

The Impact of Wilderness and Other Wildlands on Local Economies and Regional Development Trends

Gundars Rudzitis
Rebecca Johnson

Abstract—There have been few economic studies of the impact of wilderness on nearby communities. The few studies that have been carried out find relatively modest economic impacts on the surrounding communities by people who come to recreate in federally designated wilderness areas. However, studies find that people are moving to areas near federally designated wilderness and other wildlands because of the environmental amenities associated with such areas. These rapid population increases are having dramatic impacts on the ongoing changing structure of local and regional economies.

Wilderness areas around the world exist within the context of the ecological and social systems that surround them. Some are very remote, with surrounding ecological and social characteristics similar to those within the wilderness area. In other areas, demand for commodities has brought extractive uses right up to the borders of wilderness. Some are near major population centers and experience the influence of human use, both within the wilderness and in the surrounding lands. While much of wilderness science has investigated how human influences have affected wilderness, there is a growing literature on the ways that wilderness areas are affecting surrounding communities. This paper focuses on the socioeconomic impacts of wilderness on local economies and regional development trends. We use the term “wilderness” to denote both officially designated wilderness areas and other wildland areas.

Wilderness affects surrounding communities in a number of ways. Perhaps the most obvious is that wilderness visitors often spend money in the local economy, which generates jobs and income for local residents. The economic impact of tourism spending is easily recognized by local economic development officials. However, wilderness contributes to economic development of an area in other ways. The amenities offered by wilderness contribute to the quality of life of nearby residents and often attract new residents. New businesses are also attracted, including tourism-related businesses and other businesses that are interested in providing amenities to employees. New residents (who are also consumers) and businesses increase employment and

income in the community, as well as provide additional taxes for social services.

Whether the positive economic impacts of wilderness are a net benefit to local residents is a matter of debate. Along with new residents and businesses come new values, customs and cultures. Increased population can lead to more congestion, crime and housing shortages. Traditional industries may suffer, either through losses in raw materials from newly designated wilderness areas or through less acceptance by new residents. These types of changes in a community will be welcomed by some and lamented by others, but they should be recognized as part of the impact of a growing desire to live near amenities provided by wilderness.

While social changes within local communities are very important, this paper concentrates on the economic impacts of wilderness. Some of these impacts are beneficial to local economic development, while others, such as reduction in traditional industries, are costly. Because most of our experience is in the American West, our examples rely heavily on communities near Western wilderness areas.

Wilderness Communities

The economic influence of wilderness areas on surrounding communities can extend quite far, geographically. Wilderness visitors who live in metropolitan areas purchase much of their equipment, and even their trip-related products (such as groceries and gasoline), in their residence location. Major suppliers of outdoor recreation equipment are usually located in metropolitan areas, providing jobs and income to urban residents. However, most of the research on the economic impacts of wilderness has concentrated on rural communities. Many of these communities have been going through economic transition over the past 15-20 years, and the role that wilderness plays in that transition has been the topic of a number of studies.

Rudzitis and others (1996) provided an overview of how demographic variables were changing in Pacific Northwest communities near protected areas. They state that “among the fastest growing counties in the nation are those adjacent to federally designated wilderness areas” (p. 7). They note that the population of wilderness counties increased six times faster than the national average for other nonurban counties in the 1980’s, and nearly twice as fast as other nonurban counties in the West. They found a similar trend in population for counties near national parks (table 1).

Along with a growing population, there has been a changing economic base throughout much of the Pacific Northwest. As in other parts of the country, manufacturing as a

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Gundars Rudzitis is Professor of Geography, Department of Geography, University of Idaho, Moscow, ID 83843 U.S.A. Rebecca Johnson is Professor of Forestry, Department of Forestry, Oregon State University, Corvallis, OR 97331 U.S.A.

Table 1—Percent county population change.

Year	Metropolitan	All nonmetro	Wilderness	Park
1960-1970	17.1	4.3	12.8	24.6
1970-1980	10.6	14.3	31.4	34.2
1980-1990	11.6	3.9	24.0	26.0

Source: Rudzitis 1996.

share of total employment has been steadily decreasing, from 28.3% in 1970 to 18.4% in 1992 (Rudzitis and others 1996). At the same time, the service sector has grown from 19.6% of employment to 31.3% in the region.

An example of a rapidly growing county near wilderness areas is Deschutes County in central Oregon. Deschutes County has experienced the same type of changes in industrial structure as described above. There has been a major decline in the percentage of employment in lumber and wood products, from 17% in 1975 to 7% in 1995 (fig. 1; State of Oregon, 1975 & 1995). At the same time, the percentage of employment in services has increased from 15% to 25%. The three major sectors in terms of employment are now trade, services and government, although the relative share of government employment has been declining. In terms of payroll, the share in lumber and wood products has decreased from 20% to 8%, while services increased from 10% to 23% over this same time period (fig. 2).

Many people feel that an increase in service jobs means more low-paying jobs, especially compared to lumber and wood products jobs, which are traditionally high-paying. But the service sector is a combination of many different types of businesses, some employing predominantly low-skilled workers and others predominantly high-skilled workers. In Deschutes County, the payroll per employee (adjusted for inflation) in services has risen from \$16,800 in 1975 to \$21,400 in 1995 (fig. 3). At the same time, payroll per employee in lumber and wood products has decreased from \$33,600 to \$28,900. Trade, however, has a relatively low payroll per employee, partially because of the many part-time jobs in this sector.

The changes in population growth and industrial structure in wilderness counties have led many people to assert that wilderness is the cause of those changes. But proving causality turns out to be a much more difficult issue addressed later in this paper. In this first section, we focus on the science of estimating jobs and income from known changes related to wilderness use or designation.

