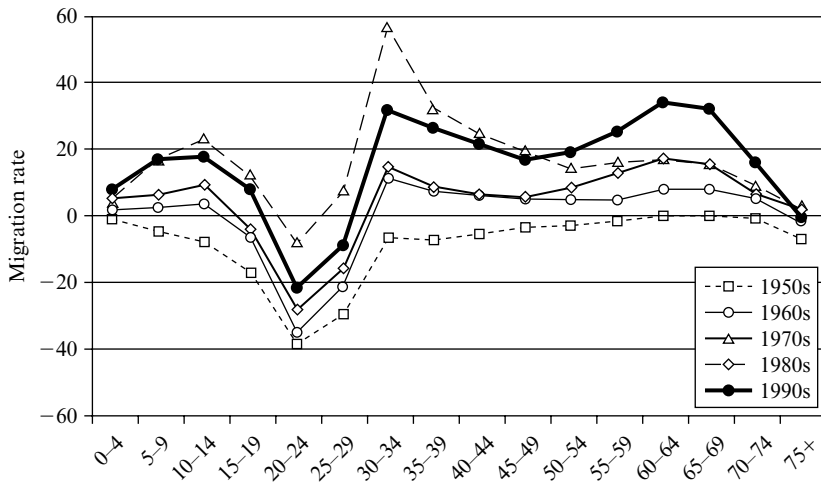


Figure 11.3 Age-specific net migration: recreation

nonmetropolitan America as a whole (Johnson et al. 2003). Here, as in other nonmetropolitan areas, migration losses were the greatest among young adults.

Our analysis suggests that a structural transformation of the migration signature of recreation counties is underway. The fact that older adult migration gains in the 1980s exceeded those during the 1970s turnaround, and that gains during the 1990s were greater than in either of the preceding decades, indicates these groups are becoming a larger component of the migration stream to recreation counties. Such a structural shift in migration patterns to recreation counties has significant implications given that the ranks of those over the age of 50 are already beginning to swell with the first of 70 million baby boomers. We turn to our case study to find out more about how urban people use recreation areas, how these usage patterns affect migration flows and the likely future implications for recreation counties just beyond the urban edge.

WALWORTH COUNTY CASE STUDY

Walworth County is located in southeastern Wisconsin just beyond the fringe of the Milwaukee and Chicago metropolitan areas. Downtown Chicago is 72 miles from the center of the county and downtown Milwaukee is 40 miles away. More than 10 million urban residents live

within a two-hour drive of the county. Its topography of rolling hills with numerous lakes left by the last glacier that shaped the Kettle Moraine region makes it appealing for recreation. Its attractiveness is further enhanced by the presence of part of the 51 000 acre Kettle Moraine State Forest, which attracts hikers, mountain bikers and campers as well as others interested in outdoor activities. The presence of forest and water-based recreational opportunities in close proximity to one of the largest urban population concentrations in the country make Walworth County an ideal location for observing the impact of amenity migration, second home use and urban proximity.

The influence of the proximate metropolitan areas on Walworth County takes many forms – some subtle, some more obvious. Among the most tangible of these is migration. In 2003 Walworth County had 96 800 residents – 21 800 (29 percent) more than were enumerated during the 1990 Census. Migration fueled most of this recent population gain, contributing 18 200 new residents to the county compared to a gain through natural increase of 3600. The largest net migration gain to Walworth County was from the Chicago metropolitan area. The Milwaukee metropolitan area was the next largest source of migrants. It does not appear that such migration streams are of recent origin. Most of those who resided in Walworth County in 1990 were born in Wisconsin, as would be expected (2000 data not available). However, 23 percent were born in Illinois, far more than in all other states combined (Johnson and Sonnenschein 1998). Thus at a very concrete level, the demographic impact of nearby metropolitan regions on Walworth County has been substantial.

Walworth County's lake communities have served as retreats for city dwellers since the nineteenth century when wealthy Chicagoans traveled by train to Lake Geneva. The advent of the automobile made the county's recreational areas more accessible. And the establishment of the Kettle Moraine State Forest in 1937 enhanced the recreational appeal of the county. Walworth County has long attracted second-home owners, particularly from Northern Illinois. Seasonal and year-round occasional use recreational houses represented 17 percent of all housing units in the county in 2000. Improvements in transportation together with the outward sprawl of the Chicago and Milwaukee metropolitan areas has produced another important tourist group, those who live close enough to visit for the day and then return home in the evening.³

We surveyed 513 homeowners in Walworth County to better understand residents' views regarding growth and to explore the roles of amenity resources and urban proximity in bringing them to the county. The respondents included 320 seasonal and 193 permanent residents living on or very near one of 12 lakes in Walworth County. They had owned their

property for an average of 14 years though the length of ownership ranged widely, with eight respondents who acquired title before 1950 and 17 who bought their property within the last year. Their average age was 58. Seasonal residents were better educated and had considerably higher incomes than permanent residents. Seasonal homeowners' spending (exclusive of mortgage payments) on their second homes averaged \$13 005 per year, a significant benefit to Walworth County's economic welfare. The vast majority (76.3 percent) of seasonal homeowners surveyed live in the Chicago metropolitan area (Johnson and Stewart 2001).

We sought to better understand why both permanent and seasonal residents chose to buy property in Walworth County by asking both open-ended and fixed-alternative questions about what factors influenced their choices. To summarize their responses, we employed factor analysis to identify major themes in their answers. This coupled with analysis of their responses to our open-ended question provides a comprehensive insight into the reasons our respondents selected Walworth County.

Our survey results suggest that urban proximity is an extremely important factor in decisions to purchase a second home in Walworth County, and is of some significance in decisions about whether to settle permanently in the area (Figure 11.4). The proximity of Chicago (and to a lesser extent, Milwaukee) was an important factor in the choice of Walworth County as a place to purchase property for 76 percent of the second-home owners and was somewhat important to an additional 14 percent. Most of these second-home owners are from Chicago or its suburbs. Among year-round residents, 27 percent consider the proximity to Chicago and Milwaukee

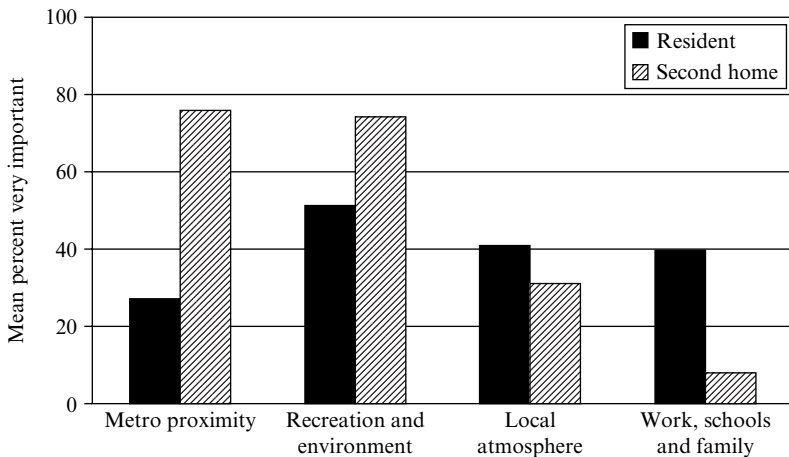


Figure 11.4 Factors influencing decision to buy Walworth County property

very important and another 38 percent consider it somewhat important. The importance of proximity is also reflected in that more than 74 percent of second-home owners can reach their primary residence in two hours or less. By contrast, 61 percent of second-home owners surveyed in northern Wisconsin faced a drive of more than three hours to their property (Stewart and Stynes, forthcoming). The ease of getting to Walworth County from home or work was mentioned frequently as an attractive feature of the area in an open-ended question as well.

Although metropolitan proximity is important, the primary factor attracting both second and resident homeowners to Walworth County is the quality of the natural environment. Both sets of homeowners were attracted by the scenic, riparian and recreational amenities of the area and made extensive use of them. The central role of the lakes in this context is reflected in the extremely large proportion of both groups of homeowners who rate lake access and water quality very important (Figure 11.5). Recreational opportunities are also very important to second-home owners though somewhat less so to residents. In general, second-home owners value each of the recreation and natural environment items more than their resident counterparts but each group rates these factors as very important. The natural environment also mattered in nearly all purchase decisions for both home-owner groups.

The local atmosphere also influenced home purchasing decisions. Although less important than the recreation and environment factor, the local atmosphere still carries considerable weight particularly among

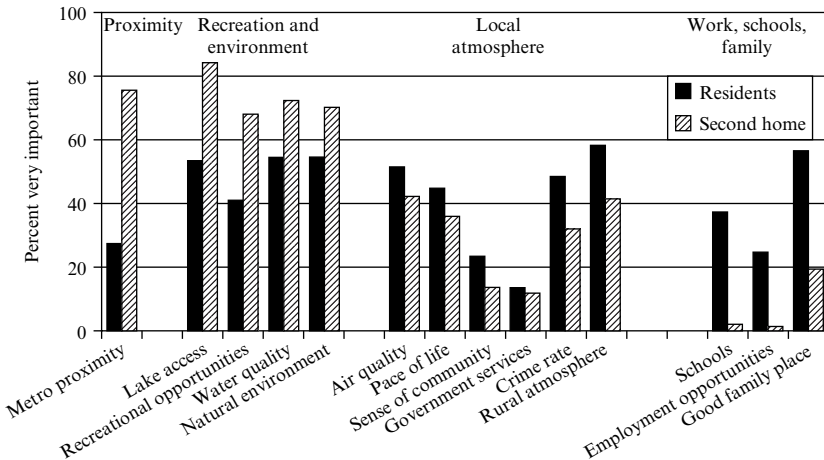


Figure 11.5 Importance of characteristic in choice of Walworth County

residents. This is hardly surprising given that they spend more time in the area and experience it differently than second-home owners. Both home-owner groups found the rural atmosphere of the county attractive features. In fact for residents, the rural atmosphere of Walworth County received the highest number of very important ratings. Given that 66 percent of the land area of Walworth County remains in agriculture with much of the remainder in forests, the rural feel of the area is important to our respondents. Both groups also enjoy the pace of life in the area and the low crime rate, though here again it is the residents rather than second-home owners that tend to rate these very important.

The final factor identified as relevant is much more salient to residents than it is to second-home owners. Employment opportunities, the quality of local schools and how attractive Walworth County is as a place for raising a family all are quite important to residents, but carried little weight in second-home owners' decisions to purchase property in the area. This is hardly surprising. Second-home owners work and educate their children elsewhere. Those residents still in the labor force must be concerned about local opportunities to work. Even more telling is the high proportion of the residents who rate a good place to raise a family as very important. Clearly residents view the decision to settle in Walworth County differently than do second-home owners.

Family figured prominently in the reasons given for acquiring property, though only 26 percent currently have children under 18 living at home. Many said that finding a good place to raise a family (57 percent) and the proximity of family (66 percent) were somewhat or very important in their consideration. Some (21 percent) added comments that elaborated more on the family reasons for owning in Walworth County. There were also a number of comments volunteered about the history of either personal or family association with Walworth County (16 percent) (Johnson and Stewart 2001). Some of these comments came from second-home owners who remembered growing up or vacationing in the area and wanted their own family to enjoy a similar experience.

In sum the recreational opportunities and amenity resources of the area were very important to both groups of home-owners in their selection of Walworth County. Consistent with our expectations the proximity of Chicago and Milwaukee were quite important to second-home owners but ranked considerably lower among factors attracting year-round residents. Residents placed a much higher value on the rural atmosphere, pace of life, and air quality than did second-home owners though second-home owners also gave considerable weight to the local community atmosphere. Local schools, jobs and the appeal of the area as a good place to raise a family were much more important to permanent residents.

Second-home ownership is of particular interest in this study because seasonal home-owners often move to their seasonal home upon retirement. Seasonal home owners were asked how likely it was they would move to their Walworth County home at some point in the future. Because our second-home owners are at various stages of the life cycle, the time horizon for moving to Walworth County varies. However 23 percent reported they were somewhat or very likely to move to Walworth County within the next five years, another 11 percent in 5–10 years, and 6.5 percent in more than ten years, for a total of nearly 40 percent planning to move to their Walworth County seasonal home and make it their permanent residence (Figure 11.6). Many told us that the proximity of the Chicago metropolitan area contributed to the appeal of Walworth County as a future place to settle. This finding is consistent with our expectation that urban proximity increases the appeal of recreation areas.

Although a permanent move to Walworth County has the most significant implications for the demographic, economic and environmental future of the county, the frequency with which second-home owners use their Walworth County homes also affects the community and its economy. We expected that the close proximity of primary residences and second homes among Walworth County respondents would increase usage compared to that reported in studies of more remote second homes. The data confirms this expectation. Walworth County second homes were occupied an average 11.5 percent more nights per year (97 nights a year compared to 87)

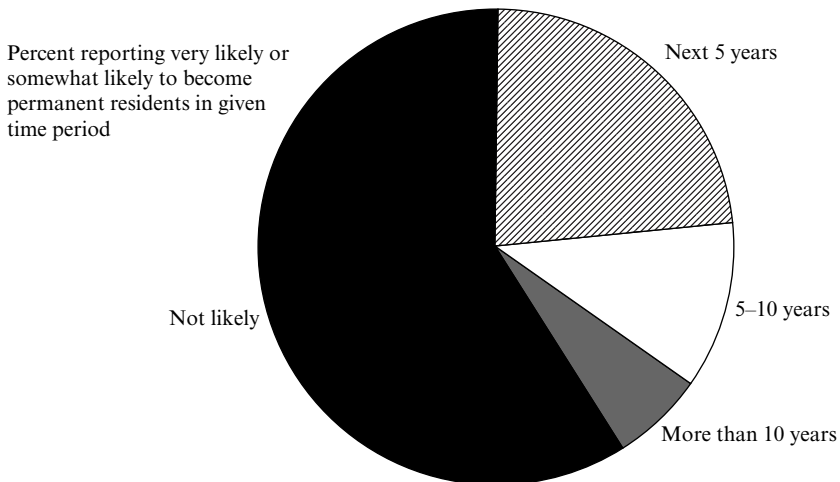


Figure 11.6 Likelihood of second-home owners becoming permanent residents of Walworth County

than in a similar study of Northern Michigan (Stynes et al. 1997), and far more than the 72 days of use reported for northern Wisconsin (Stewart and Stynes, forthcoming). The seasonal patterns of second-home use also differed. A larger proportion of the Michigan second-home usage (55 percent) was in the summer months when compared to Walworth County (46 percent). Second-home owners in Walworth County were also more likely to use their homes in the winter than were the Michigan second-home owners. Both the higher overall usage and the more even distribution of usage throughout the year in Walworth County may be attributable to the closer proximity of primary and second-home residences.

A critical question often raised in the literature is whether residents and second-home owners hold similar perspectives about the impacts of urban expansions on the county, and similar expectations regarding the future of the area. Planners and policy-makers often search for such consensus as they try to craft future strategic plans for the areas. We addressed this issue by asking respondents how growth was affecting the communities in Walworth County, and what local leaders should do in response to a series of growth-related issues. Some impacts of Chicago's and Milwaukee's growth on Walworth County were rated as positive by both seasonal and permanent residents. Benefits include availability of shopping, access to health care and employment opportunities. Negative impacts include traffic density, loss of rural atmosphere and crime rate. The respondents also agreed that growth had no impact on school systems, sense of community and cost of retail goods. Permanent residents more often said lake and stream quality suffered negative effects and were also more likely to say the quality of the natural environment suffered. Except for these few items, differences in opinion were minimal; questions of how growth is affecting the county created similar responses from permanent and seasonal residents.

Both resident and second-home owners strongly support protecting the quality of the natural environment by encouraging the preservation of open space and the preservation of farms (Figure 11.7). In contrast support for economic development is mixed. There is some support for the continued development of tourism but much less support for industrial and retail development, particularly among second-home owners. Support for future residential development including second homes is limited, with slightly more support among second-home owners.

CONCLUSIONS AND IMPLICATIONS

Urban proximity affects second-home use, and through it, recreation and amenity migration. Use of second homes in Walworth County was more

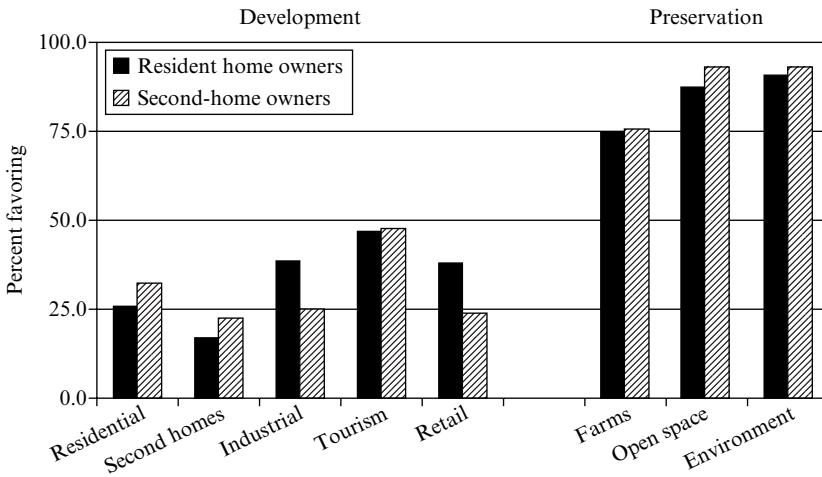


Figure 11.7 *Should local officials encourage development and preservation?*

frequent, and more evenly distributed through the year. The urban proximity of Walworth County was an important and positive factor in the decision of many second-home owners. The number of other recreation counties that are urban proximate suggests that results of this research have implications nationwide. Urban proximate recreation counties rarely fit the mould of exclusive or pristine second-home areas, but they serve a large number of people engaging in a wide range of leisure activities across a longer portion of the year.

Secondary data confirms the significance of migration in Walworth County's growth, and migration intentions among second-home owners in the county were similar to those of other recreational counties. Although the specter of baby-boom retirement is one every potential amenity migration destination faces, urban proximity is an additional source of concern regarding future growth. Should Chicago and Milwaukee continue expanding outward at a faster rate than that at which their population increases, we can expect Walworth County and the many urban proximate recreation counties like it to face urban growth pressure as well as growth through in-migration of second-home owners. The potential loss of amenity resources to housing and commercial development is one of many uncertainties facing this county and others like it.

Amenity migration and second-home use are closely linked in the upper Midwestern US, and have many similar impacts on communities; generally positive effects on spending and job growth, negative effects on traffic

congestion and recreation site crowding and mixed but significant effects on the discourse surrounding future community growth and resource management. Additionally our research suggests the purchase of second homes serves as a harbinger of amenity migration and thus of population growth and lasting community change. These consequences are common across the many settings we and others have studied in the upper Midwest.

The ties between tourism, recreational opportunity, amenity resources, and amenity migration are clear. The same resources valued for their esthetic qualities and the recreational opportunities they afford are the ones that attract migrants. When migrants choose their destinations without regard to job location, amenity resources exert a powerful influence on their choice. Tourism and recreation experiences can expand awareness of areas rich in amenity resources, providing an initial familiarity with both physical and social settings in rural counties. For some, proximity to urban amenities such as health care, cultural resources and job opportunities provide an added attraction to urban proximate recreation counties.

The implications of continuing growth in amenity and recreation areas are not all positive particularly because these locations contain many environmentally sensitive areas. Water bodies, shorelines, wetlands, forests and wildlife are likely to experience greater environmental stress as the volume of human activity grows, especially where the physical features and fauna themselves are the objects sought for use or appreciation by the visitors and newcomers (Radeloff et al. 2001; Wear and Bolstad 1998; Wear et al. 1998). Continuing growth in some areas has the potential to diminish the very amenities that drew people to begin with. Yet in an era when hundreds of rural and small town communities must develop new economic activities to counter the loss of traditional extractive and manufacturing activities, the rising urban demand for rural recreation has become essential to the continued vitality of many places.

ACKNOWLEDGEMENT

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NOTES

1. For a variety of reasons 23 of the original 984 surveys were determined to be invalid. A comparison of the value of the property and the improvements (homes and related buildings) by those who responded to the survey and those who did not shows no

significant difference between the two groups. Thus, there is good reason to believe that the sample is broadly representative of residents of lake areas in the county.

2. Metropolitan areas with major recreation areas in close proximity can be found nationwide. Seattle, Boston, Portland, Atlanta, New York City, Houston, Denver and Los Angeles are some examples.
3. Analysis of Wisconsin DNR data suggests that the state parks and forests in Walworth County receive among the largest proportions of out-of-state visitors and campers of any in the Wisconsin system (the other area is in NW Wisconsin just east of the Minneapolis/St. Paul metropolitan area). For example, out-of-state residents represent nearly 73 percent of the campers and day-use visitors to Big Foote Beach State Park on Lake Geneva in Walworth County. This is by far the highest percentage of out of state users anywhere in the Wisconsin system. Our thanks to Jeff Prey of the Wisconsin DNR for providing the usage data.

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12. Resident-employed photography as a tool for understanding attachment to high-amenity places

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INTRODUCTION

Our understanding of resident attachment to communities rich in natural amenities has been attenuated by a schism between research focusing on community attachment and that which examines recreationist attachment to place. At the risk of oversimplifying our case, research on community attachment does not adequately address resident attachment to the physical environmental landscape, especially in communities with extraordinary natural endowments. This stands in contrast to visitor research which emphasizes the role of such factors in driving place attachment. These ends of a continuum fail to speak to the middle ground: many high-amenity landscapes are experienced not only by visitors but by residents as well. These people are likely to be strongly attached to the physical landscape but this attachment may differ quite strongly from that of visitors.

Community attachment research has employed a variety of approaches, including surveys, participant observation and personal interviews. This research has tended to eschew photo-based methods, such as visitor employed photography (VEP) which has been used to capture visitor perceptions of landscape. In this chapter we describe, implement and evaluate the utility of a research protocol for using a photo-based approach to understand resident place attachment to the community of Jasper, Alberta located within the bounds of Jasper National Park, Canada. We have two questions that guide this research. First, what is the role of natural amenities in attaching residents to their local community? Second, how can photographic methods, such as those we present here, help elucidate these relationships?

LITERATURE REVIEW

Concerns about social change in rapidly growing high amenity communities are often couched in terms of threats to attachment. A place is a spatial setting that has been given meaning (Tuan 1977) based on human experience, social relationships, emotions, and thoughts. Common to definitions of sense of place is a three-component view that integrates the physical environment, human behaviors and social and/or psychological processes (Brandenburg and Carroll 1995; Relph 1976). In this research we focus on place attachment or a strong positive bond between a person/group and a setting (Altman and Low 1992). Traditional conceptions of attachment suggest that this bond is built through experience. Relph (1976) describes an experience-based continuum of sense of place based on a steady accumulation of experience. Those who have spent the most time have participated fully in the life of the home or community or have accumulated a series of humble events will have the strongest place sentiments. 'Extended residence in a place tends to make us feel toward it almost as a living thing . . . the place has become a shaping partner in our lives, we partially define ourselves in its terms, and it carries the emotional charge of a family member or any other influential human agent' (Ryden 1993, p. 66). This is the domain of home, an ordinary place that is made special by virtue of our experiences there (Jackson 1984; Meinig 1979).

A sense of place, however, may also develop quite rapidly in chosen places (Tuan 1977) where dramatic landscapes and intense experiences can lead quickly to attachment. These places, especially when coupled with a visitor or tourist mode of encounter, embody escape meanings, where escape is juxtaposed to home as something out of the ordinary (Stedman 2003). Attachment that is based on notions of escape is sometimes dismissed as shallow or inauthentic (Hay 1998; Tuan 1977). Key to our work here is a decoupling of setting attributes with mode of encounter. We want to open the possibility that high-amenity settings may simultaneously be home places and – especially for visitors – escape places.

Many visitors to high-amenity communities may not attend to the fact that these places are peopled with year-round residents leading ordinary lives: raising children, working, living and dying. Much field research on place attachment to high-amenity outdoor settings has been conducted with outdoor recreationists (Bricker and Kerstetter 2000; Moore and Graefe 1994; Williams et al. 1992). This research has emphasized attachment to the physical environment to the potential neglect of other factors that may also foster attachment, especially among permanent residents. Less often has research examined the contribution of the physical environment to resident attachment to high-amenity areas. If we suspect that the

process by which attachment is created differs between visitors and residents, research on high-amenity places may have been privileging the visitor experience at the expense of other types of encounter and attachment.

In contrast to the approach described above, community sociology research has examined attachment and satisfaction with the community, rather than with natural amenities, as the locus of attachment and satisfaction (Kasarda and Janowitz 1974; Ladewig and McCann 1980; St. John et al. 1986; Theodori 2000; Wilkinson 1991). Community includes public and private spaces, social relationships, community services, the potential for collective action and many other facets that may distinguish them from the environmental sites that typify place attachment research. In fact it is interaction with other people that bounds some definitions of community (Theodori 2000; Wilkinson 1991).

There are few linkages between the experiences and perceptions of visitors to public lands playgrounds and the expectation that community residents are somehow expected to neglect the physical environment that surrounds them. In reality community residents may have constructed notions of home that reflect the presence of the physical environment. It is important to understand how natural amenities foster attachment. From a rural development standpoint natural amenities are the main source of competitive advantage for many rural places.

Much research on place attachment has made use of survey research methodologies and multivariate modeling (Kyle et al. 2004; Moore and Graefe 1994; Stedman 2003). Other researchers suggest a phenomenological holistic sense of place that cannot be broken down into specific, measurable components and then reassembled using multivariate models (Hummon 1992; Kruger 1996). Regardless of which approach is preferred it is clear that we are dealing with a complex phenomenon. Photo-based approaches may offer an advantage for understanding such multifaceted constructs.

We base our approach on visitor employed photography but expand considerably the range of participants and phenomena considered. VEP as used in recreation research has typically engaged a relatively narrow range of phenomena. It has primarily been used by those wanting to understand the perceptions of visitors to parks and recreation places (Chenoweth 1984; Cherem and Driver 1983; Haywood 1990; Markwell 1997; Yamashita 2002). This work is strongly cognitive/perceptual/aesthetic but holds promise for the study of more complex social phenomena such as those engaged in visual sociology (Goin 2001; Harper 1986; Rose 2000). For example photo-based approaches are capable of conveying multilayered meanings. Photographs can be of multiple things (experiences, settings and social relationships) at the same time. Most settings as suggested by Sack

(1997) are simultaneously repositories for both ecological and sociocultural phenomena. Photos are placed in ways not easily captured in survey research: a photo is necessarily taken at a specific locale, which allows more setting specificity than asking people to respond to attributes of their community or recreation setting. In the study of place it simply makes sense to learn a bit about the specific settings to which people are attached.

RESEARCH QUESTIONS, SETTING AND METHODS

Our guiding question concerns the role of natural amenities in fostering attachment for residents of high-amenity communities. How do residents of high-amenity communities perceive and experience nature and how does it foster attachment? How are these perceptions and experiences similar or different from those of visitors? We do not have data on visitors to Jasper, but rather compare our resident findings with the way visitor attachment has been measured in previous research. Although our qualitative approach does not lend itself well to hypothesis testing, several possibilities are examined: (1) residents are very similar to the way visitors are characterized: they are attached to the scenery and recreation provided by the natural landscape; (2) residents may ignore nature and focus on conventional community variables like social relationships; (3) nature and home are not separate but inform each other: because people's homes are set in a high-amenity landscape, nature penetrates concepts of home. Methodologically we ask whether photo-based approaches provide new insights into attachment.

Although many high-amenity communities in the United States lie adjacent to public lands as gateway communities (Krannich and Petrezelka 2003), in Canada it is relatively common for entire communities to be located within the boundaries of national parks. People own their homes but not the land they sit on; the land is leased from the Federal Government. Mountain parks such as Jasper have a 'need to reside' clause that allows only people with jobs that require them to be in the area to reside in the park boundary. The boundaries of the town site are rigidly controlled and maintained, therefore, these places cannot sprawl. Some of the issues of rapid growth around high-amenity communities in the US are different in this context.

We provided 23 Jasper residents with 24-exposure single-use cameras and instructed them to take two photographs each of 12 things that most attached them to their community, that provide the most meaning to them, or that they would miss most if they were to move away. Participants were selected to represent a wide range on variables such as gender, age, length of residence in the community and occupation (Table 12.1). Snowball

Table 12.1 Participant characteristics

	Jasper (N = 23)
Female	13
Male	10
Age	
18–24	2
25–34	4
35–44	8
45–64	6
65 and above	3
Residency	
0–2 years	4
3–9 years	5
10–29 year	6
30 years and more	8
Born here	6
From away	17
Occupations of respondents	
Forestry and mining	0
Parks Canada	7
City employee	1
Canadian National Railroad	3
Small business owner/ self employed	3
Other services (education, health, church)	6
Provincial government	0
Retired	2
Unknown	1

sampling based on previous contacts in the community was combined with respondents to public notices, and cold contacts where individuals were contacted in contexts linked to their characteristics of interest or simply approached in public settings (such as coffee shops or town parks). We encountered a great deal of enthusiasm among potential participants. Our refusal rate among those contacted directly was virtually nil. In hopes to maximize the diversity of participants, we asked those who agreed to participate to suggest someone with a potentially contrasting view (Ambard 2003).

