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Socioeconomic Change in Planning Provinces of the Northwest Forest Plan Region

Abstract

The Northwest Forest Plan's 1994 Record of Decision (ROD) established a framework for a new ecosystem approach to federal land management across 24 million acres of the Pacific Northwest. One strategy outlined in the ROD combined ecosystem management and civic involvement in the creation of planning provinces, consisting of 12 contiguous multi-ownership areas spanning the Plan region. The ROD also directed agencies to monitor the effectiveness of the Plan, including the implementation of a socioeconomic monitoring program. We defined communities within provinces in order to better understand socioeconomic change. We developed a composite measure of community socioeconomic well-being (SEWB) to compare communities within the 12 planning provinces based on their proximity to Forest Service (FS) and Bureau of Land Management (BLM) lands. Some provinces improved in SEWB over the decade and some declined, but this was not related to how much FS and BLM lands were in the province, nor how many communities in the province were close to FS and BLM lands. Communities within 5 miles of FS and BLM lands had significantly lower SEWB scores compared to communities farther away in both 1990 and 2000. Income inequality increased significantly between 1990 and 2000 for communities within 5 miles of FS and BLM lands but showed no significant change for communities farther away. As existing jurisdictions that span multiple land ownerships with mechanisms for dialogue and learning among stakeholders and decisionmakers, planning provinces provide opportunities for increased understanding of the ways that forest management affects to community socioeconomic well-being. Information on socioeconomic conditions of communities in planning provinces is an important step in understanding how communities change and what factors contribute to change.

Introduction

In the late 1980s and early 1990s, controversy over harvest of old-growth forests in western Washington, western Oregon, and northwest California led to a series of lawsuits that effectively shut down federal timber harvests. In response, President Clinton convened a summit in Portland, Oregon in 1993, in which he issued a mandate for federal land management and regulatory agencies to work together to develop a plan to resolve the conflict. The President's guiding principles followed shortly after the summit (Clinton and Gore 1993). The resulting Northwest Forest Plan's 1994 Record of Decision (ROD) established a framework for a new ecosystem approach to federal land management across 24 million acres of the Pacific Northwest (USDA and USDI 1994). It created a system of land allocations, and called for a number of strategies and processes related to aquatic conservation,

late successional reserves, watershed protection, species conservation, interagency organization, adaptive management, social and economic mitigation initiatives, and monitoring.

The Northwest Forest Plan (the Plan) transcends traditional administrative boundaries and procedures by focusing on ecosystem and watershed management, while also addressing economic and social impacts. Indeed, one of the overarching goals of the Plan is to balance the need for forest protection with the need to provide a steady and sustainable supply of timber and non-timber resources to benefit rural communities and economies (Charnley 2006). Successful implementation of the Plan has required unprecedented cooperation, coordination, and collaboration among the participating federal agencies and with state, tribal, and local governments (McGinty et al. 1998).

One strategy outlined in the Plan's ROD combined ecosystem management and civic involvement in the creation of planning provinces, consisting of 12 contiguous multi-ownership areas

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spanning the Plan region. Ecosystem management at the province level required improved coordination among governmental entities responsible for land management decisions and the public they serve, and better integration of forest management activities between federal and non-federal entities.

The ROD also directed agencies to monitor changes in ecological and social systems by assessing status and trends of biophysical and human indicators at multiples scales (USDA and USDI 1994). The agencies recently completed a 10-year monitoring report that is the first comprehensive analysis and interpretation of monitoring data since the ROD (REO 2005). Results of socioeconomic monitoring indicated that many factors contributed to change in communities since the Plan, socioeconomic conditions and change were diverse across communities, and forest management issues remained important (Charnley 2006). The monitoring report did not focus on changes in community socioeconomic conditions at the province level.

The goal of this study was to assess how socioeconomic conditions of communities in the planning provinces changed between 1990 and 2000. We used a composite measure of community socioeconomic well-being to compare communities within the 12 planning provinces based on their proximity to Forest Service (FS) and Bureau of Land Management (BLM) lands. By assessing socioeconomic change in planning provinces and clarifying how provinces differ across the region, we hope to contribute to ways that planning provinces are used in the current strategy of ecosystem management.

Planning Provinces in the Northwest Forest Plan Region

Twelve contiguous planning provinces span multiple land ownerships and government jurisdictions (Figure 1). These provinces were directed to "provide or coordinate analyses at the province level that can provide the basis for amendments to Forest and District Plans" and to "encourage and facilitate information exchange and complementary ecosystem management among federal and non-federal partners" (USDA and USDI 1994: E-17). Information exchange, analysis, and report writing were to be conducted under the auspices of provincial advisory committees (PACs). Formally

established in 1994, the PACS presently consist of up to 29 participants from among a variety of federal, state, county, and tribal governments; the timber industry; environmental groups; recreation and tourism groups; and up to five members-at-large. Each PAC advises a committee of provincial agency executives on forest management activities, basing their advice on the knowledge, experience, and concerns of PAC members.