Estimating Jobs and Income

There are two distinct types of economic measures that are relevant to wilderness areas: economic value and economic impacts. Economic value refers to the willingness to pay for wilderness, either for direct or indirect use, or simply to know that the wilderness exists (sometimes called passive use value). Economic value is a welfare measure that can be used in benefit-cost analysis, and there is an extensive literature on nonmarket valuation. The paper by Loomis in these proceedings discusses the science of estimating economic values of wilderness. This section focuses on economic impacts, which are the sales, jobs and income generated

from an activity, such as wilderness visitation. They are not a measure of net benefit, since the expenditures that generate the jobs and income would not be lost to the economy if wilderness areas did not exist. They would simply be spent on some other good or service, probably in a different location, and would generate jobs and income in that other location. Economic impacts are important regionally (especially in regional economic development efforts), but they simply represent a transfer of impacts from one location to another at the national level.

There are a number of methodological issues related to employment and income estimation that have been discussed for many years (Propst 1985), including how to define the impact region. Regarding visitor expenditures, the impacts often extend to the visitors' residences, where much of the equipment and trip-related items are purchased. Usually, however, analyses are concerned only with the communities immediately surrounding the wilderness. In those cases, defining the local impact region can still be difficult, in part because economic data are often available only at the county level. In locations where the wilderness community is only a small part of a larger county, the county-level data can mask any changes occurring on the local level.

Modeling the local or regional economy can be done in a number of ways, the most common being input-output (I/O) models. I/O models describe the economy through a transactions table that shows the amount that each industry purchases from every other industry to produce their output. These models have a number of assumptions and limitations (Miller and Blair 1985), and econometric and computable general equilibrium (CGE) models have been developed to overcome some of those. Econometric models use time-series data to estimate employment in each sector as a function of other economic indicators. CGE models assume particular forms for production and utility functions, then choose parameters of those functions based on empirical evidence. Numerical solutions are then generated and "calibrated" to reflect reality (Nicholson 1998). These latter types of models can be more complex to estimate, but they may leave more flexibility for analyzing changes in an economy.

Finally, there is the issue of linking wilderness to the model of the local or regional economy. How does the existence or use of wilderness areas result in a change in the local economy?

Direct Employment

The most obvious linkage is the direct employment of people in the wilderness. This would include rangers, planners, managers and researchers. The Forest Service has a target of one wilderness ranger for every 100,000 acres of wilderness. If we assume that other wilderness management agencies have similar targets, and expand this to the total acreage of designated wilderness in the U.S., there should be 1,040 people employed directly as wilderness rangers. It is much more difficult to estimate the number of people employed in planning, management and research, and these data are not readily available from the agencies. Most of these people would have responsibilities that extended beyond wilderness areas, and calculating the percentage of their time devoted to wilderness would be extremely difficult.

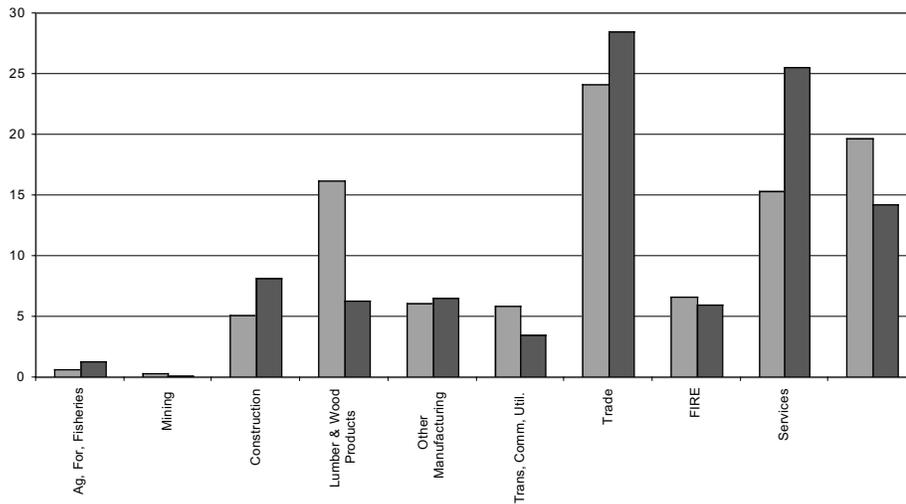


Figure 1—Employment by industry sector as a percent of county total, Deschutes County.

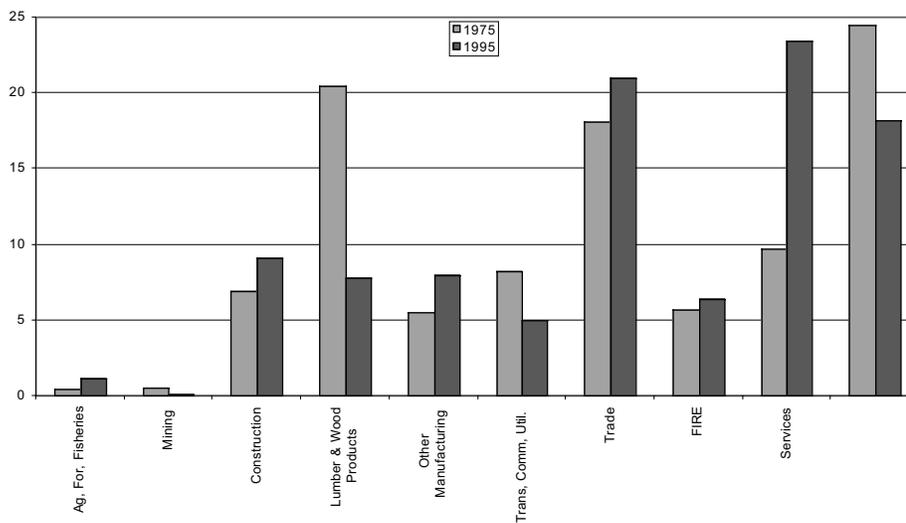


Figure 2—Payroll by industry sector as a percent of county total, Deschutes County.