We attempted to keep the instructions of what/where to photograph somewhat open to avoid unduly affecting the location and content of participant pictures. We mentioned that anything was fair game such as photos of people or things right in the town site (such as their home or church) or nearby places that they visit, where they recreate (trails, lakes, fishing spots). Our field researchers arranged with the subjects a time to pick up the completed cameras and conduct a follow-up interview. We envisioned that this interview would help us understand the intent of the photographer. We did not want to be deceived by the surface appearance of an image.

We made two sets of prints, one for the research team and one for the participant to keep as a thank you for participating. Interviews lasted between 45 minutes and three hours. We began with respondent personal history in the community to put them at ease and provide us with important background context. We then examined the 12 photos one by one and asked the participant to describe what the picture was of, what they were attempting to represent and why they took it. We also asked them to locate the photo on a detailed map of the area thereby allowing us to examine the spatial distribution of important places. All of the interviews were digitally audio-recorded with the permission of the participants. This research produced a large amount of data in the form of over 300 photographs and 250 hours of recorded interviews.

RESULTS

As described earlier, we had a keen interest in the relationship between socio-cultural and ecological attachments to high-amenity communities. Our initial analysis strategy (see Stedman et al. 2004 for more detail) was to attempt to place each photograph into a single mutually exclusive category based on examining it along with the interview data. The research team, through several iterations, created a set of categories based on this division (Table 12.2).

Each of the four members of the research team independently categorized each photo into one of the 12 categories, based on the content of the photo and accompanying interview data. We had moderate levels of agreement on the category in which to place a photograph. While the number of 100 percent matches is relatively low (36 percent of all photos), it was fairly common (72 percent) for at least three of four of us to be in agreement. Only rarely (2 percent) did all four members of the team disagree on the content of a photograph. This categorization exercise reveals that ecological and socio-cultural sources of attachment were

Table 12.2 Summary of content categories created from photographs and narratives

Category	Socio-economic or ecological	Example	Percentage of photos in category
Recreation infrastructure	S	Sports field; playgrounds	3
History and heritage	S	Memorials; old churches	9
Family and friends	S	Relatives; friends	9
Home	S	House; garden; yard	8
Work	S	Job, activities; co-workers	4
Social cohesion and community pride	S	Pride in volunteers; town festivities; landmarks	18
			51
Recreation opportunity/area	E	Hiking trails, hunting spots	13
Landscape/natural assets	E	General beauty; sunsets	15
Forest area	E	Specific forest lands	2
Water area	E	Lakes, shores, beachcombing	5
Flora/fauna; natural things	E	Flowers; animals; habitat	8
Work place or type	E	Natural employment setting	6
			49

equally represented: 51 percent of the photos – at least those for which there was majority agreement – represented social phenomena, while 49 percent represented ecological phenomena. This finding suggests that environmental factors are not the only source of attachment among Jasper residents.

More telling was our level of frustration with this categorization process: the act of placing a picture in a single category seemed to defeat much of

the purpose of the photo-based approach, namely understanding the interaction between nature and socio-cultural elements in fostering place attachment. Many of the photos simply were not easily placed. As a response to this frustration, we opted for a more purely qualitative approach that allowed us to explore the types of intersections between social and environmental sources of attachment.

Qualitative Analysis

In the next section of the chapter, we present a sample of the photos taken by our participants, as well as quotes drawn from the text of the interviews. Our research questions raised the possibility that even in a community such as Jasper, some of photographs would reflect conventional community attachment vectors, such as social relations. We received photos to support this assertion: some photos conveyed a sense that the spectacular physical environment appears nearly irrelevant. In some ways, these *are* ordinary places with meanings of home that are based in the steady accretion of sentiment.

(Photo 148): This is my alley. I love my alley. Like no kidding, we are out here with coffees, breakfast, beers . . . it's like our social meeting place. Someone comes out and chats, and it's really fun. We have really good conversations out in this stupid alley. It's really a unique little spot.

Some of the meanings expressed by Jasper residents are tied to traditional images of small town living, as respondents emphasized their attachment to Jasper's relatively small size and livability. One Jasper resident (not pictured) placed his bicycle in the foreground of every picture to show the importance of not needing an automobile to get around town. Another resident photographed the downtown area of Jasper and said:

(94): This is my downtown, my post office, my bank. Because when you put them on a map . . . I can walk to all these places. I can walk to the post office, I can walk to the bank, I can walk downtown. I live in a pedestrian community. That is critical to me.

One finding we had not anticipated is that the neglect of the natural surroundings may be a form of social resistance. Places such as Jasper put so much emphasis on natural beauty and recreation that some residents took great pains to show us 'the other side' of living in Jasper. Many participants told us quite clearly that Jasper was not simply a tourist town. For example, one Jasper participant, in taking a picture of a local church (not pictured), said 'It is extremely important to me to communicate to you that citizens

live here, as opposed to tourist-serving robots. I am just a citizen . . . I'm going to show you the mundane.' Another participant photographed the post office and said

(569): This is where everybody meets. That is very, very important. I bet you've gotten pictures from everybody on the post office . . . This is where the locals can meet locals.

The latter participant in particular emphasizes the distinction between local and non-local people and how important it is to have a place that is not overrun by visitors (as are many other public spots, such as restaurants and parks). We received fewer photos of these types of public spaces from Jasper than many other communities studied; it is very possible that these public spaces do not contribute to attachment as much for local residents in Jasper, simply because they must be shared with the hundreds of thousands of visitors to the community. It is important to keep in mind, however, that these visitors and their needs have played a powerful role in contributing to local infrastructure (fine restaurants, hiking trails and so on) that local people use.

Resident photography thus captures a wide array of mundane phenomena that define ordinary communities: the gathering spaces and community structures that contribute to local attachment. But these are spectacular landscapes that draw in visitors from the world over. What role does nature play in the day-to-day experiences and attachments of Jasper residents? At the most basic level, the physical landscape surrounding both communities is a significant source of attachment. For example, several responses, at first blush, focus on mountain scenery and wildlife, differing little from what we might have found had we given cameras to Jasper visitors.

(265): This next picture represents the wildlife, we see so much wildlife here . . . I took this picture one day when we were on the way to the Hot Springs. It is just so easy to see wildlife here . . . the animals here feel safe and protected, they are being preserved.

This type of picture and response was far from typical: for most community residents, nature is intertwined with other everyday elements, and feelings of home. This conjoining of elements is a major driver of place attachment in these communities, and may represent a major difference between residents and visitors.

One phenomenon that quickly becomes apparent is the spatial link between nature and home. The close proximity of the outdoors, whether as a source of recreation opportunities or visual scenery, makes it an

extension of home. Nature is also not simply out there in the grand scenery and wildlife that draws visitors to the area, but becomes ingrained as part of daily life:

(217): The 'little town in the Rockies', there it is. I took this because it was the mountains and the town nestled right in the valley there. It really speaks to a lot of the reasons of why I came here, why I came back. Obviously the scenery is phenomenal, but . . . you can have your home in this environment.

The rivers, mountains, and forests in the Jasper region are of course not merely scenic, but also important resources for myriad recreational activities. It is clear that the possibilities of such recreational activities are a major source of participant attachment to the landscape. Although recreation-based photos might appear similar to what we would expect from participants in more typical VEP approaches, several things differentiate residents from tourists. The first refers back to the spatial proximity described earlier:

(165): I took three pictures on this bike trip. This one I thought was kind of neat because you can see the town site behind it. That's just to show you how close to town you've got such a cool opportunity to do stuff.

Time represents another important distinction between residents and visitors. All resident experience is cumulative, not just ordinary humble events, but recreational experiences similar to those that visitors may drive thousands of miles to experience. The emphasis in the sense-of-place literature on deeper place attachment being driven by layered experience (especially in home places or ordinary places) is strongly exhibited here. People have pasts in this landscape and they also expect to have futures.

(219): Pyramid Mountain. Like, I did so many things up there. It was a beach when I was a kid. It was the party place when I was a teenager. You know, bush parties and that sort of thing up there. Uh, skating parties in the winter . . . Just a lot of really good memories up there.

The memories of past events mix with current activities and the expectation of future experiences. This conjoining might be argued to foster increased attachment in these special places. Surely a different kind of attachment is fostered than for one-time visitors who may or may not ever expect to return to these places.

It is also important to remember that, in a place such as Jasper, many people's work identity is bound up in the natural landscape as well: a disproportionate number of people have work that involves natural resources,

whether through Parks Canada, or service jobs that are related to the provision of outdoor recreation. As one Parks Canada employee described:

(199): So this is hiking . . . hiking is also part of work, too, which I really like . . . working here as a warden, you definitely feel fairly connected to it.

Our research hints at the importance of specific meanings that are associated with the management of protected areas. Interestingly, Jasper residents rarely, if ever, mentioned recreating outside of the park, even though there are large areas of working forest close by. In contrast, most residents of a nearby resource-dependent community, although within easy driving distance of Jasper National Park, preferred to recreate in the foothills area outside the park, primarily due to restrictive regulations that limited their access or preferred recreation activities. Some Jasper residents were uneasy about restrictive regulations, as one participant (no photo) mentioned that 'hiking in a national park is a little bit like hiking through a corridor bubble' that separated her from the natural world. However, these views were not typical of Jasper residents, but did characterize participants from a nearby resource-dependent community.

SUMMARY AND DISCUSSION

Our research utilizes a methodology usually used in the study of visitors (VEP) and applies it to the question of attachment of residents of high-amenity rural communities. Specifically, we ask how natural amenities foster attachment for residents of high-amenity communities. Our approach surely reveals a different side of Jasper than would be the case with traditional visitor-centered approaches: although we received pictures of elk, mountains, and rivers, we also were shown churches, post offices, and schools. It is very clear that residents have a multiplicity of types of ties to the social and natural environment and that their attachment reflects these ties.

It is important to understand attachment to high-amenity rural places, because they are where a great deal of the rural population growth is occurring. These communities may experience conflict over issues such as land use; such conflicts are based at least in part in conflict between home and escape meanings.

Much of our understanding of attachment to settings rich in natural resources has come from studies of visitors rather than residents. These studies suggest that visitor attachment is based on natural amenities and recreational quality, while resident attachment is based less on these factors

and more on conventional 'community' variables such as social interactions. We thus lack a complete, composite picture of attachment to these kinds of places. If we take seriously the call for resource managers to introduce place concerns into their management efforts (Williams and Stewart 1998), research needs to provide a balanced view of the sources of attachment to place rather than privileging one mechanism over another. Future research should replicate our approach with visitors to Jasper, as we lack comparative data in our project. Differences between residents and visitors are assumed from previous research that suggests general patterns, but site-specific comparisons would be preferable.

It has been amply demonstrated elsewhere that such amenities are associated with population growth in rural areas. High-amenity places are fast-growing places (McGranahan 1999). What we tend to lack is detailed in-depth information on how these amenities are experienced by residents of these places. Our findings work provides insights in this area. For residents, home is nested in the natural world and is enriched by the proximity of natural elements. Two of the most cherished meanings we hold for landscapes are that of home and escape. In high-amenity settings such as Jasper, these come into close orbit. Little wonder that people are strongly attached to landscapes that are able to support both of these meanings. Attachment to the landscape is nested temporally as well: the steady accumulation of experience appears to be crucial to developing place attachment. Participants repeatedly revealed to us special places made special not solely on the basis of visual beauty or outstanding recreational quality, but also based on the memories of accumulated experiences.

Our research blurs the boundaries between home and escape; we believe this blurring is a more accurate reflection of the reality of high amenity rural communities. For example, based on theory we might expect that over time, the environmental amenity value of a place like Jasper might wear off for permanent residents with their attachment becoming more based on social relationships (Tuan 1977). Our research suggests that the answer is more complicated. True, attachment is based on notions of home and putting down roots, but proximity and opportunities afforded by the physical landscape apparently become written into an expanded notion of home.

Further, there appear to be ripple effects: the high-amenity physical environment attracts visitors; these visitors in turn affect the social interactions of residents, who may avoid popular public spots, while also taking advantage of infrastructure (i.e., recreational facilities, restaurants, etc.) associated with places of high amenity. Another such ripple effect appears to be deliberate discourse that emphasizes the mundane over the spectacular as a form of public resistance to the myriad visitors, and to public policy that is targeted toward visitor interests more than those of permanent residents.

Our other question involves the utility of our methods: does this approach provide new insights? We believe that it does. Photo approaches, especially when coupled with interviews, seem potentially quite useful for understanding place attachment. Our approach complements other studies that examine the relationship between socio-economic and environmental factors in place attachment using methods such as quantitative survey research (Eisenhauer et al. 2000; Stedman 2003). These previous approaches, while useful, have difficulty integrating nature and culture. We believe that our photographic approaches make progress on this front. Photos can represent multiple elements simultaneously, and hence avoid problems with having to dichotomize phenomena into either sociocultural or environmental categories. We interpreted the difficulty we had in making these categorizations as evidence that many phenomena were simply not divisible in this way but instead were composites of multiple elements. We also believe that such approaches offer some advantages over other qualitative place research techniques, such as interviews or participant observation. Photographs anchor the participant in real sites in the landscape; these sites in turn are tied to on the ground policy: the experiences, meanings, and attachment residents have for particular sites may be tied to site-specific resource management decisions or land uses.

To conclude, competition over uses and meanings may be especially fierce in high-amenity rural communities. Permanent residents of these places are not so easily juxtaposed against visitors and newcomers: they too appreciate the mountains, rivers and forest. But knowing how their experience of place enjoins the social and natural, the contemporary and the historical, the spectacular and the mundane, may help researchers and practitioners avoid faulty assumptions either that these people do not care about nature as much as visitors or that nature underpins their attachment in a similar fashion.

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PARTICIPANT PHOTOS



Photo 148, 'This is my alley'



Photo 94, 'This is my downtown'



Photo 569, 'This is where everybody meets'



Photo 265, 'It is so easy to see wildlife here'



Photo 217, 'The "little town in the Rockies"'



Photo 165, 'Close to the town you've got such a cool opportunity to do stuff'



Photo 219, 'Pyramid Mountain. Just a lot of really good memories up there'



Photo 199, 'Hiking is also a part of work, too'

13. Seasonal residents: members of community or part of the scenery?

Greg Clendenning and Donald R. Field

'There is a real commitment to take care of the community, shared by people who live here full-time and those who come for summers,' said Kate Wenner, a New York novelist. (Hughes 2004, p. F6)

INTRODUCTION

Rural regions across the United States, particularly those rich in natural amenities, have been experiencing dramatic demographic, social and economic transformations over the past 30 years. One of the key characteristics of this rural change has been substantial population growth that is due largely to the in-migration of urban residents (Beale and Johnson 1998; Beyers and Nelson 2000; Davis et al. 1994; Frey and Johnson 1998; Johnson and Fuguitt 2000; McGranahan 1999; Nelson and Dueker 1990). Population increase alone does not capture the extent of growth and development in many amenity-rich regions because of dramatically increasing numbers of seasonal homes (American Society of Planning Officials (ASPO) 1976; Beale and Johnson 1998; Green and Clendenning 2003; Marans and Wellman 1978).¹ Though seasonal homeowners are not considered in population estimates they can have significant impacts on local infrastructure and services, surrounding natural resources, and community social structure (Fitchen 1991; Green and Clendenning 2003). As Fitchen (1991, p. 97) notes, 'Recreational land development is not really a local demographic trend in the strict sense of the term, as it does not refer to people who reside in the area . . . But where it is occurring, it is an important population trend, in the broader sense, in that it represents a change in the relationship of people and places . . .'. The impact of seasonal homeowners upon the quality of life in many communities located in amenity regions is an issue of contemporary concern to many community leaders, rural planners and public land managers.

The literature on community is largely devoid of any discussion of the role of seasonal homeowners in the social fabric of rural communities. Instead seasonal homeowners are generally considered to be tourists or an adversarial force that threatens the social and cultural well-being of the community. The seasonal homeowner is often portrayed as a glorified tourist, a visitor or transient who is disconnected from and disinterested in local affairs. Some research suggests that seasonal homeowners are socially isolated from their host communities, forming a community that is distinct from the community of permanent residents. Seasonal homeowners are thought to have few social ties to the community, little attachment to the community as a social setting and little social solidarity with permanent residents. As Coleman observed: ‘. . . resort towns – are composed of “natives,” a permanent, old-time group, and “outsiders,” who are sometimes summer residents, sometimes year-rounders, but who in any case have come to town to rest or play, not to make a living’ (Coleman, 1957, p. 7). Similarly, Burby (1971, pp. 133–4) found ‘stark evidence of the tendency for recreational households to view themselves as creating communities of limited liability where they can temporarily escape the problem of their primary communities’. The extant literature has largely ignored the possibility that seasonal homeowners may in fact integrate into and feel attached to their second-home communities.

This chapter will explore the social integration of seasonal homeowners by examining the feelings of community attachment, social ties and community participation of seasonal homeowners in an amenity-rich rural region of northwestern Wisconsin. Of particular interest is the extent to which seasonal homeowners develop social ties with permanent residents or whether instead seasonal homeowners largely limit their social relations to other seasonal homeowners, developing parallel communities of limited liability. This chapter will work from the interactional perspective of community, in which social interaction is the critical element of community (Luloff 1990; Wilkinson 1991).

Seasonal Homeowners and Host Communities

Much of the literature on seasonal homeowners focuses on the divisions and conflicts between seasonal homeowners and permanent residents. For example, Halseth’s (1998) study of two cottaging regions in Canada (areas with an abundance of seasonal homes) focused on three themes affecting local communities: the physical and social separation of cottage owners from the rest of the community, and the antagonistic views of development held by residents and cottage owners. The cottages in the two study areas were concentrated on lakeshores and geographically isolated from each

host community. This geographic isolation has helped create a second, parallel cottage community. Cottagers socialized together and organized in order to act to achieve their collective interests that were distinct from the interests of the host community. Divisions were most evident in land use planning and development efforts, where cottagers sought to protect the landscape from development, preserving the lakes and forests as well as exclusivity of their cottages. Permanent residents, in contrast, had mixed views of development. They recognized that development could provide economic opportunities, but they also saw development as a threat to their lifestyles and control over local community (Halseth 1998).

Jordan (1980) provides another rare glimpse into the social relations and interactions between summer people (seasonal homeowners) and the permanent residents of a resort village in Vermont. In Jordan's study (1980) the village residents struggled to remain socially distant and culturally distinct from the summer people. In contrast, the summer people wished to experience more authentic aspects of rural village life. In response, residents created elaborate, but fake, cultural events for the summer people, such as church services and parades. Authentic cultural events, such as weddings and political activities, were reserved for winter when the summer people were conspicuously absent. The natives and summer people were further divided by their views of the community. To residents the village was home, a place for family, work and raising children. According to Jordan (1980: 43), residents viewed life as: 'a continual struggle pitting the natives against the summer people and tourists for control over the land and way of life of the natives.' In contrast, for seasonal homeowners the community was an escape from the drudgery of everyday life, a place for relaxation. Thus, the influx of seasonal homeowners, while economically beneficial, has been socially and culturally disruptive, leaving many residents of the village despondent about the future of the village: 'Native Vermonters truly fear that most of Vacation Village will eventually be owned by summer people, and the area will function as an elaborate playground for tourism' (Jordan 1980, p. 48).

Green et al. (1996) examined the attitudes toward land use management and economic development among seasonal homeowners and permanent residents in Forest County, Wisconsin. They found that permanent residents were less supportive of land use regulations and much more supportive of economic development efforts than seasonal homeowners. In addition, time spent at the seasonal home was associated with increased support for land-use controls. The authors suggest that as seasonal homeowners spent more time at their second home, they developed more extensive relationships with other seasonal homeowners. These social relationships reinforce support for land use controls, attitudes at odds with

permanent residents. Interestingly, those seasonal homeowners that felt welcome in non-lake activities were more supportive of local economic development efforts. Thus, those seasonal homeowners that developed social ties with permanent residents were thought to develop shared interests in the community similar to those of permanent residents (Green et al. 1996). Similar conclusions were reached by Burby in his research of lakeshore owners in North Carolina and Georgia: 'Cleavages and conflicts between recreationists and native residents in recreation areas may hinge on the extent to which households are integrated into the life of shoreline neighborhoods and community organizations in nearby areas' (Burby 1971, p. 115).

Other research suggests that seasonal homeowners may indeed develop attachments and social relations in their seasonal home communities, bridging some of the differences between seasonal homeowner and permanent resident. Recent work in sense of place has found that seasonal homeowners develop attachments to their seasonal homes and the surrounding landscape (Kaltenborn 1997a; 1997b; Stedman 2002). Buller and Hoggart's (1994) study of British seasonal homeowners in rural France found that seasonal homeowners generally fell into two categories: those who wished to integrate into the local community and those who did not. In a study of Swedish retirees who spent winters in Spain, Gustafson (2002) found that the retirees created a social space for themselves that was distinct from both tourists and the Spanish community, a place between tourism and migration. The seasonal homeowners sought out places and experiences that were, in their minds, more authentically Spanish and local than what a tourist might experience, and they temporarily adopted local customs and cultural behaviors. Gustafson (2002) argues that Swedish seasonal homeowners exist in a grey world between migration and tourism, developing place attachments to both their permanent residence and their seasonal home.

Recent work by the geographer McHugh echoes Gustafson's (2002) idea that seasonal homeowners inhabit a 'grey world' between migration and tourism: 'It has become increasingly evident that many people live and spend time in more than one place, moving between locales on a recurrent basis. Despite this recognition, we have a limited understanding of the incidence, determinants, and consequences of multiple residences and associated forms of cyclical mobility' (McHugh et al. 1995, p. 251). McHugh and his co-authors argue that social ties and place ties are critical to developing a better understanding of mobility and migration in modern society.

From this review it is apparent that the social role of seasonal homeowners in their host communities is ambiguous. While some research argues

that seasonal homeowners are tourists who have come to play and escape the problems of their home communities, there is evidence that seasonal homeowners develop deep attachments to their seasonal homes and have established social relations with local residents. Of particular interest to this study is the extent to which seasonal homeowners develop social ties with permanent residents. Our examination of the relationships between seasonal homeowners and their host communities will improve understanding of the role that seasonal homeowners play in the process of community change in amenity regions.

The Setting: the Pine Barrens of Northwestern Wisconsin

Our research was conducted in the Pine Barrens of northwestern Wisconsin, an area that covers 1500 square miles and spans five counties. With over 12 000 lakes, the entire northern third of the state has been a tourist destination since the early twentieth century, with many lakeside resorts and cottages dating back to the turn of the century (Gough 1997; Murphy 1931; Wisconsin Department of Natural Resources 1996). Our study focuses on the portion of the Pine Barrens that is located within two counties: Burnett and Washburn. These two counties are particularly rich in natural amenities, with over 1400 lakes and thousands of acres of forests and public lands found within their borders. Located within a two-hour drive of the Minneapolis–St. Paul metropolitan region, the Pine Barrens is a highly desirable setting for seasonal home development, retirement, and ex-urban development. The two county subregion of our study site is particularly impacted by seasonal homes as 45 percent of all homes in Burnett County and 35 percent of all homes in Washburn County are seasonal. In addition, since 1970, the number of seasonal homes has increased by 76 percent in Burnett County and by 112 percent in Washburn County (NWRPC 2000; US Census Bureau 2001).

Community Theory

A brief review of community theory will help guide our examination of the relationship between seasonal homeowners and their host communities. Community will be examined as a multidimensional concept in which social interaction is the critical element. There are three fundamental elements of community: a geographic area, common ties and social interaction (Greider et al. 1991; Hillery 1955; Luloff 1990; Wilkinson 1991). To expand, Hunter (1975) suggests three theoretical dimensions of community:

1. Community as a functional spatial unit meeting sustenance needs;
2. Community as a unit of patterned social interaction;
3. Community as a cultural-symbolic unit of collective identity.

This conceptualization has much in common with numerous other community scholars, including proponents of the systemic model of community social organization who conceptualize the local community as ‘a complex system of friendship and kinship networks and formal and informal associational ties rooted in family life and ongoing socialization processes’ (Kasarda and Janowitz 1974, p. 329). Alternatively Lyon (1989, p. 7) describes the study of community as follows: ‘to study people living in and identifying with a particular place and to give special attention to the type, quality and bases of their interaction.’ In summary, the community is a multidimensional concept, rooted in social interaction that encompasses sentiments of community attachment, identity, solidarity and cohesion.

The centrality of social interaction to community theory is well expressed by Wilkinson (1991, p. 11): ‘Social interaction delineates a territory as the community locale; it provides the associations that comprise the local society; it gives structure and direction to processes of collective action; and it is the source of community identity.’ By interacting, individuals take the point of view of the other, building a social bond of shared meaning. This bond becomes a fundamental part of the individual’s social being, connecting the individual to society through shared meanings (Wilkinson 1991). In this way, the community is a continuing social process in which people are engaged: ‘it arises from a process of social interaction. In short, it is a social product’ (Hunter 1974, p. 194). Our chapter examines the social role of seasonal homeowners in the local communities in which they own their homes. Seasonal homeowners share a territory, albeit intermittently and for short periods of time, with the permanent residents of the community. As other research has shown, seasonal homeowners identify with their home and the surrounding landscape – it is important to their self-identification and family relations. And the literature on migration has begun to recognize the grey world of seasonal homeownership in the migration process. Seasonal homeowners are a poorly understood part of the local community.

Research Question

Our central research question is: To what extent are seasonal homeowners socially integrated into and attached to their host communities? Social integration and community attachment are perhaps best understood as multifaceted phenomena that include a subjective feeling of sentiment (or affective attachment) and local social involvement or social interaction

(Fischer et al. 1977; Goudy 1990; Hunter 1974; 1975; Kasarda and Janowitz 1974; Sampson 1988). Local social involvement is in turn multidimensional and includes local social ties (such as ties to family, friends and neighbors) and community involvement such as membership in local organizations, participation in civic activities and volunteer work. As Fischer et al. (1977, p. 139) argue: 'attachment to place refers to individuals' commitments to their neighborhoods and neighbors. This commitment takes two general forms: social involvement and subjective feeling.' Thus, our intent is to examine how seasonal homeowners participate in the local communities, how they interact socially with permanent residents and other seasonal homeowners, and how attached they are to the communities in which they own their seasonal homes.

In this chapter we will begin with a simple comparison between seasonal and permanent residents on the two central aspects of social integration and community attachment:

1. Community sentiment (or affectual attachment)
2. Local social involvement, measured by:
 - a. Social bonds
 - b. Community involvement and participation.

We will then focus on seasonal homeowners and examine the effects of sociodemographic variables on community attachment and social ties.

METHODS

Sampling

The study population is defined as adults of households owning improved residential property that is located within the boundaries of the Pine Barrens within Burnett and Washburn counties, as defined by previous research (NWRPC 2000; Radeloff et al. 2001).² Using property tax records as the sampling frame, simple random sampling was used to draw the sample. Following procedures used by Girard and Gartner (1993), type of residence (seasonal and permanent) was determined by the zip code of the property tax billing address. Our sample consisted of 422 permanent residents (53 percent of sampled households) and 378 seasonal homeowners (47 percent of sampled households). The distribution of permanent and seasonal households in our sample approximates that of our population (the population contains approximately 55 percent permanent and 45 percent seasonal households).

Data Collection

Data were collected with a self-administered mail questionnaire. Prior to administration, the survey was peer reviewed and then pre-tested by a group of permanent residents and a group of seasonal homeowners, both of which were recruited with the help of a local University of Wisconsin Extension agent. A modified version of Dillman's (2000) Tailored Design Method, with seven total mailings, was used to implement the survey: a pre-notification letter, the survey, a reminder postcard, a replacement survey, two additional postcard reminders and a specially delivered third copy of the survey (Clendenning et al. 2004). These procedures yielded a response rate of 82.8 percent ($n = 653$). Return rates for seasonal homeowners and permanent residents were comparable, with seasonal homeowners having a slightly higher response rate of 85.4 percent ($n = 317$) compared to 80.4 percent ($n = 336$) for permanent residents.³

Measurement Procedures

Community attachment was measured by using a four-question additive scale (labeled 'community attachment') previously used by Smith et al. (2001) and Krannich and Greider (1984). Respondents were asked to respond to the following statements using a 5-point Likert scale (strongly disagree = 1, somewhat disagree = 2, neither agree nor disagree = 3, somewhat agree = 4, strongly agree = 5):

- The more time I spend in this community, the more I feel I belong
- I feel I am fully accepted as a member of this community
- If I was in trouble, most people in this community would go out of their way to help me
- Most people in this community can be trusted.