Methods

Community Level Unit of Analysis

For the purposes of our analysis, the Plan region consisted of 72 counties of western Washington, western Oregon, and northern California that overlapped with the range of the northern spotted owl (*Strix occidentalis caurina*) and that had been eligible for economic assistance through the Northwest Economic Adjustment Initiative. We defined communities geographically, using one of several census small-scale geographic designations, called block groups. To delimit communities in the Plan region, we aggregated 7,776 census block groups from the 1990 census into 1,314 nonmetropolitan communities and 10 metropolitan areas (Donoghue 2003). Using block groups as building blocks for communities had distinct advantages. They were the smallest unit for all census summary statistics, including short-form data (100 percent of the population) on population and housing characteristics and long-form data (sample of population) that included social characteristics, such as education and ancestry, and economic characteristics, such as income, employment, place of work, and public assistance. Block-group boundaries, particularly in rural areas, followed roads, telephone lines, fences, streams, and other geographic features and did not necessarily coincide with socially meaningful geographic places. Block groups were aggregated into something more representative of a community. To aggregate the census block groups into meaningful units of analysis, we combined geographic information system analyses with visual verification. Analysis and verification included information about roads, school districts, population size, public lands, census designations, and other spatial and demographic features.

Each aggregation of block groups—what we call a community—was identified as a polygon and a point, with points located near the largest

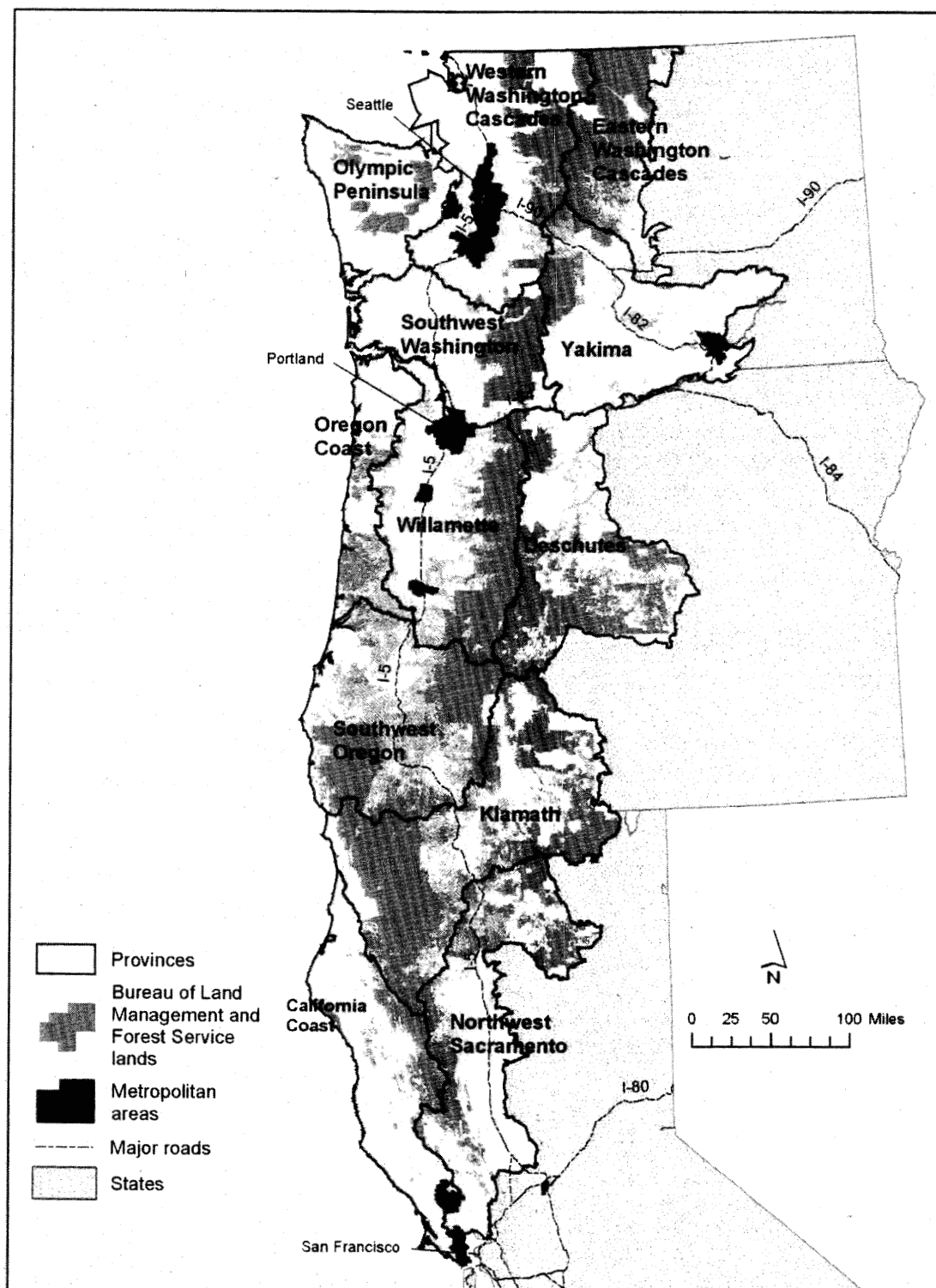


Figure 1. Planning provinces of the Northwest Forest Plan.