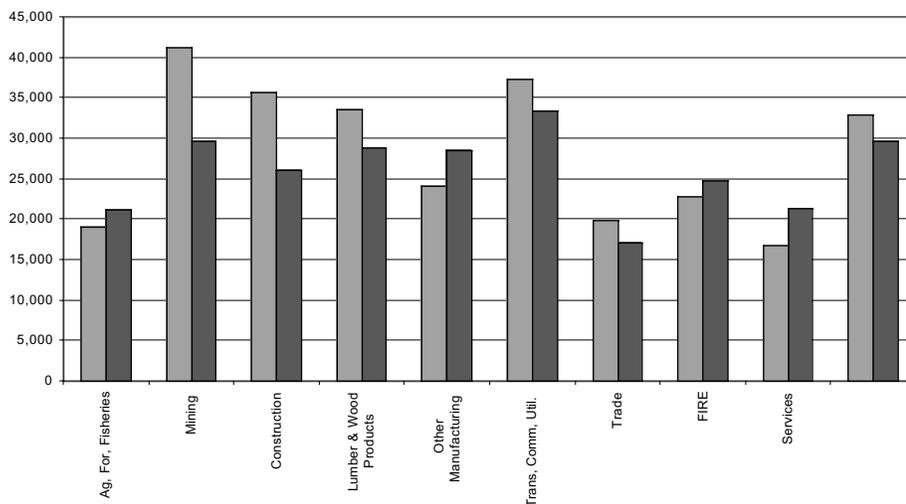


Figure 3—Payroll per employee by industry sector (1998 dollars), Deschutes County.

Visitor Expenditures

A second linkage between wilderness and local economies is through wilderness visitor expenditures. Very few studies were found with empirical estimates of wilderness visitor expenditures. One of the available studies is of Great Basin National Park visitors (Dawson and others 1993). Although Great Basin is a remote park with a large backcountry area, many of the visitors surveyed were taking guided tours of Lehman Caves, and would not be comparable to other wilderness visitors. The numbers are included here, however, since at least some of the visitors would be wilderness users. Table 2 shows that the expenditures per person, per day, estimated at three different wilderness areas (adjusted for inflation, 1998 dollars) are remarkably similar (Dawson and others 1993; Keith and Fawson 1995; Moisey and Yuan 1992). Compared to many other types of tourism and recreation, these expenditures are fairly low, reflecting the less-developed nature of wilderness recreation. Looking at how these expenditures are distributed across different sectors of the economy (table 3), however, shows some differences between studies (Dawson and others 1993; Keith and Fawson 1995; Lichty and Steinnes 1982; Moisey and Yuan). Great Basin National Park has a higher proportion of expenditures in the transportation sector, as would be expected for a remote area. Montana wilderness visitors had a higher proportion in lodging, perhaps due to longer lengths of stay.

Once visitor expenditures are estimated, the economic model of the regional economy is used to show how those expenditures get recirculated within the regional economy—that is, the multiplier process. A methodological issue is the

treatment of local residents' expenditures. The multiplier process should be used only when analyzing exports, or "new" money that has come into the regional economy. Since nonlocal visitors bring their money from outside the region, their expenditures represent exports. However, local visitors' expenditures simply represent a recirculation of money that already existed in the local economy and shouldn't be included in the multiplier analysis. An exception is when local expenditures represent import substitution (Johnson and Moore 1993). For example, if local visitors are substituting a local wilderness for a nonlocal wilderness, their expenditures can be considered "new" money that would not be present in the local economy if the local wilderness were not available. This type of information can be gathered only through a survey of wilderness users that asks detailed questions about substitution decisions in the absence of the local wilderness.

Multipliers will vary from industry to industry, and from economy to economy. In general, industries that purchase a large share of their inputs locally will have higher multipliers, and larger, more diversified economies will have larger multipliers. Table 4 shows an example with output multipliers from two different counties in Oregon. Deschutes County is a larger, more diversified economy, and Wallowa is a smaller, more remote county. The output multipliers are significantly larger for Deschutes County. In both counties, the output multiplier for sawmills is higher than those for the recreation-related sectors, showing more linkages between sawmills and other sectors in the local economy.

Output multipliers are an indication of overall spending that is generated by any sector. However, a more useful measure of economic impact is the income and employment that are generated. Overall spending may be quite high, but if little ends up in the pockets of local residents, their welfare will not be improved. Table 4 shows the employment and income generated by sales in each of the sectors listed. Recreation-related industries are very labor-intensive and generate more jobs per million dollars of sales than sawmills. Although many recreation-related jobs are low-paying, these sectors also generate more income per dollar of sales than sawmills. However, the analysis must also account for the overall level of sales, which is usually significantly higher in sawmills than in the recreation-related sectors.

Table 2—Expenditures of wilderness visitors.

Location	\$1998/person/day
Montana wilderness	\$36.90
Utah wilderness	
Box Death	\$36.37
Dark Canyon	\$44.49
Grand Gulch	\$35.63
Paria Canyon	\$34.21
Great Basin National Park	\$32.69

Table 3—Distribution of expenditures among economic sectors (% of total).

Location	Food	Lodging	Transportation	Retail	Other
Montana wilderness	26	34	18	15	7
Utah wilderness					
Box Death	27	15	24	19	14
Dark Canyon	39	19	22	12	9
Grand Gulch	37	10	21	25	7
Paria Canyon	37	17	20	12	15
Ely, MN	22	19	12	35	12
Great Basin National Park	18	14	31	27	11

Opportunity Costs and Offsite Impacts

Finally, there are measurable impacts on industries that can be excluded from wilderness areas, and the science of estimating those impacts is relatively straightforward. Income, employment and output multipliers can be used in conjunction with estimates of lost direct sales in these industries to calculate the total impacts on the local economy. A study of wilderness designation in the Lolo National Forest (Stewart and others 1992) estimated a loss of 136 timber-related jobs and \$3.1 million of timber-related income. However, since much of the timber was sold in below-cost timber sales, the present net value of the area increased by \$6,504,000 after designation. Another study in British Columbia (M'Gonigle and others 1992) estimated 4,911 fewer lumber and wood products jobs in B.C. after the first year of implementation of a wilderness protection strategy.

Table 4—Comparison of multipliers across sectors and economies.

	Output multiplier		Emp./\$1mm sales		Income/\$1 sales	
	Deschutes	Wallowa	Deschutes	Wallowa	Deschutes	Wallowa
Restaurants	1.58	1.33	46.4	45.5	0.67	0.55
Lodging	1.63	1.35	47.7	59.5	0.88	0.73
Recreation Services	1.62	1.34	53.0	57.0	0.77	0.66
Sawmills	1.93	1.73	7.1	14.3	0.55	0.42

On the positive side of wilderness designation and protection, there can be off-site benefits, such as habitat improvement, that lead to increased populations of fish and game outside of the wilderness area. For example, one study estimated the impact in Alaska to be \$72 million in commercial fishery impacts (Glass and Muth 1992).