The inter-item correlation of the four measures was high (Cronbach's $\alpha = .826$) and factor analysis found the items to be unidimensional (DeVellis 1991).

Local social involvement was measured by collecting data on local social bonds and community participation. For local social bonds, the survey instrument was designed to determine the extent to which respondents had ties with the other type of resident. Using a modified version of Fischer's (1982) question on social ties, respondents were asked to indicate how many friends and family they had in the local community and within a one-hour drive. In addition, respondents were asked to indicate how many friends and family ties were permanent residents and how many were seasonal

homeowners. Respondents were also asked to estimate the percentage of their neighbors that were permanent residents and seasonal homeowners. Finally, respondents were asked to indicate the frequency with which they socialized with the other type of resident (never = 1, rarely = 2, sometimes = 3, often = 4).⁴

Community participation was measured in a three ways: the number of community groups to which residents belonged, the number of hours spent per month volunteering time for community organizations (less than one hour per month, one to four hours per month, five to ten hours per month and more than ten hours per month), and participation in four community activities during the past year (attending a community event, contacting a public official, working on a community project and attending a public meeting).

Several demographic variables were included in our analysis: length of residence (measured in years), number of days spent at the seasonal home, likelihood of migrating to the community (very unlikely = 1, somewhat unlikely = 2, somewhat likely = 3, very likely = 4), age, level of education (less than a high school degree = 1, high school degree or GED = 2, some college = 3, two-year technical degree = 4, four year college degree = 5, advanced degree = 6), annual household income (less than \$25 000 = 1; \$25 000–\$34 999 = 2; \$35 000–\$49 999 = 3; \$50 000–\$74 999 = 4; \$75 000–\$100 000 = 5; \$100 000 and over = 6), children (one or more child in the household = 1, no children = 0), and previous residence in the Pine Barrens (previously resided in the Pine Barrens = 1, no previous residence = 0).

There are several anticipated effects of our demographic variables. Considering community attachment first, length of residence has consistently been found to be the strongest predictor of affective attachment (Fischer et al. 1977; Goudy 1990; Kasarda and Janowitz 1974; Hummon 1992; Sampson 1988). In addition higher levels of education and income, age and presence of children are often associated with higher levels of affective attachment (Fischer et al. 1977; Hummon 1992; Hunter 1974; Kasarda and Janowitz 1974; Sampson 1988). For local social ties, length of residence has also consistently been found to be the strongest predictor while levels of education and income are both often associated with fewer local social ties. Increasing age is often associated with lower numbers of family and friendship ties while presence of children is associated with higher numbers of local social ties.

Several other sociodemographic variables will be considered for seasonal homeowners: number of days spent at the seasonal home, intention of migrating to the community and previous residence in the community. Number of days spent at a seasonal home has been found by Kalténborn (1997a; 1997b) to be significantly associated with place attachments. It is

quite possible that the amount of time spent at the seasonal home, rather than the number of years of ownership, has a larger impact on social integration. The likelihood of migrating was used because past research has found that substantial proportions of seasonal homeowners intend to retire to their seasonal residence or make it their full-time residence before retirement. We suggest that this is similar to Freudenburg's (1986) notion of anticipated length of residence. Freudenburg (1986) argues that a person who expects to reside in a community for a long period of time will have more incentive to develop social ties than someone who expects to leave the community. We hypothesize that seasonal homeowners who intend to move to their seasonal home on a full-time basis are more likely to integrate into the local community. Further, we suggest that seasonal homeowners who once resided in the community will have higher levels of attachment and social involvement.

Analysis Procedures

Data were analysed with SAS version 8 (SAS Institute 1999). We used independent sample *t*-tests to examine differences in mean levels of attachment between seasonal homeowners and permanent residents. Chi-square analysis was also used to test for differences in social ties and community participation. We applied ordinary least squares (OLS) regression and logistic regression to analyse the effects of the sociodemographic variables on community attachment, and social ties of seasonal homeowners. Community attachment, number of friends (a continuous variable ranging from 0 to 100; any responses that were over 100 or that were written as 'hundreds' were coded as 100), and socializing with permanent residents were analysed with OLS regression. Family ties (1 = family ties, 0 = no family ties), and having friends or family ties with the permanent residents (one or more friend or family tie with permanent residents = 1, absence of friend or family ties with permanent residents = 0), were analysed with logistic regression.

RESULTS

Community Attachment

Permanent residents were found to have significantly higher levels of attachment than seasonal homeowners (see Table 13.1). However, while seasonal homeowners have lower levels of attachment, all measures are positive, suggesting that seasonal homeowners have developed attachments to the communities in which they own seasonal homes.

Table 13.1 Comparing respondents' level of community attachment^(a)

	Permanent residents			Seasonal homeowners			<i>t</i> -value
	Number of respondents	Mean	SD	Number of respondents	Mean	SD	
I feel I belong here	336	4.24	1.05	317	3.91	1.02	-5.07*
I feel I am a member of the community	336	4.24	1.08	317	3.33	1.16	-12.58*
Others in community would help in emergency	336	4.16	1.06	317	3.73	1.06	-6.48*
Others in community are trustworthy	336	4.06	1.06	317	3.74	0.97	-4.98*
Community attachment ^(b)	331	16.96	2.97	315	14.81	3.17	8.88*

Notes:

(a) Respondents were asked to agree or disagree with each statement, where 1 = strongly disagree and 5 = strongly agree.

(b) Summated scale of the first four survey items listed in the table.

* $p < .0001$.

Social Bonds

Next we compared the social bonds of each type of resident and levels of social interaction between seasonal homeowners and permanent residents. Not surprisingly, permanent residents have larger social networks than seasonal homeowners (see Table 13.2). However, few seasonal homeowners are socially isolated as 87 percent have at least one friend in the area and 45 percent have family in the community.

Relations with Permanent Residents

Turning to social ties with the other type of residents, it appears as though permanent residents tend to be more socially isolated from seasonal homeowners rather than vice versa. For example, less than half of all permanent residents have a single friend who is a seasonal resident while nearly 70 percent of seasonal homeowners have friends who are permanent residents. Similarly, fewer than 20 percent of all permanent residents have family members who are seasonal homeowners compared to 27 percent of seasonal homeowners who have family ties to permanent residents. Turning

Table 13.2 Number of friends and family, by type of resident

	Permanent residents		Seasonal homeowners	
	Friends ^{(1), *} %	Family ^{(2), *} %	Friends ^{(3), *} %	Family ^{(3), *} %
0	1.25	25.15	12.99	55.52
1 to 5	14.38	38.65	26.95	29.87
6 to 10	20.63	15.34	30.84	7.14
11 to 20	29.06	10.43	16.56	4.87
Over 20	34.69	10.43	12.66	2.60

Notes:

(1) $n = 320$.

(2) $n = 326$.

(3) $n = 308$.

* $p < .0001$ for χ^2 test of differences between permanent residents and seasonal homeowners.

Table 13.3 Percentage of neighbors that are other type of resident

Percentage of neighbors	Permanent residents ($n = 311$)		Seasonal homeowners ($n = 300$)		χ^2
	n	%	n	%	
0%	95	30.55	40	13.33	
.1 to 25%	92	29.58	99	33.00	
25% to 50%	42	13.50	58	19.33	
51% to 75%	46	14.79	53	17.67	
Over 75%	36	11.58	50	16.67	27.81*

Note: * $p < .0001$.

to neighbors, few seasonal homeowners are geographically isolated from permanent residents. In fact, permanent residents are more likely to live in areas that are physically more isolated from seasonal homeowners (see Table 13.3). This is due in part to the fact that a substantial portion of permanent residents (18 percent) live in cities and villages in the Pine Barrens while only 2 percent of seasonal homeowners have homes in cities and villages.

In addition, we asked respondents to estimate the frequency with which they socialized with the other type of resident. Seasonal homeowners assess higher rates of social interaction with permanent residents, with 72 percent

of seasonal homeowners indicating they socialized sometimes or often compared to 62 percent of permanent residents. This may be due to base levels of social interaction that respondents are drawing upon. That is, because seasonal homeowners visit their homes occasionally a given level of social interaction may seem more frequent to a seasonal homeowner than to a permanent resident.

Community Participation

Another critical measure of community is the extent to which residents participate in community affairs – do seasonal homeowners and permanent residents belong to community groups, participate in public events and meetings, and volunteer their time to community groups? Not surprisingly permanent residents have significantly higher levels of participation in all measures of community participation than seasonal homeowners except for one: contacting public officials. Permanent residents are more likely to belong to community groups and volunteer their time to community groups and events. Sixty-two percent of permanent residents belong to at least one community organization, compared to 44 percent of seasonal homeowners, and half of all permanent respondents volunteer at least one hour per month to community organizations compared to 11 percent of seasonal homeowners. The most common community organization to which seasonal homeowners belong is a lake association (40 percent of seasonal homeowners are members of lake associations). Lake associations address needs and concerns that most directly affect most seasonal homeowners (over 70 percent of seasonal homeowners own lakefront property). Thus, membership in a lake association may reflect an interest in preserving their property and enjoyment of the lake rather than concern for issues of community-wide concern. However, it may be that for those seasonal homeowners who belong to more than one community organization (15 percent of our respondents), their interests may extend beyond lake-related issues, encompassing broader community issues. Similarly, those seasonal homeowners that volunteer at least one hour per month to community organizations (10 percent of our respondents) appear to be more engaged in the local communities.

Civic participation is commonly measured by attendance at public meetings and events, contacting public officials and working on community projects (Oliver 2001; Verba et al. 1995). As with time and membership with community groups, permanent residents are significantly more active than seasonal homeowners. However, substantial numbers of seasonal homeowners do attend local events (62 percent) and contact public officials (45 percent). Once again we see a subpopulation of seasonal homeowners

who work on community projects (11 percent of seasonal homeowners) and attend public meetings (nearly 19 percent of seasonal homeowners).

Demographic Factors Associated with Seasonal Homeowners’ Community Integration

The next step in our analysis was to examine the association of sociodemographic characteristics with community attachment and social ties. These include length of residence, level of education, income, age, and presence of children in the household. Analysis reveals that number of days spent at the seasonal home and likelihood of relocating to the seasonal home are both highly significantly associated with community attachment (Table 13.4). In addition, previous residence in the Pine Barrens is associated with increased attachment. Interestingly, rather than length of residence it is actual use of the home that is associated with attachment. Similarly, those

Table 13.4 Multiple regression analysis of community attachment, number of friends and socializing with permanent residents, seasonal homeowners

	Community attachment		Number of friends		Socializing with permanent residents	
	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -value
Length of residence	0.0014	0.02	0.09	1.28	0.085	1.12
Number of days spent at home	0.18 ***	2.77	0.283 ***	4.54	0.23 ****	3.43
Likelihood of migration	0.257 ***	3.48	0.181 ***	2.56	0.19 ***	2.58
Education	-0.004	-0.06	-0.056	-0.84	0.06	0.9
Age	0.06	0.49	0.009	0.1	-0.001	-0.01
Income	0.03	0.46	-0.11	-1.55	-0.15 **	-1.97
Children	-0.09	-1.16	-0.05	-0.78	-0.015	-0.2
Previous residence	0.12 *	1.73	0.233 ***	3.69	0.11	1.55
Model <i>F</i> -value	3.38		7.26		3.64	
Adjusted <i>R</i> ²	0.075		0.178		0.0867	
Model <i>p</i> value	<.0001		<.0001		0.0005	

Note: * *p* < .1; ** *p* < .05; *** *p* ≤ .01; **** *p* < .001

who intend to relocate to their seasonal home are more attached, confirming our hypothesis that anticipated residence influences feelings of attachment (Freudenburg 1986).

Social Ties and Community Participation

Next we turn our attention to social ties. From the analysis we can see that number of friends is most strongly predicted by number of days spent at the seasonal home, followed by previous residence in the Pine Barrens and intention to migrate (Table 13.4). Meanwhile, having family ties is associated with previous residence (where seasonal homeowners who did not previously reside in the Pine Barrens are much less likely to have family ties) and the number of days spent at the seasonal home (Table 13.5).

An important aspect of social relations in areas with seasonal homeowners is the level of cross-resident ties. We found that length of residence and number of days spent at the seasonal home are associated with having at least one friend who is a permanent resident (Table 13.5). For family ties with permanent residents, previous residence is strongly associated while length of residence and likelihood of migration are somewhat associated.

Another measure of the social integration of seasonal homeowners is the frequency with which they socialize with the permanent residents. We found that the number of days spent at the seasonal home and expected migration to the Pine Barrens were positively associated with socializing with permanent residents while income is negatively associated with socializing with permanent residents (see Table 13.4). It is possible that extremely wealthy seasonal homeowners simply view their home as an escape and do not try to develop social ties with permanent residents while they are at their home.

CONCLUSIONS

It is clear from this analysis that seasonal homeowners in the Pine Barrens inhabit a grey world between migration and residence. Far from being socially and physically isolated from permanent residents with little concern for community affairs, seasonal homeowners have instead developed fairly extensive social networks in the Pine Barrens as well as strong attachments to the communities. Importantly, the social networks and social interaction for most seasonal homeowners includes not only other seasonal homeowners but also permanent residents of the host communities. Seasonal homeowners are not extremely active in more formal community affairs. Although nearly half of all seasonal homeowners belong to

Table 13.5 Likelihood of having any family ties and friendship or family ties with permanent residents in the community, seasonal homeowners

	Family ties			Friendship ties with permanent residents			Family ties with permanent residents		
	β	Wald	Odds ratio	β	Wald	Odds ratio	β	Wald	Odds ratio
Length of residence	0.014	1.4	1.014	0.029	4.68 **	1.03	0.0259	3.46 *	1.026
Number of days spent at home	0.007	3.88 **	1.007	0.007	3.04 *	1.007	0.002	0.24	1.002
Likelihood of migration	0.217	2.15	1.243	0.083	0.29	1.086	0.383	4.48 **	1.467
Education	-0.142	1.6	0.868	-0.138	1.31	0.871	-0.116	0.74	0.891
Age	0.007	0.19	1.007	-0.008	0.2	0.992	-0.001	0.002	0.999
Income	-0.135	1.42	0.874	-0.171	1.79	0.843	-0.2	2.33	0.819
Children	0.426	1.39	1.531	0.02	0.012	1.041	0.042	0.04	1.088
Previous residence	-1.19	8.94***	0.093	-0.548	1.84	0.334	-1.35	14.55 ****	0.067
Wald χ^2		21.93			16.67			30.11	
Model p value		0.005			0.03			0.0002	

Note: * $p < .1$; ** $p < .05$; *** $p \leq .01$; **** $p < .001$.

at least one community organization, most of these homeowners belong only to their local lake association. Similarly, few devote an hour or more to community organizations, work on community projects or attend public meetings. However, there is a fairly substantial subpopulation that is rather active in community affairs in a place where they are part-time residents: they devote hours of time to community projects, belong to community groups and attend community events. This subpopulation of seasonal homeowners in particular challenges the image of seasonal homeowners as having shallow and fleeting experiences with their seasonal homes, only using them as an escape from reality. Instead, some engage in very tangible ways as they attend zoning meetings and volunteer for local community projects.

Interestingly, rather than length of residence it is actual use of the home that is most often and most strongly associated with feelings of attachment, development of social ties and participation in community affairs. This intuitively makes sense as someone who spends more time at their home can be expected to have more interactions with neighbors, friends, family, and casual acquaintances in the community while also having more time to dedicate to community organizations and events. Similarly, those who intend to migrate to the Pine Barrens can be expected to have more of an incentive to develop social ties and participate more in community affairs. Of the other demographic variables, only income is significantly associated with community integration. High levels of income are associated with lower levels of interaction with permanent residents, perhaps indicating that the wealthiest seasonal homeowners have less interest or opportunity to socialize with permanent residents.

Rural communities with an abundance of seasonal homes are becoming more complex places where social roles and relationships have become more ambiguous and uncertain. The distinctions between resident and seasonal homeowner are blurring, particularly in places like the Pine Barrens that have both a long history of cottages and resorts (Murphy 1931) and a contemporary trend of the steady conversion of seasonal homes to permanent residences (nearly 18 percent of current permanent residents were once seasonal homeowners and 47 percent of current seasonal homeowners indicate that they are likely to establish permanent residence in the Pine Barrens). The findings of this research confirm the importance of Wilkinson's (1991) social interaction theory in understanding community, where community is a multidimensional concept that encompasses social ties, community participation and community attachment and solidarity. As Wilkinson (1991, p. 34) argued so succinctly: 'So long as people interact, community in this sense will persist.' To better understand the ways in which seasonal homeowners may integrate into their host communities,

it is important to focus on the essential element of social interaction. And as Burby (1971) noted, it is critically important for community well-being and development to find ways to bridge differences between seasonal homeowners and permanent residents by promoting social interaction and integration between the two populations.

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NOTES

1. Seasonal homes are defined as homes that are used only on weekends, vacations, or holidays (US Census Bureau 2002).
2. We limited our sample to residential property records with an improvement (i.e. a structure such as a house or mobile home). We excluded vacant residential property because we were interested in examining how homeowners (both seasonal and permanent) interacted in the communities and thought about resource management issues.
3. Eleven households were removed from the sample (four permanent and seven seasonal) resulting in a final sample of 789 households, 418 of which were permanent residents and 371 of which were seasonal residents. The 11 households were removed from the sample due to undeliverable surveys, incapacity of the respondent, or sale of the home.
4. For seasonal homeowners the question read: 'How often do you interact with year-round residents?' For permanent residents the question read 'How often do you interact with recreational homeowners (those people that live here seasonally and those that come to visit their homes occasionally)?'

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14. Evaluating the effectiveness of land-use planning policies in rapidly growing high-amenity communities in the Rocky Mountain states

Michael D. Smith and Lisa M. Spadoni

INTRODUCTION

Since the 1960s the United States has experienced a reverse trend in migration. During most of the twentieth century, people migrated from rural areas to urban centers, searching for greater economic and employment opportunities (Long and Nucci 1998). Starting in the 1960s, people began moving back to rural areas (Johnson 1998). This turnaround migration has been fueled in part by a desire for natural amenities (outdoor recreation, open space, scenery) and a greater sense of community. Counties with amenity-driven recreation economies were the fastest growing types of rural counties in the 1990s (Johnson 1998). The turnaround migration phenomenon has been especially intense in the Rocky Mountain West region with high-amenity rural communities having the highest growth rate of all counties during the early 1990s (Shumway and Davis 1996).

The growth in amenity-rich rural counties causes a rapid restructuring away from resource extraction economies to tourism-based consumptive economies where land use and the consequences of growth become issues of debate and controversy (Smith and Krannich 2000). Rural in-migration to high-amenity communities increases the demand for housing and supporting development and also often leads to a substantial decrease in open space, scenic vistas and recreational opportunities, as well as degrading air and water quality (Ringholz 1996). As the population of rural communities continues to grow, new development threatens to degrade the very attributes that originally attracted people (Cromartie 1995).

Land-use planning is often seen as an effective means for dealing with growth and development in an effort to preserve natural amenities

(Elmendorf and Luloff 1999). Land-use planners generally act as nonpartisan arbitrators within a community and attempt to develop policies and plans that direct growth for the benefit of everyone (Jacobs 1995). Some of the land-use planning tools developed by planners include vision statements, general management plans, zoning ordinances, cluster housing requirements, and purchase and transfer of development rights. Land-use planning techniques have frequently been applied to urban areas, but in more recent years rural communities have begun to use more complex planning tools. Because land-use planning has been largely an urban and suburban effort, most of the research examining its effectiveness has focused on these areas. Very little research has been done on the effectiveness of planning in rural communities (Smutny 1998).

In the summer of 2002, we administered a survey to selected respondents in five rapidly growing rural, high-amenity counties in the Rocky Mountain West to determine the effectiveness of 21 land-use planning techniques that are commonly used to protect amenity attributes.

LITERATURE REVIEW

We draw upon the literature in three interrelated areas to set the context for our research. We look first at the literature on rural community growth and amenity-related in-migration to examine population growth trends in the Rocky Mountain West. Second, we review literature on the loss of natural and social amenities that can result from a rapidly increasing population. Last, we explore research on the effectiveness of land-use planning policies for preserving amenity values in communities faced with increasing populations.

Rural Community Growth and Amenity-related In-migration

During the first six decades of the twentieth century, population in rural communities exhibited a pattern of decline as people moved to urban settings in search of economic and employment opportunities. At the end of the 1960s and through the 1970s rural areas experienced an increase in population as people became disillusioned with urban life and joined the back-to-the-land movement (Jacob 1997). The urban to rural population movement has fluctuated in intensity since the 1960s. Studies indicate a continued and increasing flow of people into rural areas (Johnson 1998; Long and Nucci 1998). Further, rural communities with high amenity values, such as open space, outdoor recreation opportunities and a pleasant community atmosphere, have experienced a continuously high population influx (Johnson 1998). Counties with amenity-based recreation economies con-

tinued to be the fastest growing rural counties through the 1990s (Johnson and Beale 1998).

Some of the highest rates of in-migration to rural areas have occurred in the Rocky Mountain West region (Riebsame et al. 1997). Over 60 percent of the counties in this region grew faster than the national average in the 1990s (Beyers and Nelson 2000) and many of the rural counties are gaining population faster than the urban areas (Theobald 2000). In particular, high-amenity rural counties in the Rocky Mountain West region experienced the highest rates of population growth of all counties in the region during the first half of the 1990s (Shumway and Davis 1996). The rapid population growth in many high-amenity communities has resulted in economic activities usually associated with urban areas and social relations more typical of rural areas, what some researchers term an 'exurban' society (Duane 1999; Maestas et al. 2001).

Amenity driven migration

Researchers argue that the underlying forces of the urban to rural migration have shifted from economic factors to the search for natural amenity factors such as open space, scenery, and outdoor recreation (Dublink 1984). The Economic Research Service of the US Department of Agriculture has created a natural amenities index based on three classes of physical factors: topography, climate and water area. Rural communities that scored high on the amenity index grew by as much as 120 percent while those ranking low on the index grew by 1 percent (McGranahan 1999). Surveys of new residents in counties with high levels of amenities found that factors such as scenery, environmental quality, pace of life, outdoor recreation and climate were more important reasons for relocation than job opportunity or cost of living (Rudzitis 1999). Rapid population growth has also been correlated with proximity to wilderness, with surveyed residents citing the access of wilderness as important (Rudzitis and Johansen 1991). Beyers and Nelson (2000) found that migrants to rural communities were attracted to social amenity values such as perceived safety, small town feel, and community involvement as well as to natural amenities.

A number of factors have allowed people to pursue the enhanced quality of life brought about by natural amenities. The economic basis of many rural communities has changed from resource extraction industries to a more diversified base emphasizing service industries, particularly those connected with tourism and retirement communities (Shumway 1997). Improved transportation and electronic connectivity such as faxes, cellular phones and the Internet make living and working in rural areas easier (Levitt 2002). The increased equity gains from stocks have allowed a

number of baby-boom retirees and dot-com business employees to move to rural areas as well (Duane 1999).

Population growth trends in the United States and the current population demographics in high-amenity communities indicate that the growth trends in rural areas will continue. The number of Americans reaching retirement age will significantly increase in the next decade. The results of a Gallup poll of retirees found that a majority of them would like to settle in a small town or rural area (Fetto 1999). Additionally Cromartie (1995) reports that mountain communities have a relatively young population. This built-in growth momentum in rural communities will likely result in increased populations.

Loss of Natural and Social Amenities

The current period of growth in high amenity rural communities has been marked by the conversion of ranch, agriculture and wild lands to exurban development (Knight 2002; Riebsame et al. 1996). The extent of land use change due to population growth in rural areas of the Rocky Mountain West is greater than in urban areas because of the dispersed nature of the exurban development (Sullins et al. 2002). To satisfy the demand for exurban home sites, large farms and other rural tracts are being divided into smaller, two- to forty-acre tracts (Nelson and Dueker 1990). In Colorado 110 000 hectares of agricultural land were converted to commercial and residential development every year between 1992 and 1997 (Obermann et al. 2000). In Montana ranchland and farmland has become more valuable for development than agriculture. Farmers generally can afford to pay only \$2500 an acre if they want to make a profit from farming, but the same property can sell for many times more than that based on potential development value (Witkowsky 1995).

Rapidly increasing housing and development infrastructure have been shown to cause numerous environmental problems. Exurban development in valley bottoms and near ski areas is reducing biodiversity by causing habitat fragmentation and destruction, which results in an increase in interactions between humans and large carnivores (Hansen et al. 2002; Maestas et al. 2001). Booth (2002) found that the loss of ungulates such as elk and mule deer and carnivores such as grizzlies and wolves diminishes both the intrinsic value of the natural systems as well as the draw for tourists. He reports that the valley bottom development responsible for reduction in mammalian species is also causing reduction in riparian habitat. A reduction in riparian habitat and increased construction of septic systems can lead to the degradation of water quality. Smutney (1998) found a positive correlation between population growth and water pollution.

In addition to environmental degradation, rapid development in rural areas is creating social problems such as increased crime, lack of affordable housing and infrastructure deficiencies (Smutney 1998). Cromartie (1995) reports that rising property values in rapidly growing tourist towns is forcing local workers to move to less expensive communities and commute to work. Rising property values also cause traffic congestion, more road building, air pollution and financial stress for outlying communities that must house the commuting population. This growth also spurred an energetic debate on how to plan for future growth while preserving working lands and promoting a tourist industry.

The great challenge to the future health of high-amenity rural communities will be to foster growth that is socially beneficial and environmentally neutral. The most environmentally benign development is that which preserves the greatest amount of land, especially land adjacent to preserved wilderness areas (Cromartie 1995). However, controlling the amount of land available for development may result in social costs such as increased densities leading to congestion or in higher priced housing (Rowley 2001). The challenge for rural communities is to find a balanced approach to growth management.

Land-use Planning Policy

Land-use planning and regulation such as comprehensive plans and zoning ordinances were initially used to protect the health, safety and quality of life in urban centers (Platt 1996). As rural communities have faced increasing growth, land-use planning has been used in an attempt to slow growth and preserve open lands and thereby have positive impacts on the social characteristics of a community (Elmendorf and Luloff 1999). Much of the research on growth control or management policies in urban and suburban areas conclude that these policies are not effective in reducing population, but that some policies are effective in supporting development that is more environmentally compatible. Logan and Zhou (1989) found that growth controls did not affect population growth rates in suburban areas nationwide largely because enforcement was lacking in most cases. In a study of three California communities, Warner and Molotch (2000) found that growth controls had not been effective in slowing population growth, but had directed development in ways that enhanced environmental quality and social equity.

Many studies have examined the effectiveness of land-use planning in urban areas (Garkovich 1982; Lemon 1993; Logan and Zhou 1989), but few have looked systematically at the success of land-use planning techniques in rural areas (King and Harris 1989; Smutny 1998). Those studies

that have examined land-use planning in rural areas conclude that the policies have been largely unsuccessful in controlling growth and development. In a study examining land cover in a rural watershed in Michigan, Erikson (1995) concluded that local land-use plans were mostly ineffective in protecting forestlands. Beyers and Nelson (2000) studied rural communities in the Rocky Mountain West and concluded that these areas were not well equipped to deal with the rapid changes impacting their communities. One possible reason for the difficulty in applying effective land-use planning policies is that local rural planning agencies tend to be understaffed and overwhelmed by development pressures. Despite these studies, land-use planning techniques continue to be one of the most commonly recommended tools for protecting rural community character and open space (Arendt 1999; Daniels 2000).

The goals of this study were to examine the effectiveness of land-use planning tools and techniques on the preservation of natural and social amenities in five rapidly growing communities in the Rocky Mountains. We interviewed and surveyed knowledgeable community members to determine their opinions on amenities, population growth, and land-use planning techniques used to manage growth and development in their city or county. We compared responses between the study communities, by city and county, and by separating respondents into employment categories with the expectation that people working for the development industry, for example, may have different responses from people working in environmental preservation or from elected officials.

RESEARCH METHODS

Field research was conducted in the following five non-metropolitan counties in the central and northern Rocky Mountain States: Blaine County, Idaho; Gallatin County, Montana; Summit County, Colorado; Summit County, Utah; and Teton County, Wyoming. These counties have all experienced substantial population growth in the past few decades, ranging from a 34 percent to 92 percent increase in population between 1990 and 2000, and between 58 percent and 241 percent in the period between 1980 and 2000. The counties were selected by using US Census data to determine which non-metropolitan counties in each of the five central and northern Rocky Mountain States had experienced the most population growth in the 20 years, 1980 to 2000. In addition, we analysed an amenity index developed by the US Department of Agriculture (McGranahan 1999), and the final selected counties combined the highest rate of population growth and the highest scores on the amenity index.¹ We excluded non-metropolitan

counties that experienced significant population growth due to non-amenity factors such as the construction of an industrial or prison facility.