population center in each polygon. The boundaries of planning provinces were overlaid with the points of the 1,314 communities in the region, not including the 10 metropolitan areas. The overlay resulted in 1,195 communities within the 12 plan-

ning provinces (Figure 2). Each planning province contained between 26 and 230 communities, with cumulative community populations (i.e., excluding metropolitan areas) ranging from 99,100 to 1,060,452 people in 2000 (Table 1).

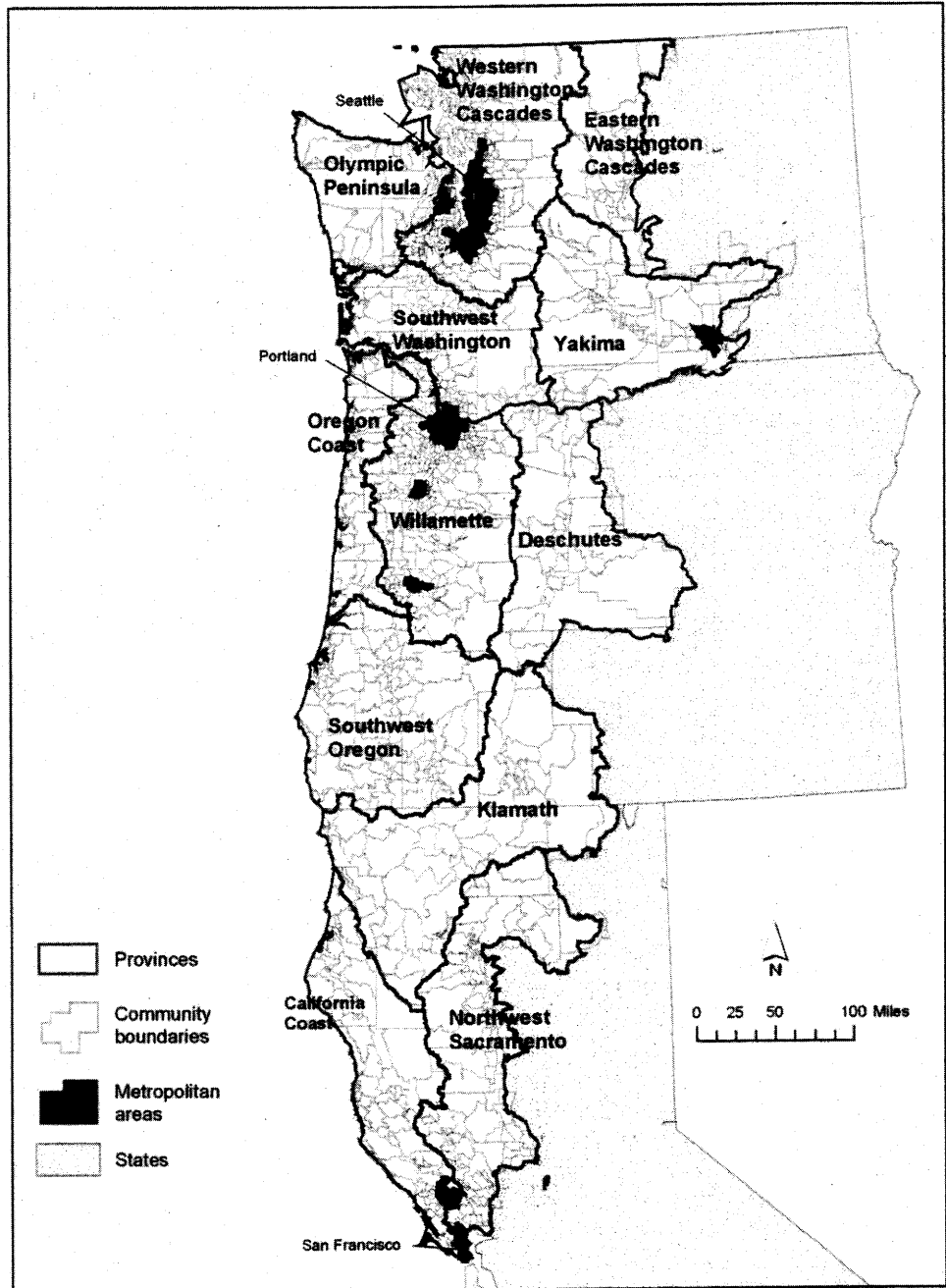


Figure 2. Communities within planning provinces.

TABLE 1. Number of communities and average population by province.