Reflections on Estimating Economic Impacts of Wilderness

We have focused on estimating economic impacts of wilderness designation and use. This involves collecting data on wilderness visitor expenditures and combining them with a regional economic model to estimate multiplier effects. The availability of data and models of regional economies has increased dramatically in the last decade, making estimates of economic impact much more accessible to researchers and decision-makers. This methodology has been applied in many different recreation and tourism settings, but problems still exist. Careful application of models and interpretation of results are necessary to avoid making common mistakes. The ease and accessibility of some of these models will result in more use by untrained analysts and future skepticism about their accuracy. Future work should improve expenditure estimates through better surveying techniques and our ability to define meaningful economic regions for impact assessment.

While there are many empirical studies of the economic impact of recreation and tourism, very few have looked specifically at wilderness use. And those have relatively consistent results, showing wilderness visitors spending relatively modest amounts compared to other types of recreation and tourism. Estimates of jobs and income directly and indirectly tied to wilderness visitation may be small, but those small impacts are significant for some rural communities.

Wilderness and Changing Economies of the American West

In the American West, particularly in and around wilderness areas, there has been and continues to be a restructuring of the economy. There has been a significant decline in employment in the traditional extractive industries, whether in forestry, mining and minerals, agriculture or associated manufacturing and processing industries. These employment shifts and associated losses should have, according to conventional regional development models

described previously, resulted in widespread unemployment and economic depression. Indeed, this is what was predicted for much of the region given decreases of timber harvesting on public lands and the fallout from the consequences of enforcing the Endangered Species Act, most noticeably in the case of the spotted owl. Instead, the American West has experienced unprecedented economic growth.

The economy of the American West traditionally has been based on farming and ranching, mining, forestry and, more recently, on the federal government, which built dams, power plants, military installations and the like. A way of life based on an extractive culture went along with the extractive and agricultural activities.

Today the role of extractive industries is changing dramatically as the number of people employed in such activities has declined, and it is expected to continue to decline (Lorah 1996; Power 1995, 1996; Rasker 1995; Rudzitis 1993, 1996). Nor is this a recent trend: The interior West stagnated in the past because its economy was based so completely on primary products from farms, forests and mines (Meinig 1991).

Currently, places and states in the American West are growing primarily from in-migration of people, and despite the decreased importance of extractive based industries (Dahmann and Dacquel 1993; Rudzitis 1996). Again, much of this growth is contrary to what developmental models would predict for the regions, raising the question about which models are appropriate when considering the role played by federal wilderness and other public wildlands in the development process.

The Increasing Role of Migration in Explaining Population Change and Development in and Around Wilderness and Wildland Counties

We showed in table 1 that population in and around wilderness counties has grown rapidly. These changes are part of larger population trends which need to be understood to put the population changes in context of regional and national trends. After discussing these trends, we look more closely at the changes taking place in wilderness counties.

Before the 1970s, rural counties were either losing population or growing more slowly than urban areas. With the 1970s, however, came what was hailed as a rural renaissance, during which, for the first time in U.S. history, rural or nonmetropolitan areas grew at a faster rate than urban areas. This turnaround came unannounced and unpredicted by the “experts.” It was hailed as one of the most significant

demographic events of this century. It was pronounced as a pervasive new counter-urbanization trend destined to profoundly change the geographic structure of the United States (Berry 1978; Morrill 1979; Wardwell and Brown 1980).

The 1980s brought a collective sigh of relief to those taken by surprise by the population turnaround of the 1970s. Urban areas were once again growing at a faster rate than rural areas. But not everywhere. New classifications emerged. There were now more remote counties that were categorized as retirement, recreation, manufacturing, farming, energy, mining or timber counties. This breaking of rural America into specific types of counties is simplistic, but it helped to explain why some rural counties continued to grow, contrary to the overall trend. The 1980s also had economic recessions at the beginning and end of the decade. Recessions usually are worse in rural areas.

The rural counties that were not growing included many farming-based counties and others such as those classified as manufacturing, mining, energy and timber. The counties that continued to grow included those which can be included in a broad based amenity category with both a desirable physical environment and a relaxed small town atmosphere. Wilderness counties were among this category.

In the 1990s, rural growth again increased faster than metropolitan growth. The process of “deconcentration” continued as people moved into rural areas and most current residents stayed in these counties. Among the fastest growing counties were those classified as either retirement or recreation. By contrast, counties dependent on agriculture or mining continued to have out-migration of people from them (Beale and Johnson 1998; Johnson 1998; Johnson and Beale 1994; Brown and others 1997).

In trying to explain why these rural places were growing, researchers conducted surveys which showed that if given a choice, people would prefer to live in small towns (Morgan 1979; Dillman 1979). Studies also began to show that amenities such as environmental quality and pace of life have become increasingly important in explaining why people move (Williams and Sofranko 1979; Long and DeAre 1980). The apparently sudden preference of people for rural life was a surprise because rural areas were thought to be at a major disadvantage to urban areas. Moreover, a general movement toward isolated wilderness counties was not expected. Some 1960s dropouts and “return to the land” types might seek out such places, but they were the exception, not the norm.

Theories could not be built around people who were dropping out or detaching themselves from mainstream society. Such persons were not driven by the motivation to maximize their incomes. Earlier studies had argued that economic reasons explain why people move: they move because they want jobs and higher pay. People would do a rough cost-benefit analysis: if the costs of moving, both economic and psychological, were less than the benefits of increased income, people would move.

The economic model described well the historical movement from rural farming areas to cities as the nation became increasingly urbanized. People moved to cities for jobs and higher incomes. Cities with good job prospects attracted migrants. Places that did not, did not.