Blaine County, Idaho is located in South Central Idaho, on the eastern side of the Sawtooth Mountains. The Wood River Valley, with the cities of Ketchum, Haley, Bellevue, and Sun Valley, lies in the center of the county surrounded by the Sawtooth and Challis National Forests to the north and sagebrush and lava dry-lands managed by the Bureau of Land Management (BLM) to the south. In total, more than 81 percent of the 2645-square-mile county is public lands. The area is home to the Sun Valley Resort, the first destination ski resort in the United States. Between 1980 and 2000, the population of Blaine County increased by 92 percent from 9841 to 18 991.

Gallatin County, Montana is located on the headwaters of the Missouri River in southern Montana at the northwest corner of Yellowstone National Park. The county covers 2606 square miles of mountain lands varying in topography and climate from temperate river valleys to snow-capped peaks and open ranch lands. Nearly half of all the land in Gallatin County is under public ownership in the form of Gallatin National Forest, Yellowstone National Park, BLM, and state lands. Gallatin County is now home to two world-class resorts, Bridger Bowl Ski and Snow, and Big Sky Ski and Summer Resort. Between 1980 and 2000, the population grew from 42 865 to 67 831, an increase of 58 percent.

Summit County, Colorado is located in the heart of the Colorado Rockies. The county encompasses 608 square miles of rugged mountain terrain and fertile valleys. More than 81 percent of Summit County is public land comprised of the White River National Forest, BLM property, and a State Wildlife Area. Approximately one hour west of Denver, Summit County residents enjoy both the mountain wilderness and the convenience of nearby metropolitan services. Summit County is now home to four world-class ski resorts, Arapahoe Basin, Breckenridge Ski Area, Copper Mountain and Keystone Resort which offer year-round recreational opportunities. Between 1980 and 2000, the population of Summit County increased by 166 percent, from 8848 to 23 584.

Summit County, Utah is located in the northeastern portion of Utah about 30 miles east of Salt Lake City. The Uinta Mountains dominate the eastern portion of the county which also encompasses a large portion of the Wasatch-Cache National Forest. Overall 45 percent of the county is owned by federal and state agencies. Several major ski areas, including Park City Mountain Resort, Deer Valley and The Canyons are located in the county, which also hosted the 2002 Winter Olympic Games. The county has increasingly become a home to commuters to the Salt Lake City metropolitan area. In the last 20 years, the population has grown by 241 percent, increasing from 8714 in 1980 to 29 736 in 2000.

Teton County, Wyoming is located in the northwest corner of Wyoming, bounded by the state of Idaho to the west and Yellowstone National Park to the north. Teton County contains portions of Yellowstone National Park, the Targhee National Forest, the Bridger-Teton National Forest, and all of Grand Teton National Park. Federal and State-owned land accounts for more than 97 percent of the county land area. Teton County encompasses just over 4000 square miles of picturesque valleys and rugged mountains. Teton County is now known internationally as a tourist destination. It attracts outdoor enthusiasts in both the summer and winter. The resident population has also increased dramatically in the past 20 years. In 1980 Teton County had a population of 9355 permanent residents. By 2000 that number had increased to 18 251 for a 95 percent growth rate over 20 years.

Study Community Similarities and Differences

Historically, Blaine County, Summit County, Utah, and Summit County, Colorado were settled as mining communities and suffered from boom and bust economic and population cycles. Gallatin County was settled both by miners and farmers, whereas Teton County was settled by ranching families. This agricultural history largely spared these counties from a widely fluctuating economic and population base through most of the past century. Although all of the counties turned to farming and ranching as mining declined, the influence of agriculture has declined in Teton County, Blaine County, and Summit County, Colorado. The amount of land in agriculture has increased in Gallatin County and Summit County, Utah, but both of these counties are also experiencing the increase in recreation and service-based industries.

Three other categories of differences are evident between these counties: amount of public land, proximity to a large city and the overall rate of growth. Teton County has the most public land at 97 percent. Summit County, Colorado and Blaine County have a similar amount of public land at about 80 percent. Gallatin County and Summit County, Utah have the least public land at 50 percent and 45 percent respectively. In terms of proximity to a large city, Summit County, Utah and Summit County, Colorado are close enough to the capitals of their respective states (both large metropolitan areas of more than a million people) to make a daily commute to urban employment feasible. The other three counties are all more than 100 miles from their capitals or any other large city. Finally, in terms of population growth, all the counties have experienced rapid population increases in the last 20 years. Summit County, Utah has grown most rapidly at 241 percent, followed by Summit County, Colorado at 166 percent.

Teton County and Blaine County have grown at similar rates of 95 and 92 percent respectively. Of the five study counties, Gallatin has grown the least rapidly at 58 percent.

Despite these differences, all five counties have much in common. First and most obviously, they are all located geographically in the central and northern Rocky Mountain West. They have topography ranging from mountain peaks to alpine valleys and meadows and they have a similar climate in terms of temperature and rainfall. The one exception being Gallatin County, which is slightly warmer and has more than twice as much rainfall as any of the other counties. This may help account for the greater continuing emphasis on agriculture. All of the counties contain meandering streams and rivers and are dotted with lakes. All contain one or more major destination ski resorts. Additionally, all of our study counties have more social and cultural amenities than are normally found in a rural area. These natural, recreational, social and cultural amenities have attracted thousands of residents and tourists to these counties.

DATA COLLECTION

We administered surveys in summer 2002 to a total of 77 individuals throughout the five study counties. The surveys listed 21 land-use planning techniques and asked the respondents to rate the effectiveness of the techniques on a Likert Scale of 1 to 4 with 1 representing 'not at all effective' and 4 representing 'extremely effective'. If the respondents had no knowledge of a particular policy or felt that it was not applicable to their community, they could circle 5 for 'no opinion'. We administered the survey in person for a 100 percent response rate. Personal administration of the survey also allowed the respondents to ask for clarification if they did not know the definition of certain techniques included on the survey. The surveys were part of a larger research project that involved conducting in-depth interviews with all 77 survey respondents (Smith and Spadoni 2004).

We selected survey respondents in each county through a combination of purposive and snowballing sampling techniques. Respondents were initially chosen purposively by examining secondary data sources and were people who were well informed on the research topic based on their work or community experience. We used the snowball technique to identify additional respondents based on knowledge gained from the initial surveys and from exploring the community. Respondents held community positions such as, but not limited to, community planners, planning commissioners, zoning board members, elected officials, local environmental

group representatives, journalists, attorneys and developers. Prior to conducting the surveys, we informed the respondents of the purpose of the study and we guaranteed a level of anonymity. We entered the survey results into SPSS version 10.0 data analysis software and used this program to run descriptive statistics and one-way analysis of variance (ANOVA) tests. We also collected and examined land-use planning documents for each of the five counties and many of the cities and towns contained within the counties to provide context and help explain our survey results.

DATA ANALYSIS AND FINDINGS

We ran descriptive statistics on each land-use planning technique to determine the percentage response for the four effectiveness ratings (Table 14.1). From this we were also able to determine which techniques were judged most and least effective.

When responses from all the communities were combined, the five land-use planning techniques that ranked highest under 'extremely effective' were outright purchase of property, zoning for environmentally sensitive areas, land trusts, zoning in general and purchase of development rights. When we grouped the responses for 'somewhat effective' with the responses for 'extremely effective', we found only one difference in the top five techniques. Purchase of development rights was replaced with comprehensive plan policies.

In general, the top five techniques involve comprehensive plans and zoning ordinances, and purchase of property or development rights. Each of the five study communities implements these techniques in some form. All of the communities have comprehensive plans and some form of zoning ordinances. Zoning ordinances vary from county-wide zoning in Summit County, Utah, Blaine County, and Teton County, to zoning districts that designate zoning only in portions of Gallatin County, to performance-based zoning in one town in Summit County, Colorado. Although the types of zoning vary, each community feels that zoning in general is effective. Each county also has at least one technique to facilitate the purchase of property or development rights, whether it is a land trust, an open space bond, or a purchase of development rights program.

The five least effective techniques or the highest ratings under 'not at all effective' were real estate transfer tax, special assessment district, development of permit restrictions, development of impact fees and performance-based zoning. When we combined the categories 'not at all effective' and 'not very effective' the least effective ranked technique was development of

Table 14.1 Effectiveness ratings of land-use planning policies and techniques (percent of respondents)

	Not at all effective	Not very effective	Somewhat effective	Extremely effective
Comprehensive plan policy	0	7	63	30
Zoning regulations	0	4	52	44
Agricultural/open space zoning	2	14	55	29
Zoning for protection of environmentally sensitive areas	0	10	36	54
Subdivision regulations	0	18	54	28
Purchase of development rights	0	15	41	41
Transfer of development rights	3	22	48	24
Urban growth boundaries	2	22	44	25
Planned unit development ordinances	1	15	52	32
Preferential tax incentives for agricultural land	4	31	29	31
Outright purchase of property	2	12	13	73
Development permit restrictions (caps)	9	22	50	9
Development impact fees	8	42	39	11
Performance-based zoning	6	29	41	16
Regional planning	1	23	57	17
Real estate transfer tax	16	12	27	34
Open space district	0	13	49	34
Land trust	0	6	43	51
Special assessment district	9	25	46	16
Design review	4	15	51	30
Density bonuses	6	34	46	13

Note: The remaining respondents expressed no opinion.

impact fees, followed by density bonuses, performance-based zoning,² preferential tax for agricultural land, and special assessment district. Combining these effectiveness categories changed two of the techniques in the bottom five. Rather than debate over which techniques ranked as the five least effective, it is more important to note that none of seven techniques mentioned were thought to be effective.

We believe it is also important to note that some of the techniques deemed ineffective have not been tried in all the communities. None of the counties had implemented development permit restrictions (growth caps).

Real estate transfer taxes and performance based zoning are found only in Summit County, Colorado.² Only Gallatin County has county and city development impact fees. Cities within Teton County can impose development impact fees but under state law the county cannot. All of the counties had some provision for density bonuses, but the programs and implementation varied widely and all counties had some type of special assessment district. No county had preferential taxes for agricultural lands at the county level.

Community Response Patterns

Next we ran a one way analysis of variance (ANOVA) test which grouped responses by community to determine if there were any significant differences between the study communities (Table 14.2). Of the 21 land-use planning techniques included on the survey, the study communities differed significantly on only five: comprehensive plan policy, zoning regulations, agricultural/open space zoning, zoning for protection of environmentally sensitive areas, and design review. All of the communities ranked comprehensive plan policy as at least 'somewhat effective'. Summit County, Colorado and Summit County, Utah both ranked comprehensive plan policy evenly between 'somewhat' and 'extremely effective', while the other three communities ranked it lower. Teton County had the lowest ranking for zoning regulations exactly equal to 'somewhat effective' while the other four communities ranked zoning regulations in the middle of 'somewhat' and 'extremely effective'. Responses differed more widely between communities for agricultural/open space zoning with Teton County ranking between 'not very' and 'somewhat effective' and Gallatin County ranking between 'somewhat' and 'extremely effective'. Zoning for the protection of environmentally sensitive areas also had almost a one point difference with Summit County, Colorado ranking near 'extremely effective', and Teton County ranking just under 'somewhat effective'. Finally Summit County, Colorado, Teton County, and Blaine County ranked design review as more than 'somewhat effective' with Summit County, Utah just below 'somewhat effective', and Gallatin County ranked it just above 'not very effective'.

Overall there was no significant difference between study community responses on most land-use techniques. Where there was a difference, it was consistently less than one point on the effectiveness scale and can probably be explained by the differences in how the land-use planning technique was applied. For example our review of county land-use plans and zoning regulations indicates that Teton County, Wyoming may have a lower score on the effectiveness of agricultural/open space zoning

because the minimum lot size of 35 acres is likely too small to support viable agricultural operations. Conversely Gallatin County, Montana respondents ranked this technique more effective, possibly because the minimum lot size there for agriculture in some areas of the county is a much larger 160 acres.

Response Patterns by City and County

Cities and towns within rural counties can face growth pressures similar to urban areas and consequently find different land-use techniques more or less effective than the surrounding county. For this reason we used a one-way ANOVA analysis to compare the response patterns of county planning personnel with the responses of city planning personnel across our study communities (Table 14.3). County personnel included county planners, county planning commissioners and elected county officials. City personnel included city planners, city planning commissioners, and elected city officials. Only two land-use techniques differed significantly in effectiveness ratings between county and city personnel. County personnel rated development permit restrictions and density bonuses as 'somewhat effective' while city personnel rated both techniques between 'not very' and 'somewhat effective'. Overall there was very little difference in response patterns between county and city personnel.

Response Patterns Across Job Categories

Since a respondent's position in the community may have influenced their answers, we grouped them into categories based on their profession and compared the mean responses of each group using a one way ANOVA analysis (Table 14.4). The job categories were planners, planning commissioners, elected officials, members of the development community, members of the preservation community and journalists. Members of the development community included occupational positions such as realtors, builders, architects and bankers, and members of the preservation community included employees of land trusts and non-profit environmental groups. If a respondent held jobs in more than one category, their responses were counted in each applicable group. Interestingly there were no significant differences in responses between job categories for any of the land-use techniques.

Table 14.2 Analysis of variance (ANOVA) results comparing community response patterns on effectiveness measures of land-use planning policies and techniques

Land-use policy or technique	Summit County, CO	Summit County, UT	Teton County, WY	Blaine County, ID	Gallatin County, MT	F
Comprehensive plan policy	3.45	3.57	3.00	3.07	3.24	3.96 ^(a)
Zoning regulations	3.50	3.40	3.00	3.38	3.40	3.58 ^(a)
Agricultural/open space zoning	3.00	3.27	2.62	3.00	3.67	4.24 ^(a)
Zoning for protection of environmentally sensitive areas	3.70	3.50	2.93	3.54	3.50	3.48 ^(a)
Subdivision regulations	3.20	3.07	3.07	3.23	2.92	0.45
Purchase of development rights	3.18	3.20	3.25	3.00	3.70	1.27
Transfer of development rights	3.16	2.75	2.88	2.75	3.00	0.66
Urban growth boundaries	3.19	2.79	3.13	3.22	2.63	1.25
Planned unit development ordinances	3.28	2.93	3.27	3.23	2.92	0.94
Preferential tax incentives for ag. land	2.58	3.38	3.17	2.50	2.67	2.18
Outright purchase of property	3.79	3.86	3.21	3.56	3.42	1.88
Development permit restrictions (caps)	3.00	2.25	2.80	2.50	2.50	1.90
Development impact fees	2.50	2.60	2.62	2.10	2.75	1.03
Performance-based zoning	3.00	2.31	2.67	2.33	3.00	1.82
Regional planning	3.15	3.07	2.67	2.64	2.82	1.78
Real estate transfer tax	2.71	2.92	3.11	2.67	3.17	0.34

Open space district	3.46	3.08	2.88	3.00	3.50	1.83
Land trust	3.21	3.40	3.71	3.46	3.58	1.66
Special assessment district	2.85	2.57	2.92	2.60	2.60	0.39
Design review	3.30	2.87	3.30	3.29	2.42	3.67 ^(a)
Density bonuses	2.83	2.53	2.79	2.50	2.64	0.53

Notes:

Responses were measured on a 4-point scale with values ranging from 1 ('not at all effective') to 4 ('extremely effective').

(a) Significant at $p \leq .05$.

Table 14.3 Analysis of variance (ANOVA) results comparing county personnel with city personnel response patterns on effectiveness measures of land-use planning policies and techniques

	County personnel	City personnel	F
Comprehensive plan policy	3.29	3.27	0.01
Zoning regulations	3.38	3.46	0.20
Agricultural/open space zoning	3.33	3.13	1.08
Zoning for protection of environmentally sensitive areas	3.45	3.52	0.12
Subdivision regulations	2.95	3.20	1.47
Purchase of development rights	3.53	3.12	3.06
Transfer of development rights	3.24	2.83	2.16
Urban growth boundaries	2.93	3.16	0.88
Planned unit development ordinances	3.19	3.25	0.09
Preferential tax incentives for agricultural land	2.92	3.13	0.32
Outright purchase of property	3.63	3.68	0.04
Development permit restrictions (caps)	3.08	2.45	4.82 ^(a)
Development impact fees	2.41	2.70	1.30
Performance-based zoning	2.50	2.90	1.92
Regional planning	2.89	3.00	0.36
Real estate transfer tax	2.62	2.94	0.54
Open space district	3.14	3.41	1.64
Land trust	3.43	3.48	0.10
Special assessment district	2.75	2.71	0.02
Design review	3.05	3.12	0.07
Density bonuses	3.00	2.50	4.94 ^(a)

Notes:

Responses were measured on a 4-point scale with values ranging from 1 ('not at all effective') to 4 ('extremely effective'). County personnel include county planners, county planning commissioners, and elected officials. City personnel include city planners, city planning commissioners, and elected officials.

(a) Significant at $p \leq .05$.

Table 14.4 Analysis of variance (ANOVA) results comparing response patterns on effectiveness measures of land-use planning policies and techniques by job category

	Planners	Planning commissioners	Elected officials	Development community	Preservation community	Journalist	F
Comprehensive plan policy	3.23	3.36	3.31	3.37	2.92	3.50	1.32
Zoning regulations	3.45	3.27	3.44	3.37	3.25	3.25	0.33
Agricultural/open space zoning	3.05	3.36	3.25	3.00	3.08	3.33	0.55
Zoning for protection of environmentally sensitive areas	3.41	3.70	3.53	3.47	3.42	3.00	0.69
Subdivision regulations	3.09	3.18	3.07	2.94	3.00	3.25	0.26
Purchase of development rights	3.20	3.25	3.50	3.13	3.60	3.00	0.83
Transfer of development rights	3.06	2.63	3.17	2.81	2.60	3.50	1.13
Urban growth boundaries	3.19	3.14	2.85	2.93	2.75	2.67	0.57
Planned unit development ordinances	3.25	3.09	3.25	3.11	2.67	3.00	1.18
Preferential tax incentives for agricultural land	2.90	3.22	2.92	3.18	2.55	3.00	0.85
Outright purchase of property	3.60	3.82	3.60	3.37	3.55	4.00	0.69
Development permit restrictions (caps)	2.93	2.71	2.38	2.44	2.43	3.00	0.96
Development impact fees	2.63	2.50	2.54	2.32	2.45	3.50	0.98
Performance-based zoning	2.94	2.33	2.55	2.67	2.80	2.50	0.59
Regional planning	2.85	3.00	3.00	2.80	3.10	4.00	1.70
Real estate transfer tax	2.88	3.00	2.44	2.50	3.00	4.00	1.23
Open space district	3.24	3.22	3.33	2.92	3.44	3.50	0.85
Land trust	3.27	3.73	3.47	3.26	3.55	3.75	1.57
Special assessment district	2.58	2.90	2.75	2.82	2.33	2.50	0.61
Design review	3.14	2.82	3.21	2.95	2.36	3.33	1.95
Density bonuses	2.84	2.50	2.69	2.60	2.55	2.00	0.89

Note: Responses were measured on a 4-point scale with values ranging from 1 ('not at all effective') to 4 ('extremely effective').

DISCUSSION

Rapid growth in rural high-amenity communities has led to a fear of unchecked development that could destroy the very essence of why people are attracted to rural areas (Marcouiller 1997). This growing concern has spurred many rural communities to manage growth through various land-use planning techniques more often seen in urban areas (Garkovich 1982). The trend of population growth and subsequent attempts at growth management has been ongoing since the 1980s, yet little research has been conducted on the techniques employed by rural communities and the effectiveness of those techniques in preserving community quality of life. We hope our results shed light on which techniques communities are most successful in preserving amenity values.

King and Harris (1989) performed a study similar to ours of rapidly growing rural communities on the East Coast. Their goal was to document the growth management techniques used in these areas and to provide a preliminary analysis of the effectiveness of the techniques. We have continued with a similar theme in Rocky Mountain communities but are focused more on the second goal of determining which techniques actually work to manage growth and preserve quality of life. King and Harris (1989) found that most of their study communities primarily used zoning, subdivision regulations and comprehensive plans to manage growth. While all of our study communities found these techniques to be at least somewhat effective, they have also experimented with a number of other techniques and have found that the outright purchase of land or development rights to be extremely effective in most cases.

In conducting surveys in our study communities to determine which techniques worked best, we learned the converse as well. There was general agreement between communities that a third of the techniques on our survey were not very effective. Two of these techniques – real estate transfer taxes and development impact fees – involved new taxes or the levying of fees that can present communities with two major obstacles in implementation. The first is whether state legislation allows the technique to be used and the second is achieving voter approval. In some cases it may be these limitations rather than the technique itself that lessens the effectiveness. Furthermore all of the least effective techniques except special assessment districts involve the manipulation of market forces which can be difficult to do effectively and can have unintended consequences such as passing on development costs to homeowners and exacerbating affordable housing problems.

Our results suggest that there is little difference between the effectiveness of land-use planning techniques between communities that face similar

growth pressures, nor is there much difference between counties and cities. Most of the difference observed between communities likely arises from how the technique is applied and how well it is supported and enforced. The difference between counties and cities in our study areas may arise because of the more urban-style development pressures found in cities. Cities may have rated development permit restrictions lower because limiting the amount of development within a city often pushes it out into the county where it is less suitable. Density bonuses may not work as well within cities because they are already zoned at higher densities.

We were initially surprised to find no difference between the response patterns across job categories. Gottdiener and Neiman (1981) in their study of factors that influence support for growth management found that opponents to growth control wanted to limit government control of private property rights while supporters pursued active environmentalism and social services. We felt that these tendencies might be reflected in a person's career choice. However Baldassare and Protash (1982) argue that business attitudes have been over-emphasized, and that community consensus on growth management emerges in areas adversely affected by growth. Leo (1998) agrees that a growing source of support for growth management includes environmentalists, business people and farmers. Our findings support the idea that there is widespread support across job categories in rapidly growing communities. One reason for this unilateral support could be multiple careers held by single respondents. In many cases respondents had current jobs in more than one job category. Other respondents currently had a job in only one category, but had held positions in other categories in the past. This blurring of career history may make the job categories too indistinct to separate out any difference in respondents' feelings on the effectiveness of land-use planning techniques.

Overall we found great similarity between responses on the effectiveness of our 21 surveyed land-use planning techniques on the preservation of community quality of life. The next step in our project will be to further examine why certain policies are judged more effective than others and how the land use techniques employed in each community affect specific quality-of-life factors such as open space, affordable housing, and traffic volumes and patterns. From this we hope to generate recommendations for other rural communities that may be facing rapid growth in the near future.

NOTES

1. The index measures six attributes of three primary amenity factors: (1) climate; (2) topographical variation; and (3) presence of natural water features. Thus, the index only

attempts to measure natural environment-related attributes of amenities, and does not consider other factors that comprise the amenities a community may offer, such as attractive architecture and small town atmosphere.

2. Performance-based zoning allows most uses in most areas, where uses are determined by a set of performance standards such as density, road access, central sewer availability, noise, light and landscaping.

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15. Managing growth and development in a natural-amenity-rich landscape: landowner attitudes toward planning in northwestern Wisconsin

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INTRODUCTION

Since the 1970s, migration to natural amenity-rich rural areas has dramatically altered the social, economic and ecological fabric of the rural landscape. Rural residents are beginning to recognize the manifestation of growth on their communities and landscape: rapid rates of new housing construction, conversion of seasonal residences to year-round homes, fragmentation of natural areas, prolific lakefront development and increasing demands for the provision of utilities and services. The above may result in an erosion of the rural character that in many cases attracted new residents or retained long-term residents in the first place. In response to this apparent threat, many rural leaders have initiated or considered land-use planning as a way to examine current issues and trends and position their community for the future.

Plans are generally adopted through local elected officials or appointed committees, the process of planning for rural areas should be based on broader public participation including the individual and often divergent interests of the landowners and residents. Rural planning involves decisions that affect an individual's use of their land. Whether a formalized planning process or in the form of incremental decision making, planning can therefore generate conflict. In the case of rural areas with a diversity of residents, long-term and new residents to an area are often thought to significantly differ regarding the values to the planning process (Smith and Krannich 2000). Further as rural areas have become popular places for second and/or recreational home development, differences between the values and interests of seasonal and year-round residents also complicate the planning

process (Green et al. 1996). In rural areas where government is more direct, there is less complexity and bureaucracy in land-use decisions, and all landowners including seasonal residents have the opportunity to influence local decision making through participation in planning processes and local meetings. The implications of these new and seasonal landowners may influence the function of politics and decision making of communities and regions.

Considering this apparent multiplicity of interests, growth in natural amenity-rich landscapes poses a major challenge for rural land-use planning. In this study we explore the implications of the emerging newcomers and seasonal population for growth management and land-use planning in the Pine Barrens region of northwestern Wisconsin, an area where growth in year-round and seasonal residents is attributed both to the natural amenity base and also to its location in the path of exurban growth. We set forth three broad research questions pertaining to planning for growth management and land-use controls. Specifically we ask how new and long-term, year-round and seasonal residents differ in perceptions of community change, level of support for policies to manage growth and development and anticipated consequences of planning and growth management.

This chapter proceeds as follows. First we re-cap the story the literature has told over the last few decades of the rural revival – cast in the dichotomy between long-term residents and newcomers. We suggest that the literature has just begun to look at the new rural cast – seasonal residents – and the real and perceived differences between these recreational homeowners and those that live in rural areas year-round. Our story explores how new and long-term, year-round and seasonal residents differ in terms of their perceptions of community change, support for growth management, and land use planning. We then describe the setting of our study, the rural Pine Barrens region of northwestern Wisconsin. Through a rigorous survey of the general population in the Pine Barrens, we were able to describe how these groups differ in their concern for community change and level of support for planning. Finally we discuss the implications of our findings in the Pine Barrens for contemporary planning practice.

Dynamics of Natural-Amenity-Rich areas: Changing Landscape, Changing Attitudes

Natural amenity-rich areas are increasingly characterized by a diversity of residents: newcomers and long-term residents as well as seasonal landowners and year-round residents. The existing literature has provided a strong case that long-term residents and newcomers have differences that may affect the way local planning and decision-making is carried out.

For instance, newcomers and long-term residents may have significantly different sociodemographic characteristics: age, educational levels, and attitudes; with new residents often having higher levels of education, income and valued property (Graber 1974; Nelson 1997; Smith and Krannich 2000). As a result of the sociodemographic differences between these groups, attitudes and values pertaining to growth and community may differ and incite tension (Blahna 1990; Green et al. 1996; Healy and Short 1979). Thus there is a real or perceived lack of unification around a common vision for the collective future of a community. This ultimately leads to challenges in planning for growth and development.

The above examples scratch the surface of an extensive social science literature examining this dynamic of newcomer and long-term residents. Until recently seasonal and year-round residents have received considerably less attention, though one might expect socioeconomic and attitudinal differences between these groups to be similar to those documented between newcomer and long-term residents. It is therefore equally important to understand how the diversity created by seasonal and year-round residents may shift community dynamics, local decision making and land use planning.

Balancing Growth and Change Through Planning

In many rural areas experiencing growth, communities have embraced planning in order to understand how current issues and trends might affect their future, and in many cases attempt to balance retention of an area's rural character with promotion of local economic development. Growth management is application of planning principles seeking to guide the extent, rate, character, and fiscal aspects to balance preservation of the rural characteristics with the benefit of growth (Diaz and Green 2001).

Currently many states have adopted broad-based statewide planning policies that promote growth management.

State governments can adopt policies and grant programs to encourage or require thorough, thoughtful comprehensive planning by counties and communities. The state framework can provide direction and planning grants to help communities accommodate growth, protect natural resources, and avoid spillovers from one community to the next. (Daniels 1999, p. 3)

Approaches range from strong state oversight and consistency requirements to general guidelines for planning. For example, Oregon's urban growth boundaries and metropolitan governance are examples of strong outcome-based state growth regulation. Wisconsin's Comprehensive

Planning legislation is an approach at the other end of the spectrum. Wisconsin's law, commonly referred to as Smart Growth, mandates that every county, village, city and town make future land-use decisions (zoning, subdivision ordinances, official mapping) on an adopted plan enforceable after 2010. The legislation requires that plans address nine elements including agricultural and natural resources, housing, economic development and land use, but does not require any specific outcomes.