Province	Number of communities	Average community population, 2000	Total province population, 2000
California Coast	101	3,081	311,220
Deschutes	50	4,020	201,022
Eastern Washington Cascades	26	3,812	99,100
Klamath	53	2,663	141,132
Northwest Sacramento	110	5,059	556,484
Olympic Peninsula	74	2,423	179,270
Oregon Coast	60	2,101	126,072
Southwest Oregon	125	3,505	438,093
Southwest Washington	102	3,520	359,027
Western Washington Cascades	192	5,523	1,060,452
Willamette	230	3,221	740,795
Yakima	72	4,662	335,650

Census geographies may change over time. The U.S. Census modified the 1990 block group boundaries for the 2000 census to reflect changes in population and boundary revisions resulting from local input. The boundaries for about one third of the block groups in the region changed in the 2000 census. To make community socioeconomic data comparable from one decade to the next, we approximated the spatial allocation of population and housing by estimating the proportion of the population in the 2000 block groups that overlapped with the 1990 block groups. Proportions were calculated for each of the 2000 census block groups that overlapped the 1,195 community aggregations. They were developed by calculating the proportion of the population or housing of each 2000 block (the smallest census geography containing on average 100 people) found in each community. The 2000 community block populations were grouped and totaled by block group, producing 2000 block group populations within the communities. The 2000 block group community populations were divided by the total 2000 block group populations, producing the proportion of the 2000 population in each community. These proportions were used as multipliers for 2000 socioeconomic data so that these data approximated the same 1,195 community boundaries defined by aggregating the 1990 block groups.

Community Socioeconomic Indicators and Measures

Census data were used to compare changes in population at provincial, regional, and national levels, and relate changes in population to changes in socioeconomic well-being. Because collecting

primary data on community socioeconomic conditions was not feasible, we relied on census data to develop a socioeconomic well-being (SEWB) index that served as a proxy for community socioeconomic well-being, and was comparable between the 1990 to 2000 censuses. The index enabled us to reduce a large dataset of socioeconomic indicators to a convenient single numeric score, while retaining the meaning of underlying variables.

We conducted principal component analysis on about 50 socioeconomic variables to reduce the dataset to factors and variables that contributed to high variation in the dataset. Our basic assumption of the concept and measure of SEWB was that it could be enhanced or reduced. Thus, indicators, such a race, that did not clearly contribute in a positive or negative way to community SEWB were eliminated. We then narrowed the dataset down to a dozen variables that reflected the economic health of community members, such as unemployment, poverty, and income, and we looked for indicators that reflected other dimensions of community life. From this group we identified 6 variables for the SEWB index by selecting for variables that might provide some insight into how well equipped communities were to deal with social and economic change (Donoghue and Sutton 2006).

The community SEWB index consisted of six indicators derived from U.S. Census data: employment by industry diversity, percent population 25 years and older with bachelor's degree or higher, percentage unemployment, percentage of persons living below the poverty level, household income inequality, and the average travel time to work. The index was the summation of standardized

and normalized equally weighted socioeconomic indicators and was calculated as $SEWB = EmD + Ed - PUn - PP - InIn - ATT$ (see Table 2 for definitions). Higher levels of education and employment diversity in a community were assumed to indicate higher SEWB, whereas higher unemployment, poverty, income inequality, and

commute time indicated lower SEWB. The SEWB index was calculated for each of the 1,314 communities in the Plan region (Donoghue and Sutton 2006). The analysis and discussion in this paper focuses on the 1,195 communities within the 12 planning provinces.

TABLE 2. Indicators included in socioeconomic well-being index.

Indicator	Indicator name	Description
EmD	Diversity of employment by industry	Employment by industry relates to the kind of business conducted by the organization where the person is employed. Diversity of employment by industry is a single measure of diversity, or variety, of industries that employ people from the community (the actual place of employment may be outside the community). This measure was generated for each community by using a Shannon-Weaver index. The diversity index varies from a value of 0 (least diverse) for communities with only a single employment industry to 1 (most diverse) for communities having equal employment among all of the reported employment industries.
Ed	Percentage of population 25 years and older having bachelor's degree or higher	Persons with a bachelor's degree or higher are those who have received a bachelor's degree from a college or university, or a master's, professional, or doctorate degree. These data include only persons 25 years old and over.
PUn	Percentage of the population unemployed	All civilians 16 years old and over are classified as unemployed if they (1) were neither "at work" nor "with a job but not at work" during the reference week, and (2) were looking for work during the last 4 weeks, and (3) were available to start a job. Also included as unemployed are civilians who did not work at all during the reference week but were waiting to be called back to a job from which they had been laid off and were available for work except for temporary illness. (For more information on census unemployment data, see http://www.census.gov .)
PP	Percentage of persons living below the poverty level	Number of persons below poverty threshold divided by total population for whom poverty status is determined. Total population for whom poverty status is determined does not include people in institutions, military group quarters or college dormitories, and unrelated individuals under 15 years old. (For more information on census poverty data, see http://www.census.gov .)
InIn	Household income inequality	Ratio of total household income of the 50 percent of households earning the highest income to total household income of the 50 percent of households earning the lowest income. Higher ratios indicates greater income inequality. Calculations used group data.
ATT	Average travel time to work	Average travel time to work (in minutes) for workers ages 16 years and older. Calculations used group data.