The acceptance of this almost total focus on the economic rationality of people explains much of the surprise when rural and wilderness areas began growing faster than urban

areas. These are not supposed to be attractive places for entrepreneurs and industries. Retired people might move to such places since they were no longer working. But, why would retired people move toward wilderness and other isolated public land counties where services are remote?

It became increasingly difficult to explain the movement out of cities as a search for higher wages. Various explanations were suggested, including the decentralization of many industries, increased mobility because of improvements in transportation and communications and the growth of recreation and retirement activities, to name a few. However, these all have an ad hoc feel to them.

A harder look was taken at people’s preferences. Perhaps if people wanted to live in a small town, they might actually move there. Maybe people had preferred cities, and now they wanted to live in rural areas and small towns. If cities were once considered beautiful, and wilderness threatening and scary, had wilderness now become beautiful, enticing people to move to such places? Questions about societal preferences changing over time are difficult to answer because prior to the 1970s, there is a paucity of data on such issues. Such questions were not asked, at least not on surveys.

There are several reasons why the move out of cities and toward rural areas (including wilderness) should not have been a big surprise. For one, the movement out of the cities had already started after World War II with the growth of affordable housing for lower and middle income persons in the much criticized look-alike suburbs with mass-produced housing. The early movement to rural areas was a spillover from metropolitan suburbs. The suburban fringe was simply extending its boundary and becoming more exurban. However, growth outside of metropolitan areas and near wilderness was far removed from a simple extension of commuting patterns to the fringe. Studies found that amenities such as environmental quality, pace of life and crime rates were the important reasons why people moved (Williams and Sofranko 1979; Long and DeArge 1980).

Why are People Moving to Wilderness Counties

A study funded by the National Science Foundation attempted to discover why people were moving to wilderness counties (Rudzitis 1996, 1999; Rudzitis and Johansen 1991). Questionnaires were sent to people who had moved into counties with federally designated wilderness during the past ten years, as well as to longer term residents of these areas. People who migrate to high-amenity counties are often assumed to be retirees. In the wilderness survey, however, only 10 percent of the new migrants were over 65 years of age. Instead, migrants were more likely to be young, highly educated professionals. This was unexpected, since according to the logic of the economic model, rural areas neither attract entrepreneurs nor provide jobs.

People also are assumed to move because of dissatisfaction with their previous location, resulting from crime, congestion, pollution or other “urban” ills. However, most wilderness migrants were not particularly dissatisfied with the places they had left (table 5). For example, only 28 and 30 percent of the migrants said they were dissatisfied with the crime rate and environmental quality of their previous

Table 5—Dissatisfaction with previous location and importance of attributes of wilderness county in decision to move.

Factors	PUSH		PULL	
	Dissatisfied	Not dissatisfied	Important	Not important
Employment opportunity	16	67	30	56
Cost of living	14	64	14	58
Climate	22	57	47	28
Social services	7	85	10	69
Family access	11	76	19	64
Outdoor recreation	18	63	59	20
Crime rate	28	48	31	45
Scenery	20	62	72	13
Pace of life	31	47	62	18
Environmental quality	30	46	65	16

Source: Rudzitis 1999.

location. The lack of employment opportunity and cost of living were cited by 16 and 14 percent (Rudzitis 1999).

When asked what “pulled” or attracted them to the Western counties, 30 percent cited employment opportunities and 31 percent the lack of crime as important factors. They assigned more importance to scenery (72 percent), environmental quality (65 percent), pace of life (62 percent) outdoor recreation opportunities (59 percent) and climate (47 percent).

When asked what single factor was the most important in their decision to move to their current county, 23 percent cited employment opportunities. Of the other attributes of the county, those contributing to the social environment accounted for 42 percent of the most important reasons for moving, while those specific to the physical environment made up 35 percent. Thus, amenity characteristics provided 77 percent of the reasons that people moved and employment-related reasons 23 percent.

The importance of employment opportunities did not vary much by age, except for persons over 65. For example, 31 percent of those age 20-35 gave employment opportunities as the major reason for moving, compared with 29 percent for persons aged 36-50 and 16 percent for those 51-65. Family access, at 24 percent, was the single most important “pull” factor for people over age 65, followed closely by climate (21 percent) and outdoor recreation (21 percent). Outdoor recreation, pace of life, scenery and climate were cited as the second and third most important factors by the younger age groups.

Contrary to the economic theory of migration, almost 50 percent of the migrants reported lower incomes, and only 28 percent had increased their income, with the rest showing no change. Recall that these are primarily younger employed migrants. These are not social dropouts moving to areas and putting stress on the social welfare systems.

The actual presence of wilderness served as a magnet attracting people to these areas, as 72 percent considered it a major factor in their decision to move to the county. Among long-term residents, a majority (55%) also felt wilderness was an important reason for living in the area. The importance of wilderness was emphasized by the desire of a majority of both migrants and residents to have more access to these areas; 60 percent of the newcomers felt there was a need for even more wilderness nearby. This can be partly

explained by the use of wilderness at least 12 times a year by more than a third of migrants and residents (Rudzitis and Johansen 1991).

Given the importance of quality-of-life factors in why people move toward wilderness, there is no reason to expect such trends to diminish. Although there was a decrease in the intensity of movement to wilderness counties during the early 1980s, partly because of the recession, the 1990s have been a period of rapid in-migration of people into wilderness counties.

Why People Move Into Wildland and Other Counties in the West

A recent study addressed motives for migration in a 100 county contiguous area in the interior Columbia River Basin, which included all of Idaho and parts of Washington, Oregon, Montana, Wyoming, Utah and Nevada. Anywhere from 25 to over 80 percent of this land is owned and managed by the federal government. This study also looked at the importance of the major public lands amenities in the region (Rudzitis and others, 1996).

Again, when asked to choose the three most important reasons for moving to or living in their county, just over 34 percent of respondents cited employment opportunity (table 6). Forty-five percent considered the amenities related to the social environment as most important and 18 percent the physical environment.

As the second most important reason for moving, respondents cited outdoor recreation most often at 16 percent. Employment opportunities were sixth, at 10 percent. The social environment captured 47 percent of second reasons for residence and the physical environment reasons 42 percent. The same trend is apparent for the third most important reason: Pace of lifestyle leads at 22 percent, with employment opportunities only 6 percent. As further indication of the importance of the social/physical environment, 28 percent said they moved first and looked for/created a job after the move.