Under the direction of state-mandated policies and programs, local landowners continue to affect growth and change in their communities and their region via both direct interactions or transactions with their land and through their participation in the democratic process. Rural areas are places where the sphere of influence of locals on policy-making and implementation are direct and significant – whether it is through serving as a local elected official, on a planning commission, or as a citizen voting or providing input through a plan-making or policy-setting process.

Attitudes of Residents Toward Planning for Change

One notion that has emerged is that different groups of local landowners may differ significantly in terms of attitudes, perceptions and beliefs pertaining to growth. The literature cited below provides a solid argument that these differences may be based on the duration of residency or tenure (long-term versus newcomers) or their sociodemographic characteristics. An extension of this literature, anecdotal evidence and continually evolving rural dynamics, suggest that the type of landowner (seasonal versus year round) may play as important or more important a role in influencing attitudes toward growth.

Newcomers and long-term residents

The literature has noted differing perceptions of community change between newcomers and long-term landowners.

Coming anew to a seemingly pristine rural setting, the new owners may feel that what they see is the way the land has always been, and hence automatically merits preservation. The long-time owners, on the other hand, may remember that a dense forest was once an open field . . . They tend to have a greater appreciation than the newcomers of the ability of the rural landscape to absorb change and to recover from environmental damage. (Healy and Short 1979, p. 308)

When compared to residents living in an area long-term, newcomers more frequently expressed concern over growth (Cockerham and Blevins 1977). In addition newcomers often 'describe themselves as retirees from major metropolitan areas who have seen development ruin the quality of life in

their former communities' (Spain 1993, p. 160). They have 'witnessed the effects of unplanned, land consuming growth in suburban settings' and 'seek fervently to avoid seeing the process repeated in their new rural settings' (Healy and Short 1979, p. 308). Newcomers tend to value their new communities for their rural qualities, and do not want to lose this character to development (Dubbink 1984). They often value the aesthetic character to a greater extent than the ability to derive income from the land (Healy and Short 1979; Dubbink 1984). 'Nontraditional landowners often focus entirely on their land's amenity values and disregard its productivity' (Healy and Short 1979, p. 307). This may be because newcomers are less reliant on local economic development for their livelihood.

Recognized differences in perceptions of community change would logically translate into different levels of support for policies to manage growth and development. Comparisons of attitudes based on resident duration have shown new residents more likely than long-term residents to support environmental controls and land-use planning measures (Blahna 1990; Green et al. 1996) or historic preservation (Graber 1974). As early as the rural renaissance commenced in the 1970s, Graber observed that 'everyone wants to be the last person to move. They want to close the gate after they are in' (Graber 1974, p. 510). This concept evolved in subsequent literature to be called the drawbridge hypothesis.

The body of literature exploring the drawbridge was expanded with Cockerham and Blevins's (1977) study of Jackson Hole, Wyoming. This study revealed that newcomers to a community and long-term residents differentially cite growth and lack of land-use planning as the most negative aspect of living in a growing amenity-rich community with newcomers more frequently expressing concern over growth (Cockerham and Blevins 1977). The early results of Graber and Cockerham and Blevins are supported by contemporary studies. For example newcomers in rural northern Wisconsin were more likely to support land-use controls than long-term residents (Green et al. 1996); recent migrants to rural Michigan were more supportive of preservation-oriented policies (Blahna 1990); newcomers to the Chesapeake Bay believed preservation of the Bay to be the most important funding goal for the county, whereas long-term residents of this area prioritized the creation of jobs as a more important funding goal (Spain 1993).

However other recent studies reveal that the drawbridge hypothesis does not always hold up. Smith and Krannich (2000) demonstrated that both long-term residents and newcomers ascribed high importance of preserving existing community ways of life. In their study, long-term residents were actually more supportive of preserving existing ways of life. Others have demonstrated new residents were more likely to voice shared environmental

concerns (Fortman and Kusel 1990). Others have also demonstrated a strong consensus in favor of future population growth among both newcomers and long-term residents (Voss 1980; Sofranko and Fliegel 1980). Taken together, these suggest an inconsistency in the literature that might indicate that this dynamic is highly context specific.

Seasonal landowners: raising or lowering the bridge?

As suggested above, the literature examining differences between newcomers and long-term residents is relatively expansive. However, the exploration of dynamics between seasonal and year-round residents is only beginning. Because seasonal residents comprise a significant proportion of the population in some rural areas, this dynamic may be particularly salient to those communities.

Previous empirical studies found that year-round residents are more likely than seasonal homeowners to support economic development activities. At the same time seasonal landowners were more likely to support land-use planning (Green et al. 1996). Like newcomers, seasonal residents often seek to preserve the natural qualities that brought them to the area (Cockerham and Blevins 1977). Similarly a study of homeowners in another rapidly growing Wisconsin county demonstrated that year-round residents were more connected to local business activity and economic growth than seasonal residents were. Thus seasonal residents were more likely to support growth management (Green et al. 1996). Property likely represents a lower proportion of the total wealth of seasonal residents compared to year-round residents – therefore land-use controls and growth management are not perceived as threats to the extent that year-round residents might view them.

CASE STUDY: WISCONSIN'S PINE BARRENS REGION

The Changing Pine Barrens Landscape

This chapter explores the question of how individuals perceive community change and the extent to which they support growth management. The Pine Barrens region is heralded as ecologically significant for its rare mosaic of ecotypes, which harbors several threatened and rare species and noted for its exceptional natural beauty of abundant forested land and myriad lakes. The Pine Barrens is a prototypical remote rural region grappling with balancing the natural-amenity-induced growth with their preservation.

The region extends about 1500 square miles, spanning five counties. The area is richly endowed with natural amenities; characterized by abundant forested land and hundreds of lakes. Attractive to seasonal homeowners, retirees, and transplants from the Minneapolis–St. Paul metropolitan area, settlement has recently proliferated throughout the Pine Barrens region particularly in forested areas, along lakeshores and areas adjacent to public lands. Research integrating population and housing census data and land cover in the Pine Barrens has demonstrated an association between housing development, forest cover and water resources – with housing growth largely focused on these natural amenities (Radeloff et al. 2001).

In the Pine Barrens region, the natural resources discussed above have been a magnet for both population and housing growth. Population in three of the five Barrens counties grew at twice the state growth average of 9.65 percent in the 1990s (Northwest Regional Planning Commission and Wisconsin Department of Natural Resources 2000). The number of housing units is perhaps even more important in terms of impact on the landscape increasing nearly 50 percent between 1970 and 1990. Seasonal housing units increased 75 percent in this time period (Northwest Regional Planning Commission and Wisconsin Department of Natural Resources 2000). The landowning population of this area is almost evenly divided between seasonal and year-round residents.

The housing growth is largely attributed to neo-rural residents who may bring different attitudes, perceptions and behaviors regarding managing growth and development, and planning for growth than long-term and year-round residents. Anecdotally, local official and public land managers reported differences between seasonal and year-round landowners as well as new and long-term residents in levels of support on a broad array of planning and natural resource issues (Northwest Regional Planning Commission and Wisconsin Department of Natural Resources 2000).

Drawing upon Daniels and Lapping's (1996) conceptualization of the two rural Americas, the Pine Barrens region (PBR) captures elements of both fringe growth and deep, remote rural America. The proximity and ever-expanding access to the Twin Cities metropolitan region suggest it has important characteristics of a rural–urban fringe and the requisite growth pressures as described by Daniels and Lapping (1996). At the same time, the Pine Barrens region's history is that of a remote rural area dependant on natural resources touched by the rural renaissance of the 1970s. A documented haven for amenity-seeking vacationers and recreational homeowners, the Pine Barrens region embodies essential qualities of both rural Americas and therefore by traversing this broad terrain, this research provides a particularly relevant case study.

Planning for a Dynamic Landscape

Wisconsin's cities, villages, counties and towns are enabled by the state to make land use decisions that ultimately determine how residential and non-residential development is configured on the landscape – including planning, zoning, development review and urban service area extension. Further, with Wisconsin's Comprehensive Planning legislation passed in 1999, communities throughout the State are required to make land-use decisions (zoning, subdivision, official mapping) consistent with a Comprehensive Plan. The legislation requires that the Plan address nine elements (including agriculture, natural and cultural resources, economic development, housing, transportation, and economic development) by 2010. The planning process requires and encourages broad public participation. The state administers a program that provides grants for communities to undertake this planning process. As a result many communities throughout Wisconsin, including rural towns that might not normally have engaged in such a formal planning process, are undergoing a planning process under this structure.

The comprehensive planning process necessarily engages the public in a discourse about the future growth and development of communities. With public involvement comes the need to balance a range of interests, values and goals that are as different as the individuals in a community. In communities with perceived or real factions of newcomers and long-term residents, seasonal and year-round residents, this balancing of interests can be challenging for the planners facilitating the process and the local government decision makers who are charged with the task of adopting a plan that captures a shared vision for the future growth and development of an area.

RESEARCH PROTOCOL

As a phenomenon, growth is observed and quantified at a regional or community scale. Nevertheless, an understanding of how individuals view growth and how they respond to community change and growth management may better inform local decision making, especially recognizing the dynamic mixture of participants in land markets in rural areas (Healy and Short 1979).

Methods and Measures

The data for this study were gathered through a self-administered mail questionnaire directed to adults of households owning improved property

matched as precisely as possible to the ecological boundaries of the Pine Barrens Region within Burnett and Washburn Counties (Clendenning et al. 2004). The sample consisted of 422 year-round residents and 378 seasonal residents. The distribution of year-round and seasonal households in our sample approximates that of the population. The population contains approximately 55 percent year-round households and 45 percent seasonal while our sample consists of 53 percent year-round households and 47 percent seasonal (Clendenning et al. 2004).

The independent variables type and duration of residency were evaluated singularly and interactively to measure relationships with views on growth and development, anticipated consequences of growth management, and preference for level of governance controlling future growth and development. We developed Analysis of Variance (ANOVA) to analyse the extent to which the responses to each individual item within the broad dependent variable categories are affected by type, duration and the interaction of the two characteristics of residents. The ANOVA models were expanded to incorporate several sociodemographic variables: characteristics of individuals including the type of residence, duration of landownership, sex, income, age, characteristics of their property/location including size in acreage, a binary measure of whether their property was forested, town classification as urban or rural and rate of growth in the area.

Table 15.1 summarizes the three broad categories of variables. For each variable, the questions from the survey instrument that served as measures are indicated. Each question was measured on a five-point Likert scale – with responses ranging from ‘strongly agree’ to ‘neither agree nor disagree’ to ‘strongly disagree’.

RESULTS AND DISCUSSION

The data suggest that there are some differences between responses to land-use controls, planning, and growth management attributed to type and length of residency. These differences may not be to the extent that planners and land managers might postulate. In addition, while differences do exist in response to certain survey items, overall support for land-use planning tools among all respondents is moderate to quite high.

Perceptions of Community Change

Most of the respondents (67 percent) either strongly or somewhat agreed that development is causing a loss of the Northwoods character. At the same time, less than 17 percent of respondents agreed that the more their

Table 15.1 Measurement of key variables

Variable	Survey item
(a) Perceptions of community change	Development in northwestern Wisconsin is causing a loss of its Northwoods character
	The more this community changes, the happier I am with it as a place to live
	Recreational home development is having a good effect on this community
	New people moving into this area over the past several years are having a bad effect on this community
(b) Level of support for policies to manage growth and development	Public policies to manage growth and development are needed to slow down the development in northwestern Wisconsin
(c) Anticipated consequences of growth management	Managing growth and development help slow down the pace of change in this community
	Public policies to manage growth and development help maintain a clean environment, including clean air and water

community changes the happier they are with it as a place to live. Considered together these results indicate a negative perception of community change spurred by development. However, respondents do not overwhelmingly cite recreational home development as a factor diminishing their satisfaction with their community. Nearly 45 percent of respondents feel that recreational home development is having a positive effect on their community. Further, most respondents are relatively neutral regarding the effect of new people on their community.

The above suggests an apparent disconnect between expressed concern over loss of Northwoods character and community change and the attribution of this to housing and population growth. This is shown by a failure to connect this growth and change to proliferating seasonal and recreational homes. Or, alternatively, some respondents shared the belief that the positive economic implications of new and recreational home development could supersede the adverse effect.

Table 15.2 Views of growth and development – seasonal and year-round residents

	% agree		% disagree	
	Year-round	Seasonal	Year-round	Seasonal
Development is causing a loss of the Northwoods character****	74.7	62.2	13.4	20.0
The more this community changes, the happier I am with it as a place to live	20.2	12.6	52.9	52.8
Recreational home development is having a good effect on this community	44.5	43.9	33.5	27.4
New people moving to the area over the past few years are having a bad effect on this area	31.5	25.1	34.2	27.7
Public policies to manage growth and development are needed to help slow down the pace of change in northwestern Wisconsin	56.7	54.8	25.3	21.29

Note: **** Indicates significance at the $p < .0001$ level.

When partitioning the results by type and duration, more year-round than seasonal residents agree that development is causing a loss of the Northwoods character (Table 15.2). Similarly, more long-term residents than newcomers tend to focus on the adverse impacts of new people and recreational home development (Table 15.3). In addition long-term residents feel more adversely affected by change, as indicated by their higher percentage of disagreement with the statement the ‘more my community changes the happier I am with it as a place to live’. To this end, it might appear that the concern over loss of community character or identity is more salient to year-round than seasonal residents, and long-term residents than to newcomers. This runs contrary to Cockerham and Blevins’s (1977)

Table 15.3 Views of growth and development – type and duration of residency

	% agree				% disagree			
	Year-round		Seasonal		Year-round		Seasonal	
	Long-term	Newcomer	Long-term	Newcomer	Long-term	Newcomer	Long-term	Newcomer
Development is causing a loss of the northwoods character	72.7	78.0	67.04	55.7	12.7	15.3	17.9	22.1
The more this community changes, the happier I am with it as a place to live***	16.1	27.4	10.2	16.2	56.6	46.2	59.3	44.6
Recreational home development is having a good effect on this community***	44.6	44.4	34.8	56.1	34.8	31.3	33.7	18.9

New people moving to the area over the past few years are having a bad effect on this area**	36.3	23.1	30.3	20.5	30.9	40.2	24.7	31.8
Public policies to manage growth and development are needed to help slow down the pace of change in northwestern Wisconsin	57.8	55.9	57.1	52.7	22.3	29.7	20.9	22.1

Note: *** Indicates significance at $p = .01$, ** Indicates significance at $p = .05$.

study of Jackson Hole, Wyoming in which newcomers more frequently expressed concern over growth. In the Pine Barrens region long-term and year-round residents tend to express more negative reactions to growth and community change. The notion that long-term and year-round residents are more invested in a community in terms of time, historical connection to community and share of personal wealth in property may explain this negative perception of community change.

Support for Growth Management

Long-term and year-round residents' negative perceptions of community change do not translate into a greater desire for growth management than their new or seasonal counterparts. In fact, more than 55 percent of respondents regardless of residency type or tenure agree that public policies are needed to slow the growth and development. There is no statistically significant difference between respondents in terms of their duration or type of residency.

Balancing aspects of this statement may explain the lack of difference measured. Whereas long-term and year-round residents express concern over perceived adverse effects of growth and development, they may not agree with public policies as the appropriate way to address this concern. Indeed in the Pine Barrens region year-round and long-term residents have less confidence in the efficacy of public policies at mitigating the impacts of growth and development than seasonal residents or newcomers, as measured by the statements categorized under anticipated consequences of growth management. Overall more than 55 percent of respondents agreed that managing growth and development would help slow down the pace of change in their community while less than 17 percent disagreed with this statement. Seasonal residents are more likely than year-round residents to agree that growth management efforts would be effective in slowing down the pace of change in their community (Table 15.4).

The majority of respondents (75 percent) agreed that public policies managing growth and development help maintain a clean environment regardless of type of residency. Few respondents disagreed with that statement. Again, seasonal residents are more likely to agree with the utility of public policies in safeguarding environmental values. These results suggest that whereas long-term and year-round residents perceive the adverse effects of growth and development to a greater extent than their new or seasonal counterparts, they have less confidence in public policies to effectively manage growth and development.

These results are similar to previous studies wherein new residents were more likely than long-term residents to support environmental controls or

Table 15.4 *Anticipated consequences of managing growth and development among seasonal and year-round residents*

	% agree		% disagree	
	Year-round	Seasonal	Year-round	Seasonal
Managing growth and development would help slow the pace of change in this community***	50.9	62.1	20.1	13.3
Public policies to manage growth and development help maintain a clean environment, including air and water	73.9	77.1	11.86	9.7

Note: *** Indicates significance at $p < .01$.

land-use planning measures (Blahna 1990; Graber 1974; Green et al. 1996). This research demonstrates that perhaps residency type (seasonal versus year-round) is a more consistently related to degree of support. Like Smith and Krannich (2000) who demonstrated that both long-term residents and newcomers ascribe importance to the preservation of a community's existing ways of life, residents of the Pine Barrens region do show support of policies to manage growth and development. However type of residency can be more important for predicting broad support for growth management. Although year-round residents perceive change and growth as a greater threat, similar to previous studies in Wisconsin (Green et al. 1996), in the Pine Barrens region seasonal residents are more likely to support growth management.

Other Factors Influencing Attitudes Toward Planning

While residency type and duration have strong relationship with attitudes toward growth management there are other key factors. Those that were relevant to this study are presented in Table 15.5. The matrix presents the p -values for only the variables that were significant in this study. Studies from Graber (1974) to Smith and Krannich (2000) portray sociodemographic differences between newcomers and long-term residents: most

Table 15.5 Multiple correlation regression demonstrating relationships between land-owner characteristics, perceptions of community change, and attitudes toward growth management

Item	Other variables						
	Type of residency (seasonal vs. year-round)	Duration of residency (long-term vs. newcomer)	Age	Income	Sex	Forested?	Population growth rate
Perceptions of community change							
Development is causing a loss of the Northwoods character	.0100	.0763			.0418		
The more this community changes, the happier I am with it as a place to live	.0975	.022		.0551	.0145		
Recreational home development is having a good effect on this community		.0005			.0016		.0700

New people moving to the area over the past few years are having a bad effect on this area .0004 .018 .0068 .0241 .0126

Attitudes toward growth management

Public policies to manage growth and development are needed to help slow down the pace of change in northwestern Wisconsin .0679

Managing growth and development would help slow the pace of change in this community .0012 .0254 .0111

Public policies to manage growth and development help maintain a clean environment, including air and water .0568 .0203 .0081

notably higher income and education level among newcomers. For instance, income is significantly related to views of managing growth and development, private property rights and preferred level of governance. This study further supports these measured differences between long-term and new residents, and further demonstrates that these differences can be extended to seasonal and year-round residents, with seasonal residents enjoying higher levels of income and education than their year-round counterparts. This is important to this study because income and economic circumstances can predict levels of support for growth-control mechanisms (Bollens 1990).

Age is also related to attitudes toward new residents and belief regarding growth management as a way to slow community change. For instance residents in the middle-age categories are more likely to perceive newcomers as having adverse impacts on the community. At the same time respondents in these age categories are least likely to perceive growth management as a positive way to protect the environment or slow the pace of change in the community. Interestingly the oldest respondents were most likely to agree that growth management would help slow the rate of growth.

Factors associated with the property and community also beg consideration. For instance, growth management is a much more salient issue to those residents in more rapidly growing areas. They are more likely to ascribe negative views to new people and recreational homes. Rate of local economic growth also impacts views on managing growth as a means to slow development, with those in the fastest growing areas more likely to perceive the efficacy of growth management. These results are similar to the findings that communities with higher levels of tourism tended to support future population growth more than those communities less dependent on tourism (Krannich and Smith 1998).

Often newcomers from metropolitan areas are more accustomed to land-use controls (Cockerham and Blevins 1977). Previous studies suggested that amount of land owned may influence attitudes toward control of land-use, with those who own less land demonstrating more favorable attitudes toward local versus individual control (Cockerham and Blevins 1977). Our results did not support this (Table 15.5). In fact the amount of property owned was not directly related to any of the measures and was therefore dropped from the model.

Implications for Planning in the Pine Barrens Region

Overall these results provide support for planning currently underway in the study region, as well as other current community efforts under Wisconsin's Comprehensive Planning, and other state-directed local and

regional planning. Overall levels of support for planning are moderate to high for respondents, yet it is necessary to consider the distribution of support among residents (newcomers and long-term, seasonal and year-round) to understand how growth management efforts might play out in the region.

This study demonstrates that newcomers and seasonal residents do hold somewhat different views on growth management than long-term or year-round residents. They are less likely than long-term or year-round residents to express concern over the adverse impacts of growth and development. However they have more confidence in the growth management process, and therefore could be an asset to the planning process. Despite some differences, the data demonstrate that views may not be completely disparate; overall there is a high degree of concern for community change, and a moderate level of support for managing growth and development. This measured commensurability between goals and objectives of residents and landowners in the Pine Barrens suggests an optimistic future for planning in the region. One caveat is that even where long-term and new, year-round and seasonal residents may express some similar concerns about growth and change in their communities, planners and local decision-makers must seek to understand whether these truly are shared underlying concerns, or just a shared rhetoric toward preserving rural character (Dubbink 1984). Clarification of this point is only possible when greater depth is achieved in the planning dialogue and what preserving rural character means to residents.

The understanding can be accomplished through meaningful public participation. The comprehensive planning process is a state-imposed planning mechanism. At the same time its emphasis on public participation opens the door for acknowledging the plurality of voices in the region and embracing a more bottom-up inclusive approach to local decision making. Uncovering differences between groups of residents in terms of support for the planning process in general suggests the relevance of listening to all voices and legitimizing the planning process in the region.

Given that effective and sustainable planning and implementation hinge on shared understanding, goal formation and eventually problem definition and solving: what strategies might a planner use to approach planning in communities? Values are often at the core of conflict between groups. Because it is impossible to alter diametrically opposed value sets, perhaps it is best to first approach planning for fragmented communities through building consensus on process rather than measurable outcomes.

Planners may help residents of socially fragmented rural regions to move beyond negative characterization and posturing, explore common interests and create and take advantage of new forums for interaction. Conventional

means of public participation, such as public hearings, may be less effective than policy dialogues and other forms of facilitated meetings and focus groups which generally provide more meaningful and deliberative discourse (Lowry et al. 1997) and in doing so promote a greater self-awareness as well as understanding of others (Forester 1992).

Finally planners may help citizens and local policy-makers revisit the way community is defined and considered not simply as a homogenous entity but a complex plurality of interests and perspectives. At the same time as rural regions such as the Pine Barrens are undergoing dramatic transformation, the form, extent and outcomes of the practice of planning for that region are also changing.

One issue that should be considered is the apathy toward planning and land-use decision-making, as suggested by low rates of attendance at planning meetings where decisions regarding the future direction of growth and development are actually made. Despite the best attempts to involve the public in these decision-making processes and soliciting public guidance of the comprehensive planning process, attendance can be limited. Generally it seems that unless the public feels threatened by a potential crisis – the incursion of a locally unwanted and particularly noxious land-use, few stakeholders show up. It is those that actually participate who guide the planning process, and any degree of growth management that is pursued. This reality begs the question of who is actually participating in planning processes, how are they participating (continually or sporadically), and how and if the decision-making bodies consider local participation. Analysis of participation extent and frequency would further our understanding of how individuals or groups influence local government decision-making. Even the greatest degrees of divisiveness between groups that do not show up and participate have minimal influence on the process. On the other hand, subtle differences of opinion among individuals that do participate can significantly alter policy-making and thwart implementation.

Knowing this, the differences between residents, both in their attitudes as well as in their propensity to take part in local government decision-making, suggest that the rural planner faced the challenge of understanding what different groups desire and to assure that all sides are represented when decisions about the community's future are at stake (Spain 1993, p. 168). The planning mandated under Wisconsin's Comprehensive Planning legislation may be an apt springboard for engaging in community-based planning under a state-directed planning framework in the Pine Barrens region, and several counties, towns, and villages in the area are currently undergoing planning processes.

CONCLUSIONS: BRIDGING THE DIVIDE

Preserving rural quality of life has been a catch phrase in both the planning and rural sociological literature. The literature discusses quality of life as the guiding concern of newcomers and seasonal residents, and the basis of their support for growth management techniques (Healy and Short 1979). This study supports the literature and suggests that long-term and year-round residents are equally or more concerned about the rural quality of life (Cockerham and Blevins 1977; Graber 1974; Smith and Krannich 2000; Spain 1993). Dubbink's (1984, p. 406) suggestion that shared rhetoric about rural living that conceals quite divergent concepts and objectives may characterize the shared concern, but different meanings of rural character and quality of life to Pine Barrens residents. Indeed, Dubbink's ideas suggest that shared terminology and ways of referring to planning issues and problems do not reflect the same ideas of what truly constitutes a rural setting or a high quality of life. Similarly stated goals and objectives in planning documents may result in very divergent implementation strategies (King and Harris 1989). Because of their unique economic and social circumstances, individuals define the concept of quality of life differently. For newcomers and seasonal residents who are typically wealthier and less linked to local economic conditions for their livelihood, quality of life may indeed refer to the aesthetics, rural character and peaceful serene rural setting. For traditional residents whose entire livelihood is linked to the local economy, quality of life is defined by local economic opportunity. Their ability to survive economically is highly dependent on local conditions and enhanced by growth in the local economy, which growth management can on the surface appear to limit.

This research demonstrates that there is a clear nexus between the rural sociological perspective and the emergent rural planning practice. Decades ago the planning literature recognized the need to know the local diversity of interests, determine whether there exists a general desire for some sort of land-use controls and present policy alternatives in terms sensitive to the locality's mix of environmental and economic objectives (Healy and Short 1979, p. 314). Planners and policy-makers' ability to grapple with these changes was first predicated on gaining an understanding of the dynamics of rural places, a reality planners and rural sociologists have come to realize, is in a perpetually shifting state spurred by demographic, technology and global conditions.

Rural sociologists demonstrated the complexity of rural locales in recent decades induced by the changing social structure. This research demonstrates that this complexity is still evident in areas like the Pine Barrens region. The earliest literature suggested that further research is needed on

the realities of rapid growth in rural areas (Healy and Short 1979). Ten years later researchers had still not adequately 'risen to the challenge to investigate the nature of small town and rural planning to assist rural planners in understanding the uniqueness of their context' (King and Harris 1989, p. 182). The rural sociological literature has assisted in understanding the dynamics of these changes, however there remained a gap in understanding the implications and applications of growth management in addressing social structural change in communities (King and Harris 1989). The literature driving the rural planning practice has begun to call for an enhanced understanding of these dynamics and embracing them in planning processes that are more sensitive to the local context, increasingly participatory and draw up on local knowledge and assets (Lapping et al. 1989; Daniels 1999).

This study adds to the understanding of amenity led growth in a unique context – defined by its remote rural character as well as its proximity and connections to a major metropolitan region. Further, the results here are aligned with much of what the rural sociological research has demonstrated over the years – the complex rural social structure. We suggest that these lessons mirror those conveyed by the planners. First the complexity of rural areas alluded to by the rural sociologists is the very same phenomenon that rural planning literature responds to when it calls for an infusions of local knowledge, context-sensitivity and participation in local and regional planning. The social dynamics uncovered by this research, together with the state-mandated comprehensive planning framework in Wisconsin, provides an appropriate and necessary testing ground for participatory, community-driven planning under state-led directives.

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16. Raising the gangplank: a defense of localism aimed at resource protection

Eric Olson

INTRODUCTION

Rural areas endowed with natural amenities such as shoreline resources, public lands, mountains and favorable climates continue to attract new housing investment for recreational and retirement homes. The development of land resources in such areas has many localized consequences ranging from increased traffic to higher property values to the introduction of non-native plants and animals. Local communities often seek to reduce or mitigate the negative effects of development through planning and land-use regulations. The regulatory approach faces an uphill battle in rural contexts where norms and traditions have historically allowed landowners to manage and dispose of their holdings as they see fit. A common caricature drawn of regulation proponents is that of the last one on the boat seeking to draw the gangplank up and prevent others from coming aboard. The gangplank metaphor represents a more serious critique of the exclusionary effects of localism and land-use regulations.

Much of the research and analysis of localism and land-use regulations has occurred in the metropolitan context. Little research exists to substantiate the negative social repercussions of such regulations in rural areas. Perhaps this is because most rural areas lacking amenities are declining in population and face little if any pressure for new housing and development. That such areas lack natural amenities implies that there may be little worth trying to protect with land-use regulations in the first place. Amenity-rich rural areas, in contrast, present situations where population growth exerts pressure on an existing natural amenity that may be threatened by development. It would seem logical to endorse and promote locally-led efforts to enact regulations when the amenity in question is a public good. Such local regulations may effectively manage growth pressures and protect

natural resources, but the specter of the gangplank syndrome and social exclusion remains.