To evaluate change in community socioeconomic well-being, we categorized the 1990 SEWB index data and treated them as a baseline. We normalized the raw data for both years to a range of 0 to 100. Using the ranges for the 1990 categories, we fit the 2000 data into them, allowing us to see how communities increased or decreased in SEWB between the two decades. To compare the difference in the 1990 and 2000 SEWB means for communities by province, we used a paired two-sample for means t-test.

Some census indicators are not measured in the same way from one census to the next, and procedures to make data comparable are only available for some indicators. We applied a "crosswalk" provided by the census to make our measure of diversity of employment by industry comparable between 1990 and 2000.

Community Proximity to Forests

Using a geographic information system application, we created a buffer area that extends the boundaries of FS and BLM lands by 5 miles. Communities were designated as within 5 miles or farther away depending on where the community points (rather than polygons) fell when they were overlaid on the extended area of FS and BLM lands. Because of the Plan-orientation of this research, we focused specifically on FS and BLM lands. We chose five miles because during the course of the socioeconomic monitoring project for the Plan (Charnley 2006), federal land managers indicated that communities 10 miles away from a particular FS or BLM unit, in general, were not considered as having primary connections to a particular forest. And, because of the high percentage of public lands in the Plan region, extending the FS and BLM area by more than 5 miles limited our ability to speak to proximity to particular forests.

Statistics related to proximity were calculated using all 1,195 communities, divided as the 669 communities close to FS and BLM lands and the 526 communities farther away. To see how SEWB scores of communities close to FS and BLM lands differed from communities farther away, we compared the mean SEWB scores for communities within 5 miles of BLM and Forest Service lands to those communities farther away for both 1990 and 2000, using two sample t-tests,

assuming unequal variance.

Results

Population Trends

Total population for the entire United States increased between 1990 and 2000 by 13.2 percent, with the highest increase in the West (20 percent) and South (17 percent) and the lowest increases in the Midwest (8 percent) and Northeast (6 percent). The total population in the Plan region, including metropolitan areas, increased by 19.8 percent from 8.57 million in 1990 to 10.26 million in 2000. Total population of communities in the 12 planning provinces, excluding metropolitan areas, increased by 20.6 percent from 3.77 million in 1990 to 4.55 million in 2000.

The provinces can be categorized into three groups related to population growth: those that increased faster than the regional average, those that were below the regional average but increased faster than the national average, and those that increased in population below the national average. Between 1990 and 2000, the Deschutes, Eastern Washington Cascades, Southwest Washington, Western Washington Cascades, and Yakima provinces all experienced population increases greater than the regional average. The California Coast, Klamath, Northwest Sacramento, and Oregon Coast provinces experienced population increases that were below the national average of 13.1 percent (Table 3). Province population data do not include metropolitan areas within provinces because this analysis focuses on socioeconomic changes at the smaller community level. California Coast, Northwest Sacramento, Western Washington Cascades, Willamette, and Yakima province each have one or more metropolitan areas of between 100,000 to 2 million people.

Community Socioeconomic Well-being Trends

Socioeconomic well-being and changes in SEWB vary across the planning provinces. The SEWB scores of Deschutes, Southwest Oregon, Southwest Washington, and Willamette provinces increased significantly (t-test, $P < 0.05$) between 1990 and 2000 (Table 4). Two of these provinces, the Deschutes and the Willamette, together with California Coast, Oregon Coast, and Western Washington Cascades, had the five highest SEWB scores in

TABLE 3. Population change by province.

Province	Total province population 1990	Total province population 2000	Percent change in total province population
California Coast	288,435	311,220	7.9
Deschutes	144,468	201,022	39.1
Eastern Washington Cascades	78,662	99,100	26.0
Klamath	130,363	141,132	8.3
Northwest Sacramento	493,343	556,484	12.8
Olympic Peninsula	154,987	179,270	15.7
Oregon Coast	112,414	126,072	12.1
Southwest Oregon	381,917	438,093	14.7
Southwest Washington	276,269	359,027	30.0
Western Washington Cascades	811,088	1,060,452	30.7
Willamette	625,257	740,795	18.5
Yakima	274,430	335,650	22.3

TABLE 4. Averages and differences in socioeconomic scores for all communities, by province, 1990 and 2000.