Another recent survey also showed an amazing similarity in why people moved there and what kinds of lifestyle tradeoffs they made. A survey of over 1,500 people in Oregon found that most people moved to Oregon for noneconomic

Table 6—Most important reasons for moving or staying in area.

	First reason	Second reason	Third reason
	----- Percent -----		
Employment opportunity	34.1	10.3	6.4
Access to family and friends	23.9	15.0	6.3
Pace of lifestyle	12.9	12.1	21.5
Outdoor recreation	7.1	15.6	16.0
Landscape, scenery and environment	6.2	14.9	16.9
Climate	4.8	11.2	10.8
Quality of schools	3.5	6.0	3.7
Other	3.0	1.6	5.9
Cost of living	2.3	9.1	6.1
Crime rate	1.9	3.4	5.9
Social services	0.4	0.7	0.6

Source: Rudzitis and others 1995.

reasons. Only 30 percent said they moved into Oregon for employment-related reasons, about the same percentage as in the wilderness survey. Again, jobs account for a minority of the reasons for moving. A majority of migrants also had lower incomes after their move (Judson and others 1999).

In the wildlands West, employment alone cannot explain why people move and live where they do. The amenities of places around wilderness and other public lands single them out as desirable living environments. Unfortunately, current regional development theories often do not incorporate findings from migration studies into their models.

Regional Growth Theories and Approaches

In the first section of this paper, we briefly described and gave examples of how specific economic development models can be used to estimate some benefits from the geographical proximity of wilderness and other wildlands. Most regional development approaches are evolutionary, demand-driven, top-down hierarchical models. Although these models may provide estimates of some economic benefits such as tourism for example, they have serious limitations when used to explain the population and economic changes taking place in and around wilderness areas.

The traditional approach to development of the predominantly rural and small town communities surrounding public wildlands has been the promotion of export-based economies. The argument harkens back to a famous debate in the economic literature begun by Douglas North (1955), who argued that the demand for the products a region exports drives its development. The export industry, with its associated multiplier effects, determines the growth and income levels in a region. In the nonmetropolitan West, historically, the export-based economies have been based on extractive economies. This demand-driven theory became a standard approach, both in academia and in local and regional development communities.

Of these demand-based models, the most widely used are input-output, as we have shown and often the simpler economic

base models. However, irrespective of their level of mathematical sophistication, the heart of the demand models is the notion that regional economic growth is a function of the demand for products exported from the local or regional economy. These “products” can vary from revenues generated from logging to tourist dollars.

The economic base model approach has been indelibly imprinted on United States citizens, chambers of commerce, local politicians and planners. As employment in the extractive industries in the West decreased, the economic base models predicted an overall decline in the economy of the interior West. Fortunately, this has not happened. The model predictions were simply wrong.

Some areas were hard hit with job losses during the economic recessions of the 1980s, but even these areas have turned around. Indeed, Richard Morrill (1992) found that environmentally attractive counties continued to experience growth well into the 1980s. Lost jobs in the extractive sectors have been replaced by new jobs in the nonextractive sector (Rudzitis and others 1996).

Another disadvantage for the nonmetropolitan interior West is that, according to the product-life-cycle model, rural areas would largely attract firms producing standardized products requiring low skilled labor. Newer, innovative industries (and entrepreneurs as well) would locate in metropolitan areas. A pattern of industries following a product-life-cycle approach did not bode well for many areas in the rural West.

Critics contend that the product-life-cycle approach lacks the conceptual underpinnings to explain or predict ongoing changes taking place in the American West (Higgins and Savoie 1995; Rudzitis 1989). More generally, current regional development theories rooted in an economic paradigm are less and less able to explain changes in the American West, especially the rapid growth around federally designated wilderness areas.

In a more general context, it is not that demand is inappropriate, but rather that the emphasis on demand-side modeling has ignored the supply side. Moreover, in the input-output models, demand is assumed to be constant, just the opposite of what is happening in and around wildland counties. Too often, the models used to predict change assume a constant demand while ignoring the influence of supply. For our purposes, the supply side consists largely of the attributes of an wildlands region and its residents. Among these attributes is the physical environment and/or “Nature.”

Another characteristic of most of the models is that they impose a jobs versus the environment logic. For example, attempts to impose traditional demand-based models of development may lead to “expert advice” that is biased toward exploiting forests and agricultural products for the good of local development. For example, a recent analysis of management policies on the Clearwater National Forest suggested that the forest cut might have to be increased up to 10 times to provide adequate jobs in local communities (Robison and others, 1996). The analysis ignored the private and environmental costs of such a policy and a host of potential current benefits from protective policies such as improved quality and protection of waterways and ecosystems among others.

Nancy Langston (1995) also shows how, despite a history of federal management policies that have negatively altered

the ecology of the Blue Mountain area in Oregon, some forest analysts recommend the same failed policies that led to the destruction of the original forests. She points to a recent study (O'Laughlin and others, 1993) as promoting an industrial position of expanded tree harvesting, when just the opposite is needed.

Such stores are not uncommon and provide much of the impetus for the ongoing debates over public lands management. The models used to justify such actions are biased because they assume that the higher wages and incomes derived from commodity extraction jobs are higher than the available jobs in the tourist industry -- the major alternative often presented to a continued harvesting of our public forests. However, too often no attempts are made to calculate the costs of such actions or the benefits that can be derived from not harvesting public wildlands or not promoting tourism. This brings us back to Douglas North and his export argument.

At the time North made his argument, another economist, Charles Tiebout (1956) responded by arguing that there was no reason to assume that exports are the sole or even most important factor determining regional growth and income. Instead, the nonexport or residentiary (local) industries can serve as a key factor in the potential development of a region.

North won this argument in the 1950s, in that his views prevailed and have been internalized in public lands management. Indeed, they have even entered Western economic history mythology. As the pioneers and their descendants conquered and tamed the wildlands, they cut trees, exported wheat and extracted and exported lead, gold and silver. When they did so, times were good. When they did not, times were bad. Local development is based on keeping the good times going.