This chapter sets out to explore the basis of social exclusion arguments against localism and land-use regulations to better understand their applicability in rural areas. The potential positive effects of such regulations are substantiated through a case study of a local effort to protect water quality in a rural watershed in northwest Wisconsin. The merits of localism are weighed against its potential exclusionary effects in an attempt to clarify the ethical dimensions that permeate land-use policy. It is argued that the exclusionary case against local regulations is best suited for metropolitan contexts. Rural communities deserve greater immunity from exclusionary charges when seeking to effectively protect natural amenities with public goods characteristics. A remaining challenge is differentiating the urban and rural in an era of continuing urban expansion.

WHAT'S WRONG WITH LOCALISM IN LAND USE REGULATION?

Since the inception of locally-based land-use regulations there has been concern over their potential for abuse. Zoning in particular is targeted as a policy tool that is too often employed for the benefit of narrow interests with discriminatory effects in terms of race and class (Babcock 1966). Localism in land-use regulation is not highly regarded by those outside the local context looking in. Localism invokes terrific labeling: cronyism, good-old-boys, Not-In-My-Backyard (NIMBY), Build-Absolutely- Nothing-Anywhere-Near-Anything (BANANA). Promoters of localism are misanthropic newcomers who 'have a fervent conviction not to let where they live become just another suburb' (Daniels 1999, p. 53). Localism runs counter to supposedly desirable social goals of cosmopolitanism, cooperation, harmony, regionalism and perhaps the most loaded term of them all: progress. It is something to overcome. Institutional responses to localism range from multi-jurisdictional councils to regional governments to state and national prescriptions of what powers can and cannot be relegated to local bodies.

The critiques of localism in land-use regulations are hardly hollow and it is useful to review their bases and alleged consequences. It is then possible to weigh localism in terms of its positive and negative effects. The two strongest critiques include charges that local governments are inherently myopic and fail to consider the wider public (Jacobs 1989; Rusk 1995), and that local governments lack adequate capacity to be fully granted authority over important decisions (Cutler 1959).

Parochialism

The narrow focus of local government jurisdictions is often seen as counter to the wider public interest. For example the local resistance to noxious land uses such as solid waste landfills, gravel pits, radio and telephone antennae, high-voltage electrical transmission lines and power plants seems to ensure that such uses have a hard time getting sited (Rabe 1994). While local governments actively push away undesirable land uses, they often strain to pull in plum land uses that will benefit the community. In the process, communities compete with one another for new types of development that presumably will provide prosperity and lower taxes to whoever wins. Research suggests that the winner in smokestack chasing competition is oftentimes a private corporation and the loser is the wider public (Isserman 1994; Power 1996).

Regulations associated with the drawbridge or gangplank syndrome are a particularly selfish form of parochial localism. Such localism says 'I got mine, to heck with you.' The NIMBY attitudes often expressed in parochial land-use controls appear easy to attack on equity grounds. It is not coincidental that undesirable land uses end up in the backyards of those with the least ability to resist (Saleem 1994). A powerful response is developing from those who challenge the presumed necessity of toxics manufacturing facilities and hazardous waste sites (Brown and Mikkelsen 1997), giving rise to the aforementioned BANANAs.

Ineptitude

The power to regulate land-use is not inconsequential and is therefore not to be taken lightly. The administrative responsibilities it entails can be significant. These arguably originate in the organization of government as a guarantor of property rights (through land titles, enforcement of trespass laws) and extend to the minutia of ordinance implementation (ensuring proper notification, maintaining minutes of land-use decisions or arranging for appeals processes). Of the tens of thousands of local governments in the US, not all are prepared to carry out the duties and obligations of land-use regulation (Cutler 1959).

Local jurisdictions can be aligned along a spectrum from the fully competent to the fully incapable. Competence is analogous to capacity; it is easy to understand how large cities and suburbs can call forth financial and human resources to carry out complex regulatory schemes. Few people question whether cities like New York or Chicago have the administrative wherewithal to enact and maintain land-use regulations. If anything, they are too good at it for some people's liking.

At the other end of the spectrum of capacity and competence lay many local governments with far fewer human and financial resources. At the extreme are communities that do not even bother with land-use controls at all. In these places regulation is either centralized at the county and/or state level or simply does not exist. These communities do not attract quite the same level of attention as those further up the spectrum with just enough capacity to try and employ local land-use regulations. Such marginal jurisdictions are more likely to be touted as examples of why local governments should not be allowed this great responsibility.

In spatial terms, rural communities with arguably the least capacity cover the greatest ground. In Wisconsin unincorporated rural towns and places with less than 2500 residents are home to over 1.7 million people roughly one-third of the state's total population (United States Census Bureau 2002). The rural areas covered by such places include nearly 30 million acres of undeveloped non-Federal land, over 90 percent of the state's land base (USDA Natural Resource Conservation Service 1997).

It is reasonable to wonder whether such local governments should be entrusted to make and enforce land-use decisions given their limited capacity. Surely if powerful interest groups and corporations can capture and control state and federal agencies, then the meager town board does not stand a chance. Such concerns yield skepticism on the part of national environmental groups weighing the risks and benefits of resource management devolution (McClosky 1996; Hibbard and Madsen 2003).

Commentators from the political left have pointed out how the quiet revolution in land-use controls – the increased state and federal roles in land-use decisions – has served to standardize and modernize land-use regulations in a manner well suited to non-local capitalist interests (Walker and Heiman 1981). With a consistent set of rules large outside interests can more easily overcome local peculiarities and more efficiently enact their own schemes for land-use (Scott 1998). When the rules themselves are imported into a community without respect for local decision-making norms, dramatic changes driven by corporate interests can run roughshod over small rural communities (Tauxe 1995).

It may be cold comfort to think that the old-fashioned, parochial and occasionally prejudiced governments might serve a greater public good simply by making local land-use regulations sufficiently unintelligible to powerful outside interests. The possibility remains that local low-capacity governments could improve their decision making without necessarily conforming to a standardized regulatory design shaped by outside interests. Indeed this is one of the more compelling reasons to continue supporting so many small local governments. They may be best positioned to fulfill the promise of de-centered, participatory strong democracy (Barber 1984; Shutkin 2001).

The following section puts some more meat onto the above critiques of localist regulation by focusing on the single issue of housing. At first blush one might wonder on what grounds a local unit of government would oppose something as commonplace and seemingly desirable as housing. Don't communities exist primarily to provide for a population? When examining the issue of housing it is important to keep in mind that most opposition to new housing and associated population growth derives not from the houses per se but rather from the anticipated consequences of development. Moreover, it is not the average effect but the potential outliers—the worst-case scenarios—that seems to generate such great interest (Fischel 2001).

AN EXAMPLE OF LOCALISM: THE CHALLENGE OF HOUSING

Local units of government are often accused, sometimes rightly, of using land-use controls to exclude in-migration along racial and class lines. These criticisms usually focus on the problems of parochialism discussed above, but the question of capacity can be raised. When considering the broader challenge of housing people least able to care for themselves, one might wonder if any local government can fulfill society's obligations. The enduring problem of homelessness suggests that they cannot. So long as individual communities are able to shirk such issues and pass them on to the community least capable of refusing, we may never develop the capacity to effectively solve problems like homelessness at the local level.

The rapid growth of exclusive suburbs coincided closely with the landmark *Brown vs. Board of Education* decision requiring integrated schools. By creating their own school districts, suburbs were able to better control the racial makeup of the student body. They quickly learned that excluding affordable housing could simultaneously keep out a certain race and class of people and enhance the fiscal position of the school system and local government (Pendall 2000; Rusk 1995).

In metropolitan and suburban contexts the discriminatory effects of land-use regulations motivate an array of policy and third-sector responses. These range from public provision of housing in central city and suburban locations to rental vouchers, reverse commuting programs and inclusionary development policies. To the extent that central cities bear a disproportionate share of the total costs for these programs, it would be difficult to describe the current system as fair.

The clearest examples of exclusion occur when a community explicitly

disallows a particular form of housing such as duplexes, apartments or mobile homes. The landmark Mt. Laurel decisions in New Jersey are often cited as evidence of the injustices of exclusionary localism. They also provide examples of positive state intervention. As a result of a series of cases each municipal unit of government in New Jersey must accommodate a certain degree of high-density housing (Haar 1996). Similar inclusionary policies exist in the Twin Cities of Minnesota and in Portland, Oregon. In both cases these policies are enforced by a regional body of government (Orfield 1997).

Beyond explicitly excluding particular forms of housing, localism can be implicit in the form and function of land-use regulations. For example, simply delaying the housing construction process through drawn out regulatory reviews can increase costs for developers, costs that are likely to be born by the eventual homebuyer (Malpezzi 1996). Requiring large lots is another way to shape the make-up of a community's incoming residents. Larger housing lots fetch higher prices and typically sport larger, more expensive homes – what some have come to call McMansions. Additional regulations such as exactions can further increase the entry fee for getting into a particular suburb/school district (Kaiser and Burby 1988; Altschuler and Gómez-Ibáñez 1993).

A more extreme form of land-use regulation is the use of growth boundaries such as those in Oregon. Some fear that the constraint on market supply could lead to an artificial inflation of land prices in places like Portland. Whether or not such an inflationary effect has actually taken place is the subject of some debate. Most commentators agree that the constraint is difficult to sort out from numerous other factors affecting housing affordability, including the strength of the regional job market and associated incomes, the relatively high level of amenities in the city and the trend towards larger and higher quality homes (Knaap 1985; Philips and Goodstein 2000).

Although suburban large-lot zoning and its variants can be implicated in segregation and inter-municipal fiscal disparities, these are not their only effects. One must also consider the very real impact these practices have on the environment and aesthetic character of a community. Most often the review of large-lot zoning rightly implicates the practice as a leading contributor to suburban sprawl, with all of the attendant negative impacts (Duaney et al. 2000; Pendall 1999). Liberty (2003) sets out to make the case that exclusionary, large-lot housing regulation has a significant negative effect on ecological health. Liberty's point is that large-lot zoning propagates many of the negative environmental outcomes associated with rapid extensive urbanization, including habitat fragmentation and increased pollution. Similar arguments for smaller lots and higher density are made by

Richards et al. (2003) as well as Stone (2004) though their critiques of large-lots focus more narrowly on their impacts on impervious surface, runoff, and water pollution.

Liberty's own analysis is somewhat flawed in that he lumps together large-lot developments in rural Colorado (40 acres per house) with those found in metropolitan areas (typically one to five acres per house) (Liberty 2003, p. 584). Richards et al. (2003) and Stone (2004) similarly focus on development in metropolitan areas rather than rural areas. Conflating rural and urban contexts can place rural decision makers in the unwarranted category of exclusionary when using land-use controls to protect natural resources such as farmland and forestland. As discussed above, the exclusionary critique originated in urban and suburban contexts where the stakes in land-use decisions can be quite high. As one moves further and further from the urban core, the underlying dimensions of exclusionary regulations become weaker. School districts, for example, become regional in scale and encompass small cities, their immediate suburbs, and the hinterland. Total population becomes more homogenous as one moves away from urban centers and into the countryside (Frey 2000). At some point the exclusionary argument could be outweighed by the positive environmental effects of large-lot zoning. The following section discusses some of the positive effects that large-lot zoning can play in protecting natural resources.

LARGE-LOT ZONING AS A NATURAL RESOURCE PROTECTION POLICY

In Wisconsin zoning was initiated in the 1930s to protect natural resources by enabling counties to create rural zoning districts to guide forestry, farming, and recreational development to suitable sites. In the southern portion of the state, as in agricultural areas nationwide, counties and towns use large-lot exclusive agricultural zoning as one of many regulatory tools to limit the loss of farmland to rural and suburban housing development. Sufficient local administrative and enforcement capacity makes zoning an attractive tool for furthering resource protection objectives (Weber and Peroff 1977). Two non-agricultural examples highlight how zoning can crudely but effectively help carry out natural resource protection.

Preventing Landscape Fragmentation

Subdividing land into smaller and smaller parcels does more than just create affordable home sites. The process of creating home sites through

subdivision is an archetypical example of habitat fragmentation. Compared to timber management practices such as clear-cutting, forest parcelization is relatively permanent. There is a growing body of evidence that fragmentation through subsequent development has negative consequences on sensitive plants and animals (Robinson et al. 1995).

As land is subdivided access to private lands for recreation can also be decreased (Cordell et al. 1993). Fragmentation also has potential negative effects on forest management (Gobster and Rickenback 2004). While requiring very large lots does not prevent these effects, it could effectively limit the number of homes and structures placed in the woods and make land more suitable for outdoor recreation. In addition larger parcels could be more readily and economically managed for timber production (Hull et al. 2004). The Wisconsin Managed Forest Law program for example provides property tax relief for landowners who manage their forests for timber productions and uses 10 acres as a minimum lot size for enrollment.

Cluster development is often promoted as a strategy to accommodate development and protect resources. However, in the absence of large-lot requirements there is little or no incentive for landowners to employ cluster techniques. Randall Arendt, a well-known promoter of cluster techniques, points out that a community must set an appropriate resource-based density as a precursor to effective rural clustering. Arendt proposes 20 acres per dwelling as the maximum density for what he terms 'truly agricultural areas' (Arendt 1997, p. 140). His clustering technique would then require smaller maximum lot sizes (one or two acres) for any home sites divided from larger parcels and require effective protection of the majority of the parcel from further divisions. Note that this approach still limits the total number of units that a landowner could produce in a given acreage and is therefore not a solution to the potential exclusionary effects of local regulation.

Increasing Storm Water Infiltration and Protecting Surface Water Quality

Lot size inversely relates to the percent of a given parcel covered with impervious surfaces such as pavement and buildings. This association is most evident in urban areas where high-density development creates large patches of impervious surface that require expensive storm water sewer systems for flood avoidance. The greater volume and velocity of storm water in urban areas increases the amount of sediment and dissolved particles delivered to lakes, streams and wetlands. Polluted runoff is quickly becoming the most prevalent water quality threat in the US (Arnold and Gibbons 1996). The growth in impervious surface and increase in runoff

also correlates with downstream flooding problems. A logical place to begin limiting runoff and non-point pollution is at its source (Potter 2003). While large-lot size requirements with commensurately lower percentages of imperviousness may seem to be a simple solution, research in urban settings suggests otherwise.

In an urban context, impervious surfaces and their impacts are best analysed on a per-capita basis. By promoting higher density development through smaller lots and other means, one can minimize a metropolitan area's per capita impervious surface (Richards et al. 2003). Using a compact city approach governments in a regional watershed can reduce the extent of imperviousness associated with population growth and minimize negative consequences of sprawl (Stone 2004). Development in rural areas does not necessarily follow the standard urban model wherein growth develops around concentrated employment centers. This is particularly true when diffuse amenities such as lakes and forests drive rural development. Where the primary reason for migration and development is in close proximity to such amenities the compact city strategy cannot function. To see why this is so, the following section looks more closely at the water quality aspects of land division and development in an amenity-rich watershed in rural northwest Wisconsin.

CASE OF THE LONG LAKE WATERSHED IN WASHBURN COUNTY, WISCONSIN

Self-proclaimed Vacation Land Washburn County is a recreational county providing leisure and retirement opportunities to people from the Twin Cities of Minnesota and nearby cities in Wisconsin. It is similar in many respects to many of the rural places analysed to detect culture clash and study the effects of tourism migration on local community well being (Beyers and Nelson 2000; Smith and Krannich 2000; Walker and Fortmann 2003). The net migration rate into Washburn County was 10.8 percent in the 1990s, nearly triple Wisconsin's average rate of 3.7 percent (Wisconsin Bureau of Workforce Information 2001). While a share of this migration is into the small county's several small villages, the lake-rich countryside has been home to a growing number of migrant retirees.

The county is located along the extent of the last glaciation in the Midwest and the legacy of the Holocene Era is evident in the rolling hills, rocky soils and numerous lakes and wetlands. The forests of the county were initially logged off in the late nineteenth century and the logs sent downstream to build countless barns and market towns in the American Heartland (Twining 1975). The failure of farming to take root in the

cutover resulted in extensive tax forfeitures in the 1920s to the 1950s (Carstensen 1958). The county currently owns over one quarter of the county's land base (148 000 acres) and manages its land for timber, wildlife and recreation (Washburn County Forestry Department 2001). The landscape is hardly as breathtaking as the Rocky Mountain West or even the Adirondacks, but it has a subtle charm and is highly regarded for its water resources.

Forestry remains a major economic driver in the county if only for the revenue generated from stumpage. Tourism and housing generate more economic activity as measured in jobs and sales taxes. In 2003 travelers spent an estimated \$54 million in Washburn County (Wisconsin Department of Tourism 2004). The economic base is currently moving away from forestry and agriculture and towards recreation, second homes, and retirement development. In 1999 employment in agriculture, forestry and fishing sectors stood at just under 60 workers overshadowed by the number of jobs in retail trade (1302), government (1289), manufacturing (1096) and services (1076) (Wisconsin Bureau of Workforce Information 2001). The transition is towards a post-productive landscape where people appreciate natural resources in their current state rather than as inputs for value added processes (Mather 2001).

Water Resource Management in Washburn County

Washburn County is endowed with significant water resources including 262 named lakes, 704 smaller unnamed lakes, and a National Wild and Scenic River. Lakes cover over 30 000 acres in the county and provide just under 1000 miles of shoreline (Northwest Regional Planning Commission 2003, p. 2). Pressure for cabins, cottages, resorts and retirement homes has long been felt in Wisconsin's lake-rich regions (Waite 1959; Yanggen and Kusler 1968). Statewide zoning requirements for minimum frontage and lot size in shoreland areas (lands within 1000 feet of lakes and 300 feet of rivers) have been required in unincorporated areas since the 1970s.

Since 1980, the pressure has steadily increased for development and redevelopment in lake-rich rural areas due in part to healthy regional economies and ongoing strong demand for water frontage (Derus 2000). Responses to this pressure have come in the form of local, county and state programs to purchase important habitat and regulate development near lakes. In Washburn County where public lands abound, regulatory attention and resource monitoring focuses on privately-owned lakeshore areas.

Water resource inventorying and classification projects that align zoning requirements to the ecological capacity of a given water body are a

growing phenomenon in Wisconsin counties (WDNR Bureau of Watershed Management 2000). Washburn County's lakes classification and shoreland zoning revisions took place at the end of the 1990s. As a result of this process, lakes in the county were classified based on vulnerability to development and designated for either minimum, moderate or maximum protection. Lakes with maximum protection levels required double the minimum frontage (300 feet) and required a minimum lot size of three acres.

Lake planning is a state–local program that complements lake classification and zoning. Local lake associations, districts or municipal and county governments commonly initiate lake planning efforts. The standard project proceeds in three phases: water quality study, establishment of water quality goals and analysis of alternative scenarios and prescriptive recommendations for meeting goals. Long Lake is one of only a handful of lakes in Washburn County that have completed a lake plan. At 3200 acres it is the largest lake in the county and first experienced recreational lakeshore development immediately following the cutover in the nineteenth century (Twining 1975). The Long Lake Preservation Association (LLPA) is a non-profit organization of property owners on and around the lake organized to preserve and protect Long Lake, its watersheds and ecosystems. The 1997 Long Lake plan includes specific water quality goals stated in terms of total phosphorus, the limiting nutrient affecting algae blooms and subsequent hypoxia in the lake. The plan establishes these goals for five distinct basins in the lake. As shown in Table 16.1, the phosphorus levels have increased since 1994 and the Department of Natural Resources has subsequently classified Long Lake as a eutrophic lake.

Table 16.1 Summer total phosphorus goals from lake management plan and actual averages for sampling stations in Long Lake

Basin	Goal ($\mu\text{g/l}$)	1994 summer average ($\mu\text{g/l}$)	1998–2001 summer average ($\mu\text{g/l}$)	2002–2003 summer average ($\mu\text{g/l}$)
A	16	16	22	21.5
B	17	17	20	n.a.
C	19	19	19	n.a.
D	18	18	20	n.a.
E	17	17	19	n.a.
F	n.a.	n.a.	20	25

Source: (Barr Engineering Company (1997) and self-help testing results available on the WDNR web page <http://www.dnr.state.wi.us>).

The 1997 lake management plan included a nutrient budget to identify the sources of phosphorus coming into the lake. With little of the watershed in agricultural use (less than 10 percent) and no direct discharge sources of phosphorus efforts to manage phosphorus address non-point sources throughout the watershed. The Long Lake plan reports that 40 percent of the phosphorus reaching the lake is coming from direct surface runoff (Barr Engineering Company 1997). The balance of phosphorus is coming from direct atmospheric deposition (16 percent), groundwater (15 percent) and internal loading (24 percent). Of these phosphorus sources, surface runoff is the only one that can be readily managed in the long term through available and relatively inexpensive practices. To address the runoff issue, the plan recommends widespread adoption of stormwater best management practices (BMPs) and enforcement of large-lot zoning of one house per five acres throughout the watershed (Barr Engineering Company 1997, p. 35). The plan suggests that the LLPA retain an attorney to draft the required ordinances and work with the county until the ordinances are passed (Barr Engineering Company 1997, p. 44).

This latter recommendation reflects a rather coarse understanding of how local ordinances could and should be developed. In the case of Long Lake and Washburn County the LLPA was involved in the earlier lakes classification project and the subsequent zoning ordinance revisions. A former LLPA board member now serves on the town and county board and on the county zoning committee. The LLPA has also been active in the development of the most recent and still ongoing planning effort: a county-wide, town-focused effort to create comprehensive plans in accordance with Wisconsin's recently updated planning and land-use laws.

Current Lake Resource Protection Efforts

In 1999 the State of Wisconsin adopted Act 9 as part of the omnibus budget for that year. Act 9 amended state planning and land-use laws to require that land-use decisions and ordinances be based on statutorily defined comprehensive plans (Ohm 2000). The law includes a 2010 deadline for local governments to develop or update plans in accordance with the more detailed state definition. The legislation was accompanied with substantial state grant monies that local governments could apply for and use for creating their plans. Washburn county and most of the local municipalities (towns, villages and cities) cooperatively applied for and received state grants for comprehensive planning in 1999 and 2000. The three towns that encompass the Long Lake watershed were included in the first round of Washburn County comprehensive planning grants. Their planning efforts began in the summer of 2001 and the time line for

their grant specified a three-year process from beginning to formal plan adoption.

In November 2001 the LLPA began exploring ways that their watershed and lake quality concerns could be addressed through a holistic approach (Barta 2001). The University of Wisconsin – Stevens Point Center for Land Use Education (UWSP CLUE) responded to the LLPA's request for proposals and developed a project to integrate watershed and lake management with local comprehensive planning processes. Since the fall of 2002, UWSP CLUE and the LLPA have been providing town planning committees with additional analyses of the Long Lake watershed and co-developing strategies for watershed protection both through the local comprehensive plans and through the LLPA's volunteer activities.

Further analysis of the runoff issue around Long Lake makes it increasingly clear that the future of the lake's water quality and ecology depends closely on the character of land-use change in the watershed. As owners convert land from forestry to residential use greater portion of the watershed will become impervious. In addition people modify pervious areas in yards and roadsides to eliminate ponding and improve drainage. These will combine to increase both the volume of runoff and the concentration of phosphorus entering the lake. Researchers from the UWSP Center for Watershed Science and Education (CWSE) have developed runoff models to attempt to quantify the expected nutrient contribution.

The runoff models necessarily simplify what is a complex phenomenon. They assume average impervious and developed pervious areas for different lot sizes and project the amount of water that would then runoff given average precipitation scenarios. The results indicate that 40 acre lots would be equivalent to undeveloped forestland and contribute approximately 0.02 pounds of phosphorus annually through runoff. A two-acre parcel, in contrast, would likely have 12 percent of the land covered in impervious surface and another 50 percent in developed pervious coverage. Such a parcel would yield approximately 0.17 pounds of phosphorus annually, almost nine times the amount of the undeveloped parcel. If undeveloped private land in the watershed were developed at an average size of one acre, annual phosphorus loading from runoff would nearly triple and in-lake phosphorus concentrations would double. Such impacts on lake trophic status are particularly troubling because in-lake nutrient recycling can thwart all future efforts to restore lake water quality, however ambitious and well-financed (Carpenter et al. 1999).

At this time it seems only prudent to assess new development proposals in the watershed with great caution. Until developers, builders and homeowners consistently adopt runoff BMPs and similar engineering and design strategies, lot size restrictions present the most straightforward means of

minimizing impacts of watershed-wide development on the lake. The town comprehensive planning committees have been addressing questions of lot size and density in their efforts, though they come at it from a slightly different angle. The comprehensive planning process has provided an opportunity for local residents to consider the long-term implications of parcelization and development trends. Their deliberations largely center on the aesthetic impact of widespread small-lot development. Many planning committee members see such lots as inconsistent with their town's rural character.

Likely Impacts of Large-lot Zoning on Local and Regional Housing Markets

There is growing consensus among the planning committees that unchecked development throughout the town would equate with failure of their plans. The discussion now centers on what *de jure* lot size will be acceptable: 10 acres? 20? 40? Some planning committee members and citizens express concern about the impact on affordability. They feel it is getting so that locals won't be able to afford to live here. Holding lot sizes at 20 to 40 acres with current values of \$2000/acre, yield parcels priced between \$40 000 and \$80 000. Even with premiums for plattage, five-acre parcels currently for sale in the area are affordable in comparison with prices at \$15 000 to \$20 000.

The regulation of lot sizes could have additional induced price effects on existing and new homes. If the strategy successfully protects water quality it can further increase land values. The reason is straightforward: people prefer better water quality and will pay higher prices to access it (Boyle et al. 1998; Krysel et al. 2003). The restrictions could also have a demand-induced effect on local existing homes but only if homebuyers are not willing to substitute homes outside the watershed. In sum, implementation of large-lot requirements will likely increase the cost of new and existing housing in the towns that choose to adopt them. There is, however, an argument to be made that affordable housing is and will continue to be sufficiently available in the Long Lake region.

The towns of Long Lake, Madge and Birchwood are a somewhat small part of multi-county labor and housing markets. The cities of Hayward and Spooner (both less than 2500 population) and Rice Lake (just under 10 000) all have active housing programs that subsidize new construction and rehabilitation. These small cities are located within a 15 to 20 minute drive to the Long Lake watershed. Reducing the availability of low-cost, small rural lots in the watershed could effectively increase demand for existing and new housing in these municipal areas. These same small urban

communities are better prepared to increase housing stocks while simultaneously managing the potential negative environmental consequences of new development. For example, Rice Lake will soon be required to develop a community-wide storm water management plan to reduce nutrient loading from urban runoff.

CONCLUSIONS

This chapter set out to compare the merits of localism in land-use regulation against the charges raised by its critics. The potential benefits of local regulation were analysed through an example of a lake community seeking to manage the creation of small residential parcels and associated impervious surfaces. The negative social consequences common to urban and metropolitan localism – particularly social exclusion – are more difficult to substantiate in the rural context. This suggests that commentators and analysts should grant greater immunity to rural governments concerning discriminatory effects of their regulations. In the case of the Long Lake watershed the local towns should go forward with their efforts to enact large-lot zoning for watershed protection. If housing issues arise the towns should engage their neighboring communities to develop regional solutions.

The above analysis suggests that from a policy perspective the distinction between rural and urban is important to maintain. Such distinction helps those evaluating appropriateness of particular land-use and housing policies. In rural areas the establishment of new home sites in the countryside is almost entirely an expression of choice rather than necessity. Pro-growth advocates are likely to draw on the combined rhetoric of job creation, youth retention, tax relief and private property rights to argue for lax land-use and housing regulations. These policies are unlikely to create jobs and retain youth, (Lyon et al. 1981) lower taxes, or increase anyone's ability to fulfill their personal aspirations (Barber 1984). The development will, however, negatively impact the ecology and permanently alter the character of the rural area as it proceeds on the trajectory to exurb, suburb and eventually to anyplace USA (Salamon 2003).

In cases such as the Long Lake watershed where local parochial interests coincide with the wider public interest – in this case of protecting public surface waters through land-use regulations – government institutions should go out of their way to support and defend local actions that effectively secure the public good. The Long Lake case is only one example yet the hydrological relationship between land uses, runoff, and surface water quality are certain to exist in any watershed. Assessments of each watershed in terms of soil and landscape characteristics, surface water

quality, sensitivity to added runoff inputs, and water quality goals will provide a basis for similar analysis regarding the impacts of development. The results establish a carrying capacity for the resource, a scientific analysis that can be used to argue in favor of restrictive policies (Witten 2001). Similar studies from amenity-rich areas such as the Florida Keys, where runoff threatens to destroy the continental US's only coral reef, support the notion of carrying capacity (US Army Corp of Engineers 2003). Backed by such analysis, local institutions can go forward with greater confidence and determination, both of which will be tested by interests favoring growth irrespective of the public consequence.