Province	Communities within province		Difference
	Average socioeconomic score 1990	Average socioeconomic score 2000	
California Coast	69.5	68.5	1.0
Deschutes	68.9	72.5	3.6*
Eastern Washington Cascades	67.5	67.0	-0.5
Klamath	59.5	53.1	-6.4*
Northwest Sacramento	65.2	61.3	-3.9*
Olympic Peninsula	64.2	65.3	1.1
Oregon Coast	69.1	71.3	2.2
Southwest Oregon	62.1	64.0	1.9*
Southwest Washington	65.5	68.5	3.0*
Western Washington Cascades	72.3	72.1	-0.2
Willamette	70.6	73.7	3.1*
Yakima	64.7	62.6	-2.1

*Significant at $P < 0.05$ level.

1990 and 2000. In contrast, SEWB scores of the Klamath and Northwest Sacramento provinces decreased (t-test, $P < 0.05$). These two provinces, together with Olympic Peninsula, Southwest

Oregon, and Yakima had the four lowest scores in 1990 or 2000. Of the five provinces with the lowest SEWB scores, only Southwest Oregon experienced a statistically significant increase (t-test, $P < 0.05$) in SEWB between 1990 and 2000.

Population and Socioeconomic Well-being

Total population and population growth are sometimes used as proxies for increasing economic opportunities for communities. Of those provinces in the fastest growing population category, all, except one, had moderate to high SEWB scores for 1990 and 2000, with the scores decreasing only slightly or increasing significantly. Yakima, however, had low SEWB scores that decreased (not significantly) between 1990 and 2000.

Of the four provinces in the slowest growing population category, two had moderate to high SEWB scores that increased (not significantly) between 1990 and 2000. Two provinces had lower SEWB scores that significantly decreased between 1990 and 2000.

Proximity to Public Forests and Socioeconomic Well-being

Planning provinces are large contiguous areas covering the entire Plan region, but many communities within provinces are not close to federal forest lands. Almost half (48.4 percent), or 2.2 million people, of the nonmetropolitan population in the planning provinces lived in communities within 5 miles of FS and BLM lands in 2000. Provinces

TABLE 5. Proximity to Forest Service and Bureau of Land Management lands.

Province	Percent of communities within 5 miles of FS and BLM lands	Percent of the 2000 population within 5 miles of FS and BLM lands	Percent of FS and BLM land in province
California Coast	37	46	16
Deschutes	96	99	45
Eastern Washington Cascades	100	100	65
Klamath	98	88	57
Northwest Sacramento	75	62	30
Olympic Peninsula	26	15	16
Oregon Coast	67	67	28
Southwest Oregon	98	93	51
Southwest Washington	21	19	26
Western Washington Cascades	10	7	24
Willamette	62	47	36
Yakima	83	86	13

varied with respect to the percent of communities within 5 miles of FS and BLM lands, and the percent of the FS and BLM lands within each province (Table 5). Eight of the provinces had 60 percent or more of the communities close to FS and BLM lands: Deschutes, Eastern Washington Cascades, Klamath, Northwest Sacramento, Oregon Coast, Southwest Oregon, Willamette, and Yakima provinces. Provinces with 37 percent or less of the communities close to FS and BLM lands included California Coast, Olympic Peninsula, Southwest Washington, and Western Washington Cascades provinces. The Yakima province stood out as one province that had a high percent of the communities close to FS and BLM lands, yet such lands only made up a small percentage of the overall land area ownership.

Some provinces with high percentages of communities close to FS and BLM lands increased in SEWB whereas others decreased (Table 6). In general, changes in average SEWB scores of communities close to FS and BLM lands were similar to changes occurring when all communities in the province were considered. Three provinces with more than 75 percent of their communities close to FS and BLM lands (Klamath, Northwest Sacramento, and Yakima) had statistically significant decreases in SEWB scores between 1990 and 2000. In contrast, the Deschutes, Southwest Oregon, and Willamette provinces had statistically significant

TABLE 6. Averages and differences in socioeconomic scores for communities close to Forest Service and Bureau of Land Management lands by province, 1990 and 2000.

Province	Communities within 5 miles of FS and BLM lands		Difference
	Average socio-economic score 1990	Average socio-economic score 2000	
California Coast	63.3	64.2	0.9
Deschutes	68.7	72.4	3.7*
Eastern Washington Cascades	67.5	67.0	-0.5
Klamath	59.3	53.2	-6.1*
Northwest Sacramento	65.2	60.9	-4.3*
Olympic Peninsula	60.0	63.5	3.5
Oregon Coast	67.7	70.6	2.9
Southwest Oregon	61.8	63.8	2.0*
Southwest Washington	59.4	63.2	3.8
Western Washington Cascades	65.0	63.0	-2.0
Willamette	68.6	72.7	4.1*
Yakima	67.3	64.1	-3.2*

*Significant at $P < 0.05$ level.

increases in SEWB between 1990 and 2000, but also had 60 percent or more of the communities close to FS and BLM lands.