Computer models often verify what seems obvious. When commodity production goes down, local economies go down. Fortunately, for many communities, such models and their projections have also been wrong. From a regional perspective, there is little correlation between harvesting on public lands and economic growth, except in a small number of communities. Recent research shows that local citizens and politicians, as well as academics, would have been more farsighted if they had listened more closely to Tiebout than North (Durning 1999; Power 1996, Rasker 1995; Rudzitis 1996).

A recent study by Duffy-Deno (1998) examined whether local economies may be adversely affected by designation of federal-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 on 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 nonresource, nonfederal county employment growth. On average, from a utilitarian perspective wilderness designation causes little aggregate economic harm to county economies, promoting instead increases in total population and employment.

The Quality of Life or Amenities Model of Regional Development

An alternative approach to regional growth more in line with Tiebout's logic is a model based on the role of environmental amenities (Diamond and Tolley 1982; Graves and Linneman 1979; Rasker 1994; Rudzitis and Streatfeild, 1993). This approach, sometimes referred to as the quality of life model, essentially argues that people migrate, particularly in the American West, for noneconomic reasons: firms also follow people to seek out high amenity physical and sociocultural environments. Population growth around wilderness areas is to be expected if people value these areas and want to live near them.

Ridker and Henning (1967) and Harris and others (1968) were among the first to suggest that demand for both social and physical amenities were key determinants of residential location decisions. The logic, as formulated by Diamond and Tolley (1982), assumes that what makes one location different from another is amenities. Amenities, like other goods, affect the level of either a firm's profits or a household's satisfaction. But unlike other goods, increments to amenities can only be gotten by a change in location.

An amenity is defined as a nontraded or location-specific good (Tolley 1974; Graves and Linneman 1979). Migration serves as an equilibrating reaction to a non-optimal location. If the demand for location-specific amenity changes (proximity to wilderness or other wildlands), migration should occur. The demand for amenity goods may vary over a household's lifetime and change in income. Changes in technology, such as declining transportation costs, also can promote migration to places with higher amenity values (Rudzitis, 1982, 1989). Economic motivations, while important are not necessarily the main determinants of why people move. Indeed, Graves (1983) argued that there is neither theoretical or empirical justification for believing that inter-regional moves are primarily job-related.

Amenities are important in attracting and retaining businesses. Both entrepreneurs and businesses place greater importance on amenity and environmental factors in their decisions to locate or stay where they are (Johnson and Rasker 1993, 1995). Consequently, developing a community's unique character can be an important economic development strategy.

The Amenities Model and Wildlands West

With the increased mobility of some types of industry, services in particular, rural communities with amenity characteristics have an advantage in attracting business. New forces built around services and information technologies are driving the regional economies in the wildlands West.

The economic forces driving the new wildlands economy include export-oriented producer services and other professionals selling services externally. In a series of studies, William Beyers and associates found amenity factors to be among the major factors in the location decisions of producer service firms nationwide, not just in the amenity-rich American West (Beyers 1991, 1999; Beyers and Lindahl 1996; Beyers and others 1985).

Various researchers have described this new economy in the Greater Yellowstone and Columbia River Region., the Northwest and for the interior West as a whole (Booth 1999; Durning 1999; Power 1996; Rasker 1993; Riebsame 1997; Rudzitis 1996; Rudzitis and others 1996). Again, there is declining employment and incomes in the traditional extractive sectors and a rise in the role of the high income services sector. This is the result of many “footloose” businesses and jobs following migrants rather than people following jobs. Increasingly, much of this growth comes from the immigration of people with either nontraditional income such as investments (Nelson 1997, 1999).

Most regional development models assume people follow jobs. Or, alternatively, do jobs follow people? This is the old “chicken or egg” analogy. Which comes first? Do people follow jobs, or jobs follow people in the American West?

Recent research shows that jobs follow people in the American West. People either move into areas bringing jobs with them, or move hoping to get jobs. In one survey, about 30 percent said they moved first and would look for jobs later. The traditional assumption that industries move first and people follow is not true for the current amenity-driven trends in the West (Rudzitis, 1996; Rudzitis and others; 1996; Wardwell and Lyle, 1997).

A few studies have addressed this using a simultaneous-equations framework. Rudzitis and Johansen (1989) examined growth in and around counties with federally designated wilderness and found that employment did not explain migration, while migration did explain employment. A few other studies looking at a larger subset of counties found similar results. Whether looking at wilderness counties, the Pacific Northwest or the interior Rocky Mountain West, these studies conclude that jobs are following people (Rudzitis and Johansen 1989; Vias 1997; von Reichert 1992). Vias (1997, 1999) looked at all 254 non-metropolitan counties in the Rocky Mountain West for three time periods, the 1970s, 1980s and 1990-1995 and found that population was driving employment growth, but that there was also a negative relationship between employment and population. As employment declined, population increased. The value of amenities, however, increased over time.

The environmental amenities and quality of life regional development models demonstrate the importance of individual and business preferences for living environments in determining the location of economic activity. The landscape of the public wildlands and associated towns provide a range of physical and social amenities, which many migrants and long-term residents want.

Wilderness and Sense of Place

Much stress has been placed on economics as the driving force behind regional development efforts in the American West. Often “experts,” citizens and politicians assume that the promotion of local or regional development depends on harnessing the desire of people to make money and firms to maximize profits. Many of these theories are faltering because they are too reductionistic and simplistic.

Traditional economic models of wildland development don't consider the context of peoples' lives and how they interact with, shape and are affected by their social and spatial environments. Despite the old cliché that “money

does not buy happiness,” it lies at the core of most economic models.

The amenities modeling approach better explains some of the recent growth trends in and around wilderness areas. 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. (Berry 1978; Bolton 1992; Marsh 1987; Pena 1998; Relph 1986; Rudzitis 1982, 1991, 1996; Tuan 1997a, 1977). Current regional development models ignore loyalties and ties to place and “wild” landscapes. Geographer Yi-Fu Tuan (1974) introduced the term *topophilia* to designate the emotive ties people can have to a place and their immediate environment. Tuan (1977) also showed how a space become a place when people attach or fill it with meaning.