This is not to say that the public should support localism in housing and land policy anywhere and everywhere. Society must remain alert to the possibility that local efforts to protect resources and community character are simply facades for exclusionary motives. Such questionable policies are more likely to exist along the margin of the rural-urban fringe where character and resource motives are still somewhat valid but are increasingly outweighed by an equally valid need for metropolitan housing. More work is needed to determine the exact location of such fringe zones.

The literature describing exurbia provides a start but the current definitions are unsatisfactory in that they describe the fringe largely based on the commuting patterns into metropolitan areas (Nelson and Dueker 1990; Nelson 1992). As those areas expand and transportation improves so does the exurban zone. From the rural community's perspective such definitions can be overly determinative. They place rural areas – especially those just beyond the exurban extent – in the unavoidable path of urban America's inexorable outward march, denying them any role in shaping their own future. Theobald's (2001) recent work using actual housing density measured at the census block group level represents a major advance in the challenge of locating the rural-urban fringe from above. It remains to be discussed if a single rural density can be used across the entire US.

Analysing the plans and policies of fringe local governments provides one alternative marker of the fringe-rural border. On the rural side one can expect to find communities articulating no-growth philosophies to realistically protect natural resources. On the metropolitan side, one will find communities with growth management schemes that largely accommodate new growth but focus on the fiscal impacts to ensure such growth is capable of paying its own way (Pogodzinski and Sass 1990). In such places, the debate is no longer over whether or not to sacrifice local natural resources; the matter is simply one of price.

Regardless of the detection method used, the border is likely to expand as population grows and households express their desire for more space. The rate and direction of expansion will likely vary depending in large part

on the political will to sort out wants from needs. Without a real regional or state led effort to control urban growth, the rate at which the fringe expands could provide an indicator of how well or poorly the devolved natural resource management scheme works (Bradshaw 2003).

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17. Amenity-led development of rural areas: the example of the regional action pilot program in Germany

Karlheinz Knickel and Sarah Peter

INTRODUCTION

With the Agenda 2000 reform and the European Council of Luxemburg the European Union made sustainability and multifunctionality key objectives of its Common Agricultural Policy (CAP). Agriculture and rural areas are viewed not only as producers of agricultural commodities but also as producers of environmental and social goods. Member states now have the possibility of withdrawing support payments in cases of non-compliance with environmental requirements. Since 1992, the year of the so-called MacSharry reform of the CAP, they can also reward farmers who, on a voluntary basis, provide environmental services to protect and enhance the quality of the natural environment, including biodiversity.

Cultural landscapes are increasingly regarded as being at the heart of European society's concern about the future of agriculture and land use. Finding a new balance between societal demands for high environmental quality and the pressures resulting from competition in a market economy is a key issue. New development models aim at sustainable agriculture and maintaining biological and landscape diversities. The European Landscape Convention from 2000 is evidence of the increasing interest in the issue of landscapes (Ministère de l'Ecologie 2004, p. 1ff). It is acknowledged that agriculture provides rural and environmental amenities and contributes to the maintenance of cultural heritage and the economic viability of rural areas. Agricultural production systems range from integrated and often intensive systems, which are competitive on international markets while having only a basic responsibility for biological and landscape diversity, to agricultural systems that focus on the important task of maintaining and developing a rich diversity of nature and landscape values. The latter are also often linked with more localized food supply systems (Knickel et al. 2004a).

Pretty (2002) and Hoffmann (2000) argue that agriculture contributes to landscape and nature preservation, not in spite of but through land use. A variety of agriculture-related habitats depend on agricultural systems' diversity. High-nature-value farmland has become an important policy focus, as measures like the Pan-European Biological and Landscape Diversity Strategy (PEBLDS) or the Biodiversity Action Plan for Agriculture, among others, show. The 6th EU Environmental Action Programme aims at halting biodiversity decline by 2010 by conserving high-nature-value farmland, for which 15 to 25 percent of agricultural areas in Europe qualify. The CAP has become the most important policy framework for the conservation of this category of farmland, as it obliges member states to implement agri-environmental schemes through its second pillar as well as to restrict all support exclusively to environmentally sound management (European Environment Agency 2004, p. 12).

Against the background of growing political, financial, social and environmental pressures there had been criticism of the CAP's focus on increasing agricultural productivity since the 1980s. It was not until the Amsterdam Treaty of 1999 that multifunctionality was made a central issue of the European Model of Agriculture (Kirwan et al. 2004, p. 2) which was described by the European Commission (2002) as:

- a modern and competitive farming sector, capable of occupying a leading position in the world market, while safeguarding domestic producers' living standards and income;
- a sustainable, efficient farming sector that uses hygienic, environment-friendly production methods and gives consumers the quality products they desire; and
- a farming sector that serves rural communities, reflecting their rich tradition and diversity, and whose role is not only to produce food but also to guarantee the viability of the countryside as a place to live and work, and as an environment in itself.

The fact that the diversity of countrysides and rural life is inextricably related to agriculture has been recognized explicitly for the first time. The Rural Development Regulation of 1999 (RDR) (Reg. EC/1257/99) is the logical outcome of this paradigm shift. It aims at an integrated policy for rural areas, thereby providing increasing opportunities not only for a more balanced development of rural areas but also for the provision of rural and environmental amenities and protection of nature. Development programs associated with the RDR serve to help rural areas maintain their natural living conditions and secure employment in addition to the traditional provision of food and raw material (Knickel 2002: 4).

Within the new paradigm, production remains as only one function of agriculture (Knickel 2001: 6; Pretty 1998). This implies that farmers must acquire new skills in order to fulfill what Hervieu (2003, p. 201) calls a synthesis profession. The guiding idea is that through multifunctionality, agricultural enterprises can create a broader basis of income generation and at the same time gain greater appreciation of their outputs from society (Knickel 2001; Künast 2001). The unique multifunctional potential of agriculture is grounded in its multiple commodity (food, non-food crops) and non-commodity outputs (environmental, social, cultural achievements) (Hervieu 2003; Meister 2001). The problem is that the market does not financially reward most of the latter. This is a gap that policy must still fill (Hervieu 2003). Open space amenities must generally be seen as non-commodity outputs of agriculture (Abler 2001; Winter 2001). At the same time, however, the aesthetic and cultural value of agricultural landscapes can to a considerable extent be turned into monetary value, for example, by exploiting its rural tourism potential (Knickel 2001; Pretty 2002). This is expected in the case of a significant number of the projects in the model regions, which will be presented later on in this chapter.

Economic Functions of Agriculture Remain Important

Changes in agricultural land use are closely linked with changes in agricultural structures (European Commission 1997; European Environment Agency 1998; Knickel 1990). The following figures illustrate these structural changes in Europe. The share of primary agricultural production in the gross added value of the German economy has decreased from 3.4 percent in 1970 to 1.2 percent in 1999. The proportion of the labor force working in this sector dropped from 4.1 percent in 1991 to 2.7 percent in 1999. This corresponds with figures for European agriculture. In the six founding EU member states, the number of farms fell by 42 percent between 1967 and 1997, a loss of 2.7 million farms. Between 1987 and 1997 alone, the number of farms fell by 24 percent in the EU-12 (Eurostat) (Bryden 2002). The decrease in the number of agricultural holdings is matched by an even more pronounced decline in agricultural employment.

In spite of overall structural changes and new demands, in many regions, agriculture still plays a relatively important economic role. With the saturation of EU food markets, however, diverse patterns of income generation and a focus on regional products and markets have become more important. In this respect, the diversity of agriculture and food traditions can be regarded as a strength. Alvensleben (2000) specifically points out the market advantages that are available to food and non-food producers, processors and retailers who can document and deliver environmental benefits.

New farm-related and farm-based activities and markets are developing and existing ones are changing as an expression of new relations between agriculture and society as well as between cities and their surrounding countryside. An overview of such activities is provided in Table 17.1. Thus, multifunctional agriculture can be interpreted as a broadening (for example, management of nature and landscape, agri-tourism, energy crop production) and a deepening (for example, organic farming, high quality

Table 17.1 New farm-based and farm-related activities and their function, market potential and policy dependence in Europe

Activity	Function ^(a)	Market potential	Policy dependence
(Organic) food production	Food and fiber supply	Medium	Medium ^(b)
Non-food fiber production		High	Low ^(b)
Bio-energy	Energy supply	High	High ^(b)
Quality and regional production	Short supply chains; regional	Medium	Low ^(b)
Direct marketing	added value; cultural heritage	Low	Medium ^(b)
Landscape management	Prevention of natural hazards; groundwater recharge; cultural heritage	Medium	Medium ^(b)
Protection of biotopes and wildlife	Maintenance/increase of biodiversity	Medium	Medium ^(b)
Agri-tourism	Leisure; cultural heritage	Medium	
New on-farm activities	Services, supply	Medium	
Part-time farming	Rural economic viability	Low	
All (economic) activities	Income and employment; rural economic viability; cultural heritage		

Notes:

(a) Defined in terms of commodity and non-commodity outputs.

(b) Mainly because of the lack of internalization of the external costs of unsustainable resource consumption.

Source: Based on Knickel et al. (2004a, p. 4).

production, direct marketing) of typical agricultural activities. Their transformation into new products and services demanded by society has to be coupled with a cross-sectoral reorientation (Knickel et al. 2004a).

Opportunities for agricultural diversification are seen in intersectoral cooperation efforts, for example, with the regional tourism, gastronomy and catering sectors and nature protection, which have proven to be vital factors for diversification in most model regions and also open up prospects for the positive intensification of urban–rural linkages.

The large number of activities that can be observed in rural areas and that are related to farm households and farming activities have three main characteristics (Van der Ploeg et al. 2002):

- The activities are an expression of new relations between agriculture and society, city and countryside; they constitute a response to new societal needs.
- By mobilizing new revenues and finding new forms of organization, cooperation and cost reduction, the activities represent new responses to the price-squeeze in the food sector.
- The activities stand for a reconfiguration of farm resources and their relation with rural areas, food supply chains and the institutional environment.

A key question in current discussions in academic and policy circles as well as among economic actors is to what extent such new activities require public support and what the most efficient policy approaches and support measures are.

THE REGIONAL ACTION PILOT PROGRAM

Objectives of the Regional Action Pilot Program

Rural areas are characterized by a large range of diversity, a fact to which policy-makers have not always given sufficient consideration in the past. For example, nature, culture and agriculture in the Allgäu region in southern Bavaria are entirely different from the conditions found in the Emsland region in northwestern Germany. The Barnim-Uckermark region in one of the new states in eastern Germany has an unemployment rate of 22 percent, one of the highest in the country. By contrast, the Oberland, a typical rural area in Bavaria, only has a 6 percent unemployment rate. With respect to the kinds of support required it is important that the particular regional situations are taken into account by local development agencies, national

governments and the EU when developing policies designed to support the new activities mentioned above. As a result of that new bottom-up policy approaches in support of sustainable development in rural areas are being tested.

The Regional Action pilot program in Germany is an example of an innovative support scheme that specifically addresses the development of new economic activities as well as their linkages with the enhancement of environmental quality. It was initiated by the German Federal Ministry of Consumer Protection, Food and Agriculture (BMVEL) in 2001. The program is expected to provide a concrete translation of the concept of the *Agrarwende* (agricultural turnaround) into practice which was announced in the course of the reorientation of German agricultural policy as a response to massive pressures resulting from the BSE crisis (Knickel 2005).

Regional Action provides support for the realization of subcounty development concepts devised by regional level actors, institutions and stakeholders (BMVEL 2002). The size of the regions ranges from 320 sq km to 5800 sq km, the typical size being 1500 to 2000 sq km. The model regions have between 36 000 and 1.2 million inhabitants. As for the definition of regions in the Regional Action program, they are supposed to form functionally or spatially homogenous areas (often coherent landscape units) with common problems and potential, and may encompass several municipalities and districts (BMVEL 2001a).

In the Regional Action pilot program production quantity has been replaced as the main objective by quality production and regional added value of rural areas. The program is a response to consumer demand for high quality, affordable food produced in an animal-friendly manner and attempts to contribute to the harmonization of agricultural production with the environment. Particularly interesting is the aim of adding value to natural resources while using them more efficiently and sustainably. The improvement of producer–consumer relations through greater proximity is to be achieved by creating transparent methods of production and marketing. The idea is to counteract the growing alienation between consumers and food production as well as the reduction of farming to merely one link in increasingly more industrialized food supply chains (Hervieu 2003, p. 522ff). High quality food production and transparency is now understood to be a central starting point for a renewed social contract and for rural development, because it can secure the economic basis of agriculture as well as increase its appreciation in society (Nachhaltigkeitsrat 2001).

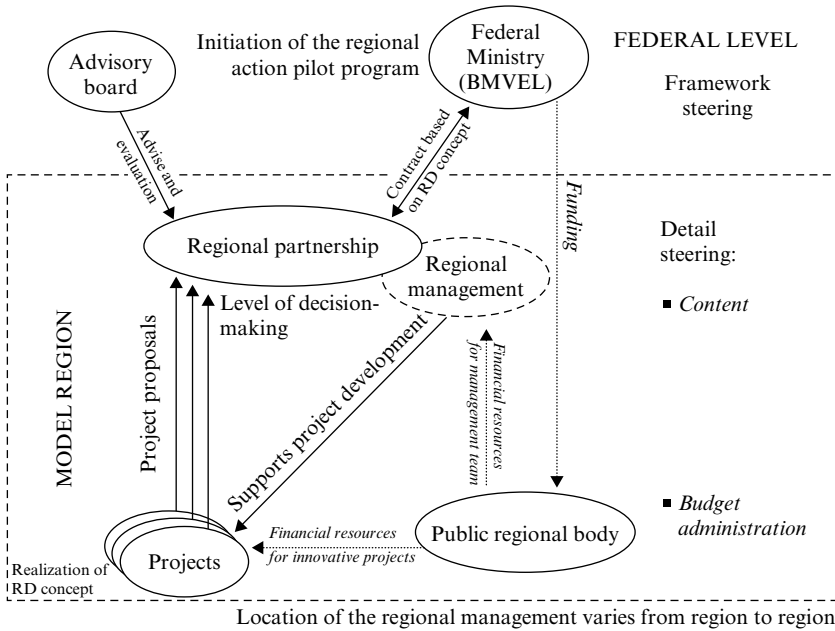
Regional Action aims at an integrated and sustainable development of rural areas. A key idea is to better coordinate and strengthen the various

functions of rural areas. The active generation of synergy is central to the activities and their combination at the farm and the regional level. Although specialization in agricultural production and segregation of agriculture from other rural activities had been envisaged in the past, multi-functional and amenity-led development is focused on mutual benefits and 'win-win situations' between different activities (Brunori and Rossi 2000; Knickel and Renting 2000: 8). On-farm processing and direct marketing, for example, frequently lead to an involvement in quality-production, and nature and landscape management are likely to trigger an involvement in direct marketing, on-farm processing or organic farming. Agritourism is the result of an involvement in direct marketing. Synergy is also expressed in the regional branding of foods, the relative popularity of the newly-established product lines and in the linkage between the image of the region and continued development of green tourism. The revitalization and strengthening of urban-rural linkages is a closely related aim promising mutual benefits.

Implementation

At the beginning of 2002, 18 model regions were chosen by a jury out of more than 200 on the basis of the quality of their concepts for integrated and sustainable regional development. The design of the pilot program as a competition encourages regions to demonstrate greater innovativeness in their development concepts and methods of implementation. The concepts presented had to be agreed upon at regional level by those actively involved, including the major regional interest groups. Adding value to natural resources had to be part of the regional strategy. The winning regions receive an annual grant of approximately 1.5 million euros over a three-year period. The Federal Ministry is providing a support framework actively backing up regional development activities including a regional management structure and the implementation of innovative core projects (BMVEL 2002, p. 9). The support mechanism tries to encourage community participation and action, to foster local and cooperative initiatives at all levels and to facilitate the creation of new alliances between the relevant groups and joint action. Detail steering is delegated to the regional level, in accordance with the principle of subsidiarity. Thus, overall federal government interests are safeguarded while the regions are given greater responsibility.

Cooperation structures – the regional partnerships – provide the organizational basis for the implementation of the program (BMVEL 2002). The specific organization in the individual regions is run by a group representative of those who are actively involved and holding decision-making



Source: Based on BMVEL (2001b).

Figure 17.1 Overview of organizational structures in a typical model region

power. A regional public body, often the district authorities or the agricultural office, has the responsibility for financial management and budget administration. Regional management teams play a critical role as agents of networking and skill building. They support the development and inter-linking of projects and work with the relevant bodies within the regional partnerships (Knickel et al. 2004b, p. 8). Figure 17.1 provides a scheme of these newly formed structures which are expected to provide the foundation for longer-term involvement and co-operation of regional actors in regional development processes (BMVEL 2002, p. 8). Regional actors themselves taking charge of the development of their region is a fundamental aspect of the pilot program.

There are several advantages to obtaining the participation of these regional actions. Regional actors have more precise knowledge of existing resources and constraints (Adrian 2003; Enright 1996). Partnerships can function as motors of innovation because they integrate different perspectives and competences, which single institutions fail to do. Thus, they are

increasingly becoming important as the basis for processes of regional renewal and development (Champetier and Janot 1997).

Regional Action as a Bottom-up Approach to Sustainable Regional Development

The Regional Action program is an example of the supplementation of state intervention with less institutionalized mechanisms of coordination. Framework steering replaces traditional interventionist policies, territorially and function-oriented measures replace sectoral ones and more attention is devoted to regional markets than simple integration in vertical production chains. The regional level initiative remains at the same time embedded in the greater EU and global context (Künast 2001). The underlying idea is that the mobilization of endogenous regional development potentials can counterbalance the negative effects of globalization. The experience gained indicates that this can also contribute to the effective realization of environmental and social objectives that tend to be neglected at the state level (Fürst 2001a; 2001b).

The relevance of the region as a level of action can be explained in terms of the complexity of an integrated, economically, ecologically and socially sustainable development which calls for cross-sectoral approaches. In contrast with higher levels, this complexity is still transparent at the regional level and actors can still comprehend the intertwined dimensions. Because of the proximity to the regional situation and problems as well as direct perception of interrelations, changes and impacts, the motivation and involvement of the relevant actors, stakeholders and the population can be achieved more effectively from within the region (WWF 2002).

The regional partnerships established in each model region support the intersectoral and multidisciplinary exchange of information, interlink key actors and groups and help raise awareness of the regional development process. They initiate new development approaches expressed in arrangements and negotiations between different actors and groups and also serve as an instrument for the creation of social cohesion. Instead of participation of all, the partnership ideally represents the various regional interests as a regionally acknowledged group. New relationships between groups and sectors that had formerly acted separately have been formed and are still being formed. The pilot program also contributes to a heightened awareness of specific regional potential and identity which helps uncover and exploit new possibilities for amenity-led rural development. Regional identity is used as an economic development tool which is linked to the enhancement of regional landscapes and biological conservation values.

The Regional Action program builds on the success of the EU Leader program which was initiated in 1991. The Leader program was the first integrated, regional and bottom-up-oriented rural development initiative implemented in Europe. It has been designed to help rural actors consider the long-term potential of their regions. Its main objectives are to improve the quality of rural living conditions and to make rural economies more competitive (EU 2004; Deutsche Vernetzungsstelle Leader 2004). The Regional Action program explicitly focuses on sustainable agricultural production, rural amenities and the reorientation of agriculture towards quality, nature conservation and new societal demands.

ROLE OF RURAL AMENITIES IN THE REGIONAL ACTION PROGRAM

Rural Amenities Promoted by the Pilot Program

Increasingly, managing the European countryside is comprehended as not being the responsibility of farmers alone. It calls for a public debate on the possible role and contribution of different types of actors (farmers, landowners, societal groups, nature conservation organizations and volunteers). Rayment and Dickie (2001) underline the important role of nature conservation for rural development in the UK, where it supports employment and local economies. There are various benefits, for example, direct employment in the nature conservation sector or positive effects of an intact environment on rural tourism.

The integrated approach of the Regional Action pilot program aims at reconciling diverse regional interests. Natural amenities benefit as actors from different sectors, such as nature protection, agriculture and tourism, cooperate in joint projects. Thus, natural resources constitute added value for environment-friendly use while their viability is secured. Conservation practices contribute to the economic competitiveness of agricultural enterprises by enhancing the use of natural resources but also by capitalizing on environmental assets through tourism, for example. The model regions' landscape potential offers visitors possibilities for recreation, sports or nature education. Visitors from the city find a space that counterbalances the negative aspects of urban living. They can purchase fresh, high-quality food from nature-friendly production on farms or at farmers' markets in the city. The preservation of rural landscapes attractive for rural living and tourism is an important goal in all model regions, the latter being a promising economic factor.

Table 17.2 Contents and beneficiaries of Regional Action projects

	Number of projects	Share of projects (%)
Project can be categorized as . . .		
Concept development, planning, information, facilitation	286	73
Investment	84	21
Regional agri-environmental scheme	8	2
Other	15	4
	393	100
Main concerns of the project are . . .^(a)		
Agriculture and nature conservation	100	25
Regional and direct marketing	191	49
Non-food production and renewable sources of energy	80	20
Eco-tourism	136	35
Information, qualification	194	49
Other	12	3
Direct beneficiaries of the project are . . .^(a)		
Communal bodies	274	70
Farmers	239	61
Small and medium enterprises	158	40
Other	88	22

Note: (a) Projects were counted for more than one category if matching.

Source: Own compilation based on www.modellregionen.de (25 May 2004).

Some Project Examples from the Model Regions

Table 17.2 provides an overview of the almost 400 projects implemented so far. In the model regions almost half of all projects have regional/direct marketing and information/qualification as one of their main concerns. In 136 projects (35 percent) development of ecotourism plays a major role. Many projects have more than one major concern thereby linking different development strategies. The same applies to the direct beneficiaries of the project; often it is a number of actors that benefit.

Table 17.3 provides a more in-depth overview of the actual development interfaces that are addressed with the projects. A share of 31 percent focus on adding value to natural resources, and 17 percent stress adding value to

Table 17.3 Development interfaces addressed in Regional Action projects

	Number of projects	Share of projects (%)
Project aims at . . .		
Adding value to natural resources	120	31
Adding value to landscape through eco-tourism development	67	17
Improved interrelations between nature and agriculture	82	21
Improved interrelations between nature and regional development	20	5

Note: Projects were counted for more than one category if matching.

Source: Own compilation based on www.modellregionen.de (25 May 2004).

the landscape through tourism. Twenty-one percent are located at the interface between agriculture and landscape/nature.

Regional Level Agri-Environmental Schemes

Agri-environmental schemes (AES) started in the early 1980s when communal and district-level programs concentrated on landscape management and nature conservation. Most of these programs focused on specific goals such as the maintenance of particular habitats and were based on site-specific management agreements with farmers. Since the introduction of Regulation (EC) 2078/92 all EU member states are obligated to implement AES within their territory. AES reflect the stipulation in Article 130r(2) of the European Treaty that environmental protection should be a component of community policies. The Regulation acknowledges that farmers have an important function as stewards of the environment and the countryside. They are being financially rewarded for landscape management and preservation practices.

In order to reduce transaction costs there has for some time been a trend towards zonal programs implemented at the EU member state level. The main problem is that more centralized, horizontal schemes are less likely to reflect the diversity of the environment and to meet the particular needs for nature conservation. The regional variations of agriculture and of types and intensities of land use, however, demand a regionally differentiated agri-environmental support framework. Thus, an important question is

how regional and local level actors can be involved in the differentiation and fine-tuning without leading to a disproportionate increase in administration and control costs.

A second important impulse for regional level planning and implementation is the need for complementary support measures aimed at the promotion of structural and longer-term changes. Examples are the improvement of decentralized, regional and local marketing structures, the introduction of structural changes in farming systems, the establishment of biotope networks in mixed farming areas and the gradual reduction of very high livestock densities in some regions. Again integration of various rural development and agri-environmental measures can be achieved more effectively at the micro-regional level.

Several model regions have attempted to develop new approaches addressing these two demands. Although related projects account for only 2 percent of all projects implemented so far, they are nonetheless important steps in this direction. Some examples are:

- Concept for new agri-environmental measures in the Eifel region (December 2002 to August 2003): The objective of this is to conceptualize region-specific measures for the conservation of the particular landscape as well as supporting renewable sources of energy. The project also aims at opening up new employment opportunities in the field of landscape and biotope management and it comprises the development of a regional umbrella brand name under which products from extensive agriculture are being marketed.
- Nature-friendly grassland management in the Odermündung region (January 2004 to June 2005): This project is directed at management concepts for the different regional types of high-nature-value grassland. This is expected to contribute to the economic competitiveness of agricultural enterprises and, at the same time, to the maintenance of the region's cultural landscape. Emphasis is on the realization of concepts through active participation of dairy and beef farmers. Results from the project are expected to be applicable to other grassland regions.
- Amelioration of soil erosion on agricultural land in the Sächsische Schweiz region (November 2003 to November 2004): Floods resulting from heavy rain and melting snow have in the past negatively affected the regional water quality and led to soil erosion and blocked roads. The main objectives of the project are therefore flood prevention as well as measures for natural flood retention areas.

Agri-environmental schemes are a good example of a mechanism for mobilizing endogenous regional development potentials. Target groups and actors at the local level (ecologists, nature conservationists, farmers, planners) are involved in the design of the schemes. Environmental institutions and nongovernmental organizations are directly involved in planning, decision making and the actual implementation. The same actors are also involved in monitoring and evaluation, which establishes a continuous learning process for the improvement of natural resources management. Farmers themselves become more concerned with environmental improvements instead of just complying with management restrictions. Simultaneously, more public support for measures regarding biological and landscape diversity is being created.

Project Examples for Adding Value to Natural Resources through Eco-tourism and Renewable Sources of Energy

The overall orientation of the program to create new sources of income in rural areas through diversification and to increase the regional added value while preserving natural resources. In addition, the projects have a strong cross-sectoral alignment. Some examples are:

- Combination of nature protection and eco-tourism in the Altmark region (February 2003 to February 2004): The background of the project is the high nature and landscape potential of the Altmark region in one of the new federal states (former East Germany). The area comprises three nature reserves of supra-regional importance. The promotion of nature-friendly tourism aims at adding value to regional nature and landscape potentials by connecting existing tourism projects in the three nature reserves and by their realignment towards sustainable, environment-oriented programs to be established in the marketplace. Within several months the new regional label Stork Country Altmark (Storchenland Altmark) was established. One of the first lessons is that the activation and connection of existing offers (and actors) is at least as important as the creation of new offers. The project tries to link ecological and agricultural interests through increased involvement of farm households in regional tourism. On-farm and farmer-operated provision of accommodation and other services include farmhouse bed and breakfasts, guesthouses, farmhouse self-catering, farm-based camping and campsites, visitor farms/museums and farm-based leisure activities. The regional added-value is expected to increase in the medium run as a result of a heightened attractiveness for visitors increasing the demand for such newly-established offers.

- Network for renewable sources of energy in the Barnim-Uckermark region (April 2003 to March 2004): The generation and distribution of energy in the Barnim-Uckermark region, located close to the Altmark, is at the moment dominated by large facilities. Yet there is potential for environment-friendly, renewable and decentralized forms of energy generation which have been neglected up to now. The purpose of the project is to realize this potential in order to increase the regional added-value and to retain income from the energy sector within the region. Various initiatives for alternative energy collection are still operating side by side in the region in an unconnected manner, and market access for small enterprises is difficult. This project establishes a regional-level network with the purpose of cross-sectoral cooperation and knowledge transfer for the use of renewable sources of energy. In addition, pilot and demonstration facilities for the processing and use of renewable sources of energy have been established and the University of Applied Sciences of Eberswalde has developed a qualification program in cooperation with external experts.
- Hiking for nature protection and environmental education in the Reutlingen region (March 2002 to May 2005): Reutlingen is located in southern Germany. It has 140 kilometers of attractive, well-maintained long-distance hiking trails. The idea behind the project is to use this tourism infrastructure more effectively for nature protection and sustainable development goals. The expected medium- and long-term effects of the project are an increased demand for regional products in the restaurants along the hiking trails as well as in direct marketing facilities. It is also hoped that the project will create a heightened awareness and appreciation of the local landscape, food products and culture. Finally, the project will promote new alliances and cooperation between local authorities, gastronomy, agriculture, tourism businesses and nature conservation groups. Future cooperation efforts with schools for environmental education as well as connections with other regional tourism initiatives are planned.

WHAT DO THE MODEL REGIONS TEACH US?