Across all provinces, SEWB was significantly lower in 1990 and 2000 for communities close to FS and BLM lands compared to communities farther away (t-test, $P < 0.001$). In 1990, the average score for the 669 communities within five miles of FS and BLM lands was 65.09, whereas the average score for the 526 communities more than 5 miles from FS and BLM lands was 70.56. In 2000, the average score for the 669 communities within five miles of FS and BLM lands was 65.64, whereas the average score for the 526 communities in provinces that are greater than 5 miles was 70.92. There was no significant change in average SEWB scores between 1990 and 2000 for either group.

Changes in each of the six indicators of SEWB were similar for 669 communities close to and the 526 communities farther away from FS and BLM lands across all provinces, with one exception. The percentage of population with bachelor's degrees or higher, employment diversity, and travel time to work increased significantly between 1990 and 2000 for both types of communities (t-test, $P < 0.001$). Poverty decreased significantly (t-test, $P < 0.001$) for both types. There was no significant change in unemployment in either type of community from 1990 to 2000. Change in income inequality was not statistically significant for communities greater than 5 miles away, but income inequality increased significantly for communities close to FS and BLM lands (t-test, $P < 0.001$). This finding suggests that the increase across all provinces in income inequality appears to be driven by increases in income inequality in communities close to public forest lands.

Discussion

Some provinces improved in SEWB over the decade and some declined, but this was not related to how much FS and BLM lands were in the province, nor how many communities in the province were close to FS and BLM lands (Figures 3 and 4). Although most provinces with the highest population growth had moderate or high, and increasing, SEWB scores, provinces with the slowest population growth had a mix of low, high, increasing and decreasing SEWB scores. Socioeconomic well-being increased or decreased for individual communities between 1990 and 2000, but there was no significant change in average SEWB for either all communities or

communities within 5 miles of FS and BLM lands. However, communities within 5 miles of FS and BLM lands had significantly lower SEWB scores compared to communities farther away in both 1990 and 2000. Another difference related to proximity to forest lands was that income inequality increased significantly between 1990 and 2000 for communities within 5 miles of FS and BLM lands but showed no significant change for communities farther away.

The Deschutes, Oregon Coast, Western Washington Cascades, and Willamette provinces tended to have higher average SEWB scores compared to other provinces, with the Deschutes and Willamette experiencing increases in SEWB between 1990 and 2000. Of those, all but Western Washington Cascade province had high percentages (> 60 percent) of communities close to FS and BLM lands. The provinces that had relatively lower socioeconomic scores in 1990 and 2000 were the Klamath, Northwest Sacramento, Olympic Peninsula, Southwest Oregon, and Yakima. Northwest Sacramento, Olympic Peninsula, and Yakima showed declines in SEWB between 1990 and 2000. Each of these, except the Olympic Peninsula, was a province with high percentages (> 75 percent) of communities within 5 miles of FS and BLM lands.

The SEWB index developed for this study is one attempt to operationalize a complex, community-level, concept in a single measure in order to compare communities across a large region. The concept of socioeconomic well-being has not been rigorously defined at either conceptual or operational levels. Well-being has been distinguished on the basis of capabilities and achievements of individuals (Sen 1985) and on the social, cultural, and psychological needs of people and communities (Wilkinson 1991). Studies of community well-being have focused on understanding the contribution of the economic, social, cultural, and political components of a community in maintaining itself and fulfilling the needs of local residents (Kusel and Fortmann 1991, Force and Machlis 1997, Christakopoulou et al. 2001). Findings in this study indicate that population growth may not be an adequate proxy for the socioeconomic well-being of communities, given the inconsistency of findings pertaining to SEWB scores and population growth, particularly for provinces with the slowest growth rates. Ideally, secondary data should be combined with primary

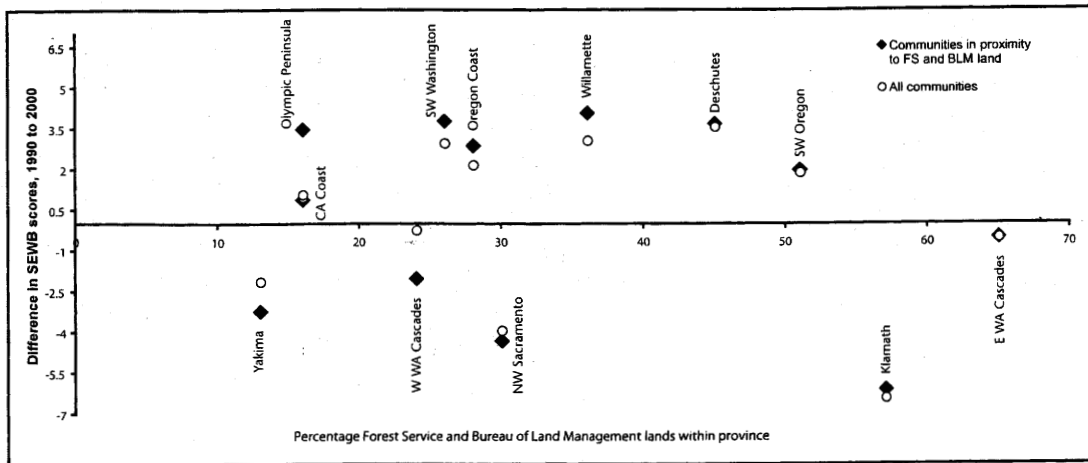


Figure 3. Change in community socioeconomic well-being scores by percent Forest Service and Bureau of Land Management lands, by province.