If attachments to place are important, how they are formed becomes critical in understanding how local and regional communities maintain their vitality. In the wildlands West, 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.” Wallace Stegner called such people “stickers,” people who stay despite natural, economic or social calamities (Stegner 1990). Kemmis (1990) and Rudzitis (1996) also have written about the importance of considering attachments to place in the economic and political development of the contemporary American West.

Too long as Jackson (1991) reminds us there has been and artificial separation of the economic and cultural in the process of local and regional development change. He calls for research that does not see economics and culture as separate sphere, but recognizes that they intersect in specific times and places. We must recognize the interwoven nature of economics and culture. People in and around wilderness and other wildlands areas form place attachments by using those areas in a variety of ways. They may work the range, flyfish, hike, watch the stars, grow food, or engage in a variety of activities that give meaning to their lives as they interact with their environment (Bolton 1998; Nelson 1999; Rudzitis 1996).

There have been recent attempts to outline and develop models that incorporate sense of place and culture in developmental models (Nelson 1999; Rudzitis 1998; Rudzitis and Tolley 1998; Tolley and Rudzitis 1999; Tolley and others 2000). Models that ignore the role of environmental amenities, ties to the land, sense of place, commitment to a landscape and culture may well misdirect public policy in ineffective ways.

One consequence of increased demand for a greater sense of place as evidenced by migration to places with amenity features should be the willingness of people to accept lower relative wages to live in such places. Survey evidence indicates that people who move to areas around federally designated areas wilderness areas are more likely to either have decreases in incomes or no income change. Also, contrary to expectations, people with lower incomes accept proportionately greater declines in incomes than those with higher incomes (von Reichert and Rudzitis 1992). The difference in incomes between the places people left and their new living environments apparently is compensated

by greater amenities and other noneconomic factors. Areas surrounding wilderness also have lower real wages. However, despite having lowered incomes, migrants to wilderness counties are highly satisfied with where they presently live (Rudzitis and Johansen 1989, 1991; von Reichert and Rudzitis 1992.)

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

If sense of place is important, long-term residents should have greater place attachments than recent migrants. Studies show this to be partially true, both for people who live in wilderness countries and for those who do not (McCool and Martin 1994; Stinner and others 1990; Rudzitis 1996).

Recent migrants to Western rural areas near wilderness say that they have rapidly formed an attachment to the place and region to which they have moved (Carlson and others; McCool and Martin 1994; Rudzitis 1996; Rudzitis and Johansen 1989, 1991) . In one recent survey of people over age 50, less than 18 percent said they were likely to move away from their new communities. (Carlson and others 1998) For these migrants, their current communities are where they plan to spend the rest of their lives. In contrast to younger migrants, who would be expected to be somewhat more transient and less tied to any given place, older persons have more incentive to rapidly develop an attachment to their new communities.

When older migrants were asked about how they developed ties and attachments to their new communities, association with friendly neighbors was more important than organizational ties such as community service groups, church activities or clubs. Activities within the community and region, including a variety of outdoor activities such as fishing, boating or hiking affected the new migrants' sense of place. Williams and others (1992) found that attachment to place and wilderness areas could be explained by a variety of socioeconomic variables and they stress the importance of the emotional and symbolic ties that people have when living or using federal wildlands.

Concluding Comments _____

The federal lands have and will continue to play an important role in local and regional development in the American West. The focus generally has been on how commodity extraction or recreation can contribute to generating direct and indirect income flows to local communities and region. Economic base and input-output models have primarily been used to make these estimates.

The use of conventional input-output models to measure the economic impacts of wilderness use has been quite limited. The small number of studies on the economic impacts from wilderness use show that they generate a relatively small number of jobs compared to other forms of recreation and tourism. Indeed, the justification for

designation of wilderness and other protected non-parklands is not to generate jobs by increasing tourism in a place or region. It would be helpful to have more studies for comparative purposes of the job and income affects of designating wilderness and implementing non-commodity management strategies on our federal lands.

In the short-term commodity extraction on federal lands may create more jobs than wilderness designation. However, research indicates that wilderness designation plays a substantial role in attracting new migrants to a place or region. These migrants increasingly bring incomes and create new non-resource related jobs. This partially explains why previous estimates of large employment declines from decreased timber harvests, the implementation of protective strategies and the protection of endangered species have largely proven to be wrong.

The recent declines in the 1990s of timber harvests and resource extraction have been accompanied by some of the most rapid population increases in the nation. And they are expected to continue. Survey research and modeling studies show that environmental amenities in and around federal wilderness and other wildland areas attract people to live and stay in these areas. Studies also show that people move into these areas and firms and jobs then follow them. The relationship between timber harvesting and regional growth no longer holds except in a small number of places.

The research indicates that we must recognize that places and their social and physical environments are critical in understanding why people and firms migrate and regions develop. The rapid growth of areas around federally designated wilderness reveals a preference for development that maintains or improves the quality of life by fitting harmoniously into the natural and social environment. It also reveals a search by people for the "good" life.

The "good" life is lived in place, and what, in part, makes a place unique in the West is a lot of public open space, a clean environment, wildness and friendly neighbors. We need more research as to the relative importance of the social and physical environments in how and why people live in and around federal wildlands. We need to better understand how much importance is ascribed to the physical environment and how much to the more rural small town and city settings within which these local economies and cultures are embedded? Whatever, the relative importance of the physical and social components of a setting, the economic value of many places and regions is enhanced by "preserving," sustaining and strengthening both the physical and social environment within which they exist.

Keeping a high-quality "wild" environment is a "development" strategy. It puts quality of life of life and environmental quality at center stage, instead of off stage or in a peripheral and minor supporting role. It shifts attention to the importance of places and what makes them unique and desirable.

More emphasis needs to be put on place attachments. We need to consider how people want to spend the scarce resources of their time and the types of places and environments they want to live in. Such a development theory would better represent the hopes and desires of the people who consistently cite the importance of noneconomic reasons for why they live in and around wildlands often sacrificing economic gains in order to do so.

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