The model regions teach us that new forms of development are possible. It is not surprising that the Regional Action program is one of three major initiatives that constitute the core of the German Sustainable Development Strategy. New societal demands expressed, for example, in the Biodiversity Convention, the EU Flora–Fauna–Habitat Directive and the EU Water

Framework Directive are being addressed. In many projects the guiding principle is the decoupling of economic growth from increased resource consumption and the linking of environmental interests with economic developments through the active creation of synergies. Regional level processing and marketing, short chains and community-supported agriculture provide new opportunities for green and local products in the market place and an alternative to increasing standardization in mainstream production and markets (Van der Ploeg et al. 2002). The Regional Action approach as a whole secures the two central principles of sustainable regional development: stimulating innovation in a goal-oriented manner and allowing for subsidiarity (WWF 2002).

The model regions and projects also demonstrate the applicability of multifunctionality of agriculture and rural space for practice. Multifunctionality emerges as a redefinition of identities, strategies, practices, interrelations and networks. Sometimes this redefinition rests on a historically rooted, but marginalized cultural repertoire. In other situations it is based on highly market-oriented responses that embody a general or partial reconceptualization of what farming should be in the context of the new ties emerging between town and countryside. In this respect, job creation in rural areas is not so much a function of natural resources, rural amenities or infrastructure, but of local people and entrepreneurship (Brunori and Rossi 2000; Knickel et al. 2004b; Van der Ploeg et al. 2002).

The model regions demonstrate the multidimensional nature of these activities and that a strict segregation of different functions (living, production, recreation and nature conservation) is less and less realizable. Instead, new forms of multifunctionality are (re)emerging which, taken together, can result in the construction of a new resource base at the regional level. The related reconfiguration of resources often goes beyond the individual farm gate (Knickel and Renting 2000). Tourists enjoy the beauty of the landscape (aesthetic function), drinking water schemes try to keep water clean (abiotic function), diversity of flora and fauna is perceived and protected as a valuable good (biotic function) and farmers still use the land for production and income generation.

Local and regional level actors see the greatest threat to these new developments in the overall trend towards concentration and globalization of the larger agricultural economy. These processes clearly put substantial countervailing pressure on quality, price and cultural and regional distinctiveness. Regional shops that provide the population with high-quality foodstuffs of local origin have to compete with mega-retailers and food service companies acting as effective gatekeepers to the entire agri-food chain.

Towards a Reconstitution of Nature–Society Relations

What factors created such an initiative as the Regional Action program? There have been a number of developments in society that have led to a reevaluation of agricultural and rural development goals. First, food production has become less of an issue in terms of supply. Recent food crises clearly demonstrate that today agricultural production is being assessed more in terms of food quality and food safety. Second, environmental issues, the consumption of nature and standards of living in rural areas have become much more important. Today, the more traditional, less intensive and more diversified forms of agriculture that are better adapted to natural conditions are well-regarded because of their substantial environmental advantages. The fact that they are less productive no longer seems as important. There is also acceptance of the fact that, without farming, the maintenance of high-nature-value areas and semi-natural pastoral habitats would hardly be possible or would be very costly. The synergies between farming and nature conservation have become very strong because both sides benefit from it. Third, the idea of sustainability has led to a reassessment of the use of natural resources. As a result, less intensive and more diversified forms of agriculture are now well regarded because they tend to be better adapted to natural conditions and because of their more favorable linkages with integrated development in rural areas (Knickel 2001). The projects that are being implemented and the entire initiative indicate that agriculture and, more generally, the potential of rural areas, are no longer being evaluated in monofunctional terms.

The rediscovery of the multifunctionality of agriculture is mainly a result of societal changes. There has been a rediscovery of farming as more than just a monofunctional activity involving (food and non-food) production. More than other economic activities, it produces a range of goods and services including those amenities that are appreciated by society but that do not have a real price in the market. Regional actors perceive a balanced economic development as a precondition for strengthening the role of farmers as producers of services, landscapes and biodiversity. High quality agricultural production with a high added value is regarded as a key to balanced development. Regional products are advertised with a high-nature-quality image which is in line with the promotion strategy of tourist agencies and the local catering and restaurant sector. The high-nature-quality image supplies a unifying concept for creating coherence between the various activities.

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18. Rural policy issues

Joan M. Brehm

Several fundamental issues underlie the papers in this book:

1. How do we identify or define a natural amenity?
2. At what scale is a value afforded to that amenity?
3. What level of policy is most effective in the protection or management of that natural amenity?
4. Who bears the cost/burden of natural amenity protection?

IDENTIFYING OR DEFINING A NATURAL AMENITY

Before any discussion of policy is undertaken it is critical to be clear in our understanding of how we identify or define a natural amenity. In light of this, several issues deserve consideration. First, a basic recognition of the role that culture plays in our relationships to natural amenities and the formation of values that we place on them are essential. Several of the chapters demonstrated this very well but it is something that needs further attention. For example, a recent paper indicated that there were statistically significant differences between Mormon and non-Mormon populations on a variety of measures of local environmental concern. The paper shows that the Mormon faith and its embedded cultural components were meaningful predictors of comparably low levels of local environmental concern within the region studied (Brehm and Eisenhauer 2004). Variations in concern over the local context may also reflect underlying variations in how individuals define or identify natural amenities. The significance of this in relation to policy is the need to account for regional variations in culture and associated disparities in the identification or definition of a natural amenity. This potential variation must be acknowledged and given consideration in how we incorporate the use of the concept of natural amenities in policy applications.

Knickel and Peter (Chapter 17, this volume) provide an exemplary illustration of the need for such consideration in the development of policy

through their discussion of amenity-led development in rural Germany. Of notable importance are the acknowledgment of significant regional differences throughout Germany which influence how a natural amenity is both identified and defined, and the subsequent incorporation of this variation into policy. Knickel and Peter note that 'rural areas are characterized by a large range of diversity, a fact to which policy-makers have not always given sufficient consideration in the past' (p. 306). I suggest that the program analysed by Knickel and Peter represents a shift away from a single common policy applicable at a uniform level towards recognition by policy-makers that such regional differences exist and are important considerations in policy development. Although Knickel and Peter highlight a European example in their research, this holds important significance for application in the US as well, as rural areas increasingly represent a vast diversity of culture, people, social strata and environments which influence cultural values and attitudes (Flora et al. 2004). One standard natural amenity and rural development policy will undoubtedly not adequately address these variations in culture and context and will not serve all places equally.

SCALE OF VALUE AFFORDED TO NATURAL AMENITIES

Second, and related to culture, is consideration of the scale at which a natural amenity is identified and defined. This too has significant implications for the development and implementation of policy. Specifically I refer to Beckley's (1998) work on the nestedness of forest dependence and suggest that there may be some conceptual framework parallels that could be drawn in the analysis of natural amenities. As Beckley argues, 'the nature of forest dependence changes when examining progressively smaller units of analysis' (1998, p. 101). A similar statement could be made about a rural community's relationship to natural amenities. For example, as several chapters have noted, it is often hard to give an economic value to a particular landscape in relation to a broader population that simply takes emotional satisfaction in merely knowing it exists but may reside in another state or nation and only visit this natural amenity landscape a few times during their lifetime, if at all. In contrast, that same landscape may hold a much more tangible and quantifiable value for individual local rural residents who rely on it for subsistence, forage for livestock, arable land for cash crops, commodities such as timber or minerals, or wildlife for an outfitting/guide service and income-generating recreational opportunities. Application of Beckley's framework with some modifications would be a

useful approach to understanding the complexity of natural-amenity dependence and may also help in reaching a clearer definition.

The importance of scale and the significance of local context are demonstrated by several chapters. Eric Olson (Chapter 16, this volume) highlights the significance of a local context in his discussion of the appropriateness of localism within the realm of resource protection and Smith and Spandoni (Chapter 14, this volume) use a community-level approach in their analysis of the effectiveness of a variety of locally-implemented land-use policies. Olson uses the specific example of housing density impact on water quality in a region that has a high concentration of lakes in Washburn County, Wisconsin. He effectively demonstrates that the seemingly preferred alternative of clustered development may actually prove to be more harmful to water quality in this region and zoning for larger lot sizes with a lower percentage of impervious surfaces that create problematic runoff may be more appropriate. Although this discussion and analysis makes sense in its specific context, it has the added benefit of demonstrating the significance of scale and context-specific land-use policy in a localized framework. For example, in areas throughout the Rocky Mountain West, such sprawling development and large lot sizes may actually be ecologically detrimental as they often serve to severely fragment crucial habitat and migration corridors for species such as grizzly bear, elk or lynx (Mitchell et al. 2002). Land-use policies as they pertain to lot sizes can have significantly different impacts depending on the context, implementation, and the purpose or intent of the management action.

In the case of Washburn County in Wisconsin, the primary objective is protection of water quality within the numerous lakes that are a significant part of their social and cultural heritage. In other places such as those identified by Smith and Spandoni, emphasis is placed on different natural amenities with different cultural and social meanings, such as forested landscapes, wildlife, or recreational access. These unique places and priorities require unique and diverse approaches to land-use policy. This further supports Olson's defense of localism in that a localized approach allows for consideration and adaptation to the unique social, cultural and ecological priorities of a region. A community or place-based approach to the management of natural amenities allows for consideration of the specific values that are embedded within the cultural and social context and allows these to be nested within a larger policy framework.

The focus of this book is on rural development and the chapters all focus on natural amenity issues specifically within a rural context. It is important to not rely so heavily on a strict rural/urban dichotomy in our analysis. As much research has demonstrated, rural areas are growing in large part due to in-migration from more urban or suburban contexts (Johnson and Beale

1994; McGranahan 1999; Rudzitis 1998). These new residents bring with them a diverse set of values and attitudes that often have more commonalities with their new rural neighbors than might be expected. For example, Jensen and Field (Chapter 15, this volume) demonstrate that there is very little difference in core attitudes, values and beliefs of both local and seasonal residents and newcomers and long-term residents in the Pine Barrens region of Northern Wisconsin. This supports previous empirical work that found little evidence in support of the culture clash hypothesis, but instead found fairly similar levels of environmental concern among both long-term and more recent newcomer residents in the rural Rocky Mountain West (Smith and Krannich 2000). Understanding similarities and differences in values and attitudes in relation to the management and development of natural amenities is also a critical initial step in the development of effective policy. The work of Jensen and Field also highlights the importance of scale, focusing first on the individual level of basic values and attitudes.

LEVEL OF POLICY

A third issue illustrated by the chapters is the challenge of developing a level of policy that is appropriate for both the management of natural amenities and compatible rural development. Unfortunately, as the variety of chapters has demonstrated, I suggest that there is not any single prescriptive that can serve a uniform purpose in a variety of regions, cultures and contexts. Even so, policy does play an important role and more attention should be given to policy development that is responsive to the unique needs and contexts of high-amenity areas. In regards to the management of natural amenities and related land-use policies, I suggest that one important element in the development of such policy is to be more proactive rather than reactive. For example, the Endangered Species Act (ESA) of 1973 does not deal with species protection until they cross a threshold of being threatened, and then they must resort to relying on heavy policy and regulation which is often viewed as iron fisted and restrictive, particularly in areas where communities rely heavily on the natural environment for a variety of economic activities such as farming or recreation (Daniels and Brehm 2003). Land-use management plans that are proactive in dealing with potentially harmful growth and development are likely to have a greater chance of buy-in and success at the local level rather than reactive policies that try to command change in a more authoritative fashion with little or no local involvement.

Smith and Spandoni (Chapter 14, this volume) in their evaluation of the effectiveness of specific land-use policies found that the most commonly

supported techniques were ones that evolved primarily from the local level itself in a more proactive fashion. For example, comprehensive planning and various forms of zoning regulations were generally agreed upon as being effective compared to techniques that require more state-level involvement and external administration such as real estate transfer taxes. Related to that, policies may have a higher likelihood of local support and buy-in if they are developed in collaboration with local communities on a more regional scale. A regional approach (at a cultural and/or ecological level) may serve to foster more collective action yet can still maintain focus on the unique aspects or issues of a particular place. Knickel and Peter (Chapter 17, this volume) presented an interesting illustration of this type of approach in Germany through the Regional Action Pilot Program. Jensen and Field (Chapter 15, this volume) also highlight the need and support for regional planning policy that allows for and encourages local input in the Pine Barrens region of northern Wisconsin.

Underlying this search for the appropriate level of policy is also the ongoing need for further evaluation of existing and new land-use and rural development policies. Smith and Spandoni (Chapter 14, this volume) have taken a very important step in this direction, particularly in allowing the community members themselves to incorporate their own perspective of what is effective in relation to the preservation of natural amenities. This evaluation approach also effectively incorporates the unique cultural and social contexts of each area by allowing those to emerge within the residents' own definition of natural amenities and effective management. It is only through such evaluation that we will be able to further enhance and define the most appropriate level of policy for the preservation of natural amenities and associated rural development.

COST OR BURDEN OF NATURAL AMENITY PROTECTION

The final issue that seems to span the scope of the chapter in relation to policy is one of equity and justice, a broader question of who bears the cost or burden of natural amenity preservation (assuming that everyone even agrees on the basic premise of the need for such protection). This discussion could draw in part from the environmental justice discourse which I suggest has some relevance within the context of rural development and natural amenities. Although environmental justice typically has been applied within the context of a correlation between race, class, facility siting decisions and toxic exposure, I suggest it holds relevance here as well. For example, in high-growth rural areas with a history of agriculture and

associated open space, is it fair to lay the economic responsibility solely on the private landowner to *not* sell his land for further development so that the current residents can enjoy certain landscapes and associated quality of life elements without bearing any of the cost themselves? In an economy that increasingly necessitates large-scale corporate agriculture to survive, small-scale family farmers in rural areas increasingly find it difficult to compete in the commodity marketplace and often are faced with very little choice but to sell their land at top dollar for further development. Yet the conversion of agricultural land to uses such as housing developments is frequently met with resistance at the community level as local residents see their natural-amenity driven quality of life disappear with more sprawl, traffic and associated social problems. If these landscapes and associated natural amenities hold such value to communities, a more equitable system of support and preservation needs to be explored.

An example of how this change within the policy realm is starting to occur is provided by Knickel and Peter (Chapter 17, this volume) who acknowledge a shift within European policy towards the comprehension that management of the European countryside is no longer the exclusive responsibility of farmers alone. There is increasingly a recognition of the multifunctionality of agriculture, moving beyond simply providing a specific agricultural commodity to a recognition of the landscape itself as a service provider to rural areas and the broader public in terms of quality of life elements such as open space, landscapes that enhance clean air and water, and pleasing scenery and environments for general health and well-being. Beneficiaries of these quality-of-life elements extend beyond the land owner and adjacent rural residents to people throughout the region that may visit or vacation in these areas and often rely on these areas as the source of clean water and other ecological benefits for more urban centers. Therefore it makes sense that support to protect such important natural amenities should not be the sole responsibility of the individual landowner but rather should be more equally distributed amongst potential beneficiaries.

The issue of who bears the cost of natural amenity preservation is directly linked to the previous discussions on policy. It is often difficult for any community, especially rural communities that may be at an economic disadvantage, to provide economic means of substance to preclude private landowners from selling critical land and related natural resources to the highest bidder. The cost of natural amenity preservation will require support from a larger policy level that places preservation of such amenities as a regional or national priority. The true challenge is for such policy to be both proactive and simultaneously cognizant of the local culture and context through the involvement and buy-in of local stakeholders, maximizing the potential for successful implementation.

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19. Amenities and rural development: policy implications and directions for the future

David W. Marcouiller, Steven C. Deller and Gary Paul Green

Amenities such as mountain landscapes, lakes, forests and open space exist within a complex set of interrelationships that are increasingly important in understanding changes in rural regions. During the 1990s there has been increased interest in the role of amenities in rural development. Whether thought to be driven by unprecedented growth in leisure travel, overall maturation of a post-industrial society, globalization or a lack of alternative rural opportunities, there is little disagreement that a paradigmatic shift is underway in how we view land-based rural resources and the developmental determinants of amenity-rich rural regions. The expanding literature that addresses the extent, impact, and causes of natural amenity-driven rural development has been criticized for its lack of a conceptual base. Although there is an expanding and fairly sizeable amount of good empirical work, it has been difficult to develop generalizations that can inform public policy.

We have several objectives with this volume. We are interested in advancing discussions related to key shortcomings, integrative needs and interdisciplinary opportunities with respect to the topic of amenities and rural development. First, we included presentation of the alternative theoretical approaches that produce generalizations about amenities and rural development. Second, we were interested in measurement and tracking of both the extent of amenities and their effects on the rural condition. Finally, we addressed the development of more informed public policy that is appropriate for application to rural contexts.

We recognize that these objectives span a wide set of theoretical, empirical and public policy disciplines. Our challenge was to approach the topic of amenities and rural development from an interdisciplinary perspective. This perspective attempts to span the often disparate and contentious academic mineshafts of sociology, economics and environmental science.

Throughout this collection of writings, the authors address several questions related to the role of amenities in rural growth and development. What types of amenities are most likely to generate growth and development? Is amenity-led development sustainable? Can amenity-led development be compatible with extractive industries, such as agriculture, forestry and mining? Are residents in amenity regions necessarily disadvantaged with respect to wages and unemployment? What policy tools work best in these settings to reduce the negative effects of growth on amenities? We have some answers to these questions, but the research presented in this volume has raised several new questions.

In this closing chapter we attempt to accomplish three things. First, building on the individual chapters in this volume and the ensuing discussions, we draw some general conclusions across this body of research. Second, we identify several potential future areas of need that span both research and more informed public policy. Finally, we conclude this chapter by synthesizing these various elements.

OBSERVATIONS AND GENERALIZATIONS

It is difficult to develop a general theory of amenities based on the work in these chapters. Each chapter tackles specific issues and contains a wealth of information and implications for both research and public policy. This said, there are some observations and generalizations that we can offer from both the written works as well as the ensuing discussions that took place during the conference. These suggest a wide range of both disciplinary and interdisciplinary approaches and various levels of integration. As both a summary of the chapters and in the effort to organize our conclusion, we will proceed following the initial organizational framework of theory, empirical issues and public policy.

Theoretical Approaches to Amenities and Rural Development

Perhaps the key theoretical contribution of these chapters has been the elaboration of the concepts surrounding the multidimensional nature of amenities in rural areas. These concepts include multi- or pluri-functionality, joint production and additivity which builds from the ongoing efforts of a small number of academics and most notably being operationalized throughout the European community and reported in an excellent series of reports published by the OECD. Another is a more clearly described set of conceptual issues related to natural amenities within the realm of stages of development, the Environmental Kuznet's

Curve. Finally, there is a somewhat related but rather aggregate and general need for microeconomics work to sort out the role of amenities with respect to labor markets and wage/rent equilibriums.

Specifically, the following theoretical conclusions can be drawn:

- Multi- or plurifunctionality forces the issue of how various productive elements of the rural landscape work together, interact with one another and collectively contribute to the rural condition. These productive elements span both commodity (market-based) and amenity (non-market-based) realms.
- Production of amenity resources is critically involved within the joint production aspects of traditional rural activities such as farming and forestry. A multifunctionality perspective of the rural landscape tacitly incorporates joint productivity and rests upon a varying set of compatibility concepts.
- Compatibility of alternative rural productive elements involves the interrelationships of joint production. The spectrum of compatibility runs from the positive (complementary and supplementary) to the negative (competitive and antagonistic). Understanding compatibility is a necessary prerequisite to the conceptual elements that underlie public policy that attempts to maximize benefits and ameliorate conflict.
- Community attachment within high-amenity areas includes not only natural but also historical and cultural attributes. Attachment is tied to both the socio-cultural and ecological landscape.
- Distributional theories provide important explanations of how amenity-led rural transitions affect traditional rural populations.
- Economic growth provides an important element of contemporary economic policy, it is but one of many elements associated with the broader realm of community development. Community well-being, decision making, distributional elements and class provide the more complete set of elements needed to address the developmental dimension.
- There appears to be a relationship between use of (and value for) amenity resources and the stage of development that characterizes both the rural region and the corresponding regions that present demands for rural amenities. Theoretical foundations that capture amenities and temporal change suggest that high-amenity resource demands correspond to latter, or more mature, stages of development.
- Economic characteristics of rural regions that capture wages, employment and rent are apparently correlated with the presence of amenities. Aggregate microeconomic theory suggests that people

consciously trade off high-amenities for wages earned, rents paid and willingness to experience periods of unemployment.

Each of these conclusions begs for additional conceptual work to improve upon and more completely reflect/explain the various phenomena associated with amenities and rural development. This expanded theoretical basis is a necessary prerequisite to forwarding broader, more generalizable expectations upon which empirical work can be based and upon which more informed public policies can be crafted.

Empirical Issues

Generalizations can focus on the need for standardization of how we measure both amenity incidence and development attributes. For example, Goe and Green find that localities with higher levels of warm weather, outdoor recreational amenities and historical/cultural amenities tend to have higher levels of growth in locality well-being. Dissart and Marcouiller find that areas with high levels of natural amenities but lacking recreational sites will not necessarily experience higher levels of growth. Deller and others suggest that empirical evidence supports the notion of convergence in growth among amenity areas as low-cost areas tend to grow faster than high-cost areas.

Based on this work, the following conclusions can be drawn:

- Amenity-based growth can lead to several paths, based largely on proximity to urban areas and the type of development occurring (seasonal homes, retirees or tourist destination).
- Empirical research has raised questions about the assumption that long-term residents of high-amenity areas and seasonal residents or in-migrants form two separate communities within the same place. Over time community integration may develop. The distinctions between permanent and seasonal residents may be based on generational and/or class differences.
- There are differences in the occupational and income structure of those from the outside who demand amenities and those who are traditional residents of high-amenity rural places. Clearly, this would color how natural amenities are viewed relative to other sources of rural economic reliance.
- As amenities become a larger element of what defines sense of, and attachment to, place, traditional economic growth models do not seem to work well. To fully understand the role of amenities requires an interdisciplinary approach.

- Spatial proximity to growing urban areas may increase the benefits from an endowment of amenities. Remote rural areas may be at a disadvantage when attempting to build upon amenities.
- Our measures of amenities vary widely and do not completely reflect the underlying rural condition.
- Migration is a key element associated with amenities and rural development but the exact linkages remain elusive. Rural areas are quite heterogeneous. They face a range of employment opportunities, wages and unemployment, tradition and culture, and other attributes that act in concert with a rural region's amenity resource base.

Informed Public Policy

Amenities evade simply policy prescriptions because of their non-marketed attributes. Key characteristics that confound public policy relate to the notion that amenities tend to be non-exclusive; specifically, they often exist as common pool resources that necessarily suffer from overuse and free-riding. The following items are some general conclusions based on the chapters:

- Public policy needs to focus on maximizing complementary and supplementary multifunctional uses while minimizing antagonistic uses of amenities.
- The distributional implications of amenity-led transitions are important considerations for policy, both within and between communities.
- There remains considerable debate over the appropriate policy level for managing and supporting amenities. Some argue for local control to protect and enhance amenity resources, while others point to the public good nature of most amenities which demands a regional or even national approach toward policy.
- The non-market attributes of natural resources provide the basis for amenity-based public policy. Our ability to address non-market goods is based on providing the ability for exclusion through licensing, regulation, and/or user fees.

FUTURE RESEARCH ISSUES

Explaining the dynamic process of amenity-led growth and development entails a complex set of interrelationships that evade simple characterization. The wealth of empirical evidence and abundance of case studies has allowed us to develop an inductive understanding of the amenity and

growth and development process. Lacking, however, are robust deductive theories that predict the role of amenities in the developmental process of rural communities.

It was argued by some that the temporal aspects of amenities have not been fully recognized in the literature. One theory posits a curvilinear relationship between levels of economic growth and environmental degradation. Following the logic of Kuznet's stage of development discussion of the relationship between growth and income distribution there appears to exist a clear and predictable pattern between growth and amenity-use (and value). In a subsistence economy, there tends to be very little amenity-use, but as the economy begins to grow, pressure is placed on the environment in the form of pollution and resource extraction. As the economy grows, pollution and environmental degradation climbs. At some point higher incomes become associated with a demand for environmental protection and an increase in amenity values. Shifts in technology and demand structures infer a renewed interest in amenity-based resources derived from the rural landscape.

For our perspective the demand for amenities and more importantly amenity management serve as a mirror image to environmental degradation. At low levels of income, or early stages of development, the demand for amenities is low. In this stage, the extractive value exceeds the amenity value. At some point along the growth spectrum production technologies along with tastes and preferences will change sufficiently such that environmental protection becomes a social priority and environmental degradation starts to decline. The resulting relationship follows the stages of development process offered by Marcouiller and Clendenning. This line of theoretical and empirical work can provide guidance for furthering our understanding of the interaction between amenities and growth and development.

One of the fundamental issues that needs to be addressed is a coherent and broadly acceptable definition of amenities and corresponding sub-classifications. For example, in numerous studies described in this volume, natural, built, cultural and historical amenities are all subcategories of amenities. Unfortunately, the distinctions are not theoretically consistent. In addition, at least one study concluded that attachment to place is not defined purely by one type of physical amenity such as forests and lakes, but by a blending of socio-cultural and natural amenities suggesting that distinctions may be artificial.

These distinctions are important not only to clarify research, but also from a policy perspective. For example, policies cannot be crafted to alter climate or geographic topography, but policies can be crafted to influence the uses of amenities through recreational development. As such, is

research aimed at better understanding the relation between natural amenities and growth and development misdirected? Should the focus of the research be on amenities over which policies can be crafted?

What is the potential for the fledgling field of ecological-economic-social modeling? Researchers concerned with modeling the functioning of the ecosystem have been exploring ways in which to integrate the socioeconomics of the region into their modeling. Can these approaches provide a more rigorous means to think about and model amenity damage functions? This type of modeling approach might be able to more rigorously link amenities and economic well-being in a way that policy scenarios could be explored. In addition, the concept of sustainability becomes not only clear conceptually but also more meaningful from a policy perspective.

IMPLICATIONS FOR MORE INFORMED PUBLIC POLICY

Among key outcomes of the amenity and growth/development research agenda are insights into effective policies that can foster sustainable growth and development which builds on the relevant amenities but at the same time does not consume or destroy the amenity through the growth process. The policy debate is decidedly muddled. As discussed above there tends to be wide agreement on the general goals of policy, but significant disagreement and conflict has been identified in the details of policy. Clearly, effective policies must move from reactively protective to proactively managerial. Beyond this general statement the exact approaches are less clear. Should these proactive approaches follow more of a carrot or stick approach? In addition policies that have proven to be effective in urban areas cannot be blindly applied to rural settings. Rural institutions and cultural attitudes toward the role of public intervention is clearly different than in urban settings. People in urban settings are much more comfortable with restrictive land-use policies, and regulation and the role of government than rural residents.

Perhaps a more fundamental question centers on institutional responsibility for policy design, implementation and enforcement. Some amenities have a very localized effect while other amenities have a large regional effect. The white water rapids of the Colorado River running through the Grand Canyon have a very different market and role in regional growth than the white water rapids associated with the Current River in the Ozarks of southern Missouri. If there is a regional benefit to a localized amenity, should policies aimed at promoting and protecting that amenity be crafted at the local, regional or national level? Given the spatial spillover of positive

externalities associated with most amenities, theory tells us that local control of these amenities will result in an under supply of these amenities.

SYNTHESIZING THE VARIOUS ELEMENTS

We really are faced with four interdependent issues, all of which have been discussed throughout this volume. At the center of our thinking is the set of theoretical paradigms relating amenities to growth and development. This is in essence the problem of our theoretical approaches to thinking about amenities, growth and development. Essential components of this theoretical basis involve the sociology of rural areas, economic elements of rural change, environmental attributes of the rural landscape, and resource management (including agriculture and forestry) that acts to produce joint outputs of marketable commodities and non-market services.

There are three very important dimensions which are more practical for future research. Upon what metrics do we characterize amenities? This can provide us an ability to more effectively value amenities. How do we collect data on the value of amenities? Is it the miles of white sand beaches or mountain peaks or the pleasure derived from viewing or using the amenity? Should only use value be used or does existence value play a role? As noted by Stedman and his colleagues, are we really concerned with a multidimensional view of local quality of life of which amenities are but one dimension?

Second, a more comprehensive academic understanding of amenities and rural development needs to address how amenities are treated within models that generalize the rural condition. Several elements become important in modeling amenities that focus on how non-market attributes can be injected into a structure that is fundamentally market-driven.

Conflicting uses of natural resources can define quality of life in opposing perspectives. Does the value of a lake come from fishing opportunities or from water skiing or from the wildlife supported by the lake? How does the notion of congestion come into play? Too many water skiers and jet ski operators can diminish wildlife and fishing. What is the relevant spatial unit to think about with amenities? Some amenities have a localized effect while other amenities have a large regional effect. This also speaks to the issue of which institution should be responsible for policy decisions. At issue is not only the range of the amenity but also the relevant geographic unit of measurement.

In the end we have only begun to scratch the surface of our understanding of the interplay between amenities, quality of life and economic growth and development.

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