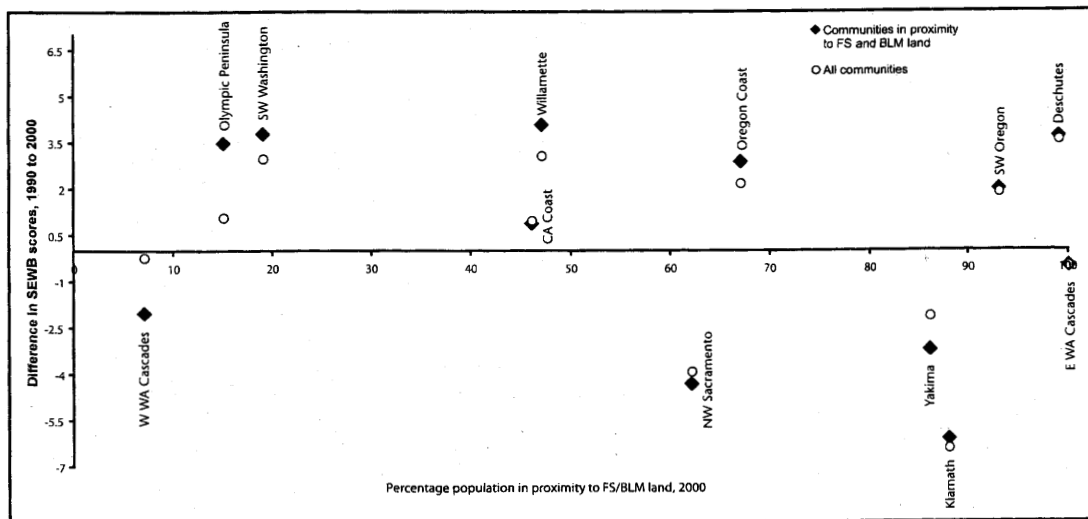


Figure 4. Change in community socioeconomic well-being scores by percent of 2000 population within 5 miles of Forest Service and Bureau of Land Management lands, by province.

data from fieldwork in communities to fully understand the relations between socioeconomic indicators and community well-being (Beckley 1995, Kusel 1996, Parkins 1999).

It is perhaps no surprise that because of the high percentage of FS and BLM lands in the Northwest Forest Plan region many people live close to public lands. What may be less apparent, however, is that "many" equates to 2.2 million people, or just under half of the nonmetropolitan population (48.4 percent) in 2000, who live in communities that are within 5 miles of FS and

BLM lands. Socioeconomic well-being scores were lower for communities close to FS and BLM lands compared to communities farther away in 1990 and 2000. These findings, coupled with the finding that communities closer to FS and BLM lands had significant increases in income inequality between 1990 and 2000, suggest that better understanding of the connections between forest management and communities remains a worthwhile pursuit.

Northwest Forest Plan planning provinces were established to facilitate ecosystem management

through the exchange of information and ideas within PACs, and the presentation of advice from PACs to regional agency executives. PACs have had varying degrees of effectiveness, but have been praised for providing a forum for ongoing, multiparty discussions of forest management issues among decisionmakers and local stakeholders (Tuchmann et al. 1996, Pipkin 1998). Members of PACs frequently discuss the socioeconomic effects of forest management, but in general the PACs have not produced the type of province-level analysis that was foreseen under the ROD (Pipkin 1998). To date, there has not been a comprehensive assessment of the socioeconomic conditions and trends of communities in the planning provinces. The findings in this study raise a number of possible questions for future inquiry related to how and why planning provinces change and differ. For instance, why was it that Yakima province had one of the fastest population growth rates yet, unlike other fast growing provinces, had one of the lowest SEWB scores? And why, when only communities within 5 miles of FS and BLM lands were considered, did Yakima province increase to moderate SEWB scores relative to other provinces? Why did the California provinces have the slowest population growth rates, with two of the three having significantly decreasing SEWB scores?

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Given the multiple factors that influence change in communities, it is difficult to attribute causality between forest management policy and changes in communities (Freudenberg et al. 1998, Carroll et al. 1999, Freudenberg et al. 1999, Jackson et al. 2004). However, information on socioeconomic conditions of communities in planning provinces is an important step in understanding how communities change and what factors contribute to change. As existing jurisdictions, spanning multiple land ownerships, with mechanisms for dialogue and learning, Northwest Forest Plan planning provinces and PACs are opportunities for increased understanding about the ways that forest management contributes to community socioeconomic well-being.

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