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An Analysis of PILT-Related Payments and Likely Property Tax Liability of Federal Resource Management Lands

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Abstract

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This report stems from Congressional concern over the equivalency between Federal payments to counties containing Federal resource management lands, the likely tax liability, and other county-level benefits and costs associated with those lands. Results indicate that the overall tax liability on Federal lands is almost three times the Federal payments. A survey of county executive officers indicates that the direct fiscal costs or benefits to county governments from Federal lands and programs are modest.

Keywords: revenue sharing, tax equivalency, PILT, payments to counties, Payments in Lieu of Taxes Act

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Research Summary

As part of the FY 1996 appropriation process, the United States Congress directed the USDI Bureau of Land Management (BLM) to provide information on (1) the equivalency between Federal payments on resource management lands and likely property taxes those lands could generate; (2) the benefits and costs to local governments resulting from the presence of Federal lands; and (3) recommendations for amending the Payments In Lieu of Taxes (PILT) legislation and related revenue-sharing programs. In September 1997, the BLM entered into an agreement with the USDA Forest Service's Rocky Mountain Research Station to provide tax equivalency and benefit-cost information. The Station assembled a six-person team of researchers, organized a seven-person Steering Committee to provide guidance on research direction and issues, and conducted the research in accordance with a study plan endorsed by the Steering Committee.

Tax equivalency information was developed through a coordinated effort involving the research team, county tax personnel, and agency land specialists. After selecting a nationwide random sample of 105 counties (25 from the East, 40 from the Interior West, 30 from the Pacific West, and 10 from Alaska), local tax assessors were contacted and the tax systems were studied and learned. (Note: Counties containing less than 500 entitlement acres were excluded from the sample.) We simulated agency property taxes after assessors developed appropriate tax categories (land-use classes), agency personnel allocated lands into those categories, and the assessors reviewed the allocations. Assessors also provided needed information on taxable values, tax rates, and tax procedures. Information on PILT and revenue-sharing payments was provided by the BLM.

Although we evaluated several versions of tax equivalency, the comparison between potential property taxes and (1) PILT payments or (2) PILT plus revenue-sharing (RS) payments (PILT+RS) are probably the most appropriate; both were expressed on a "per-acre" basis. Though many individual counties were tax equivalent in FY 1997, we found little evidence of aggregate tax equivalency. (Note: Many governmental units in Alaska have no property tax.) The listing below shows that, nationwide, potential taxes exceed PILT or PILT plus RS payments by \$1.31 and \$0.94 per acre, respectively:

	PILT versus Taxes	PILT+RS versus Taxes
East	-\$6.05	-\$5.40
Interior West	-0.57	-0.42
Pacific West	-3.32	-1.61
<u>Alaska</u>	<u>-0.66</u>	<u>-0.59</u>
United States	-1.31	-0.94

However, under the PILT versus Taxes version of equivalency, 51 percent of all counties are tax equivalent (i.e., $PILT \geq \text{property taxes}$), while under the PILT+RS version, about 62 percent are equivalent. If revenue-sharing payments were held constant but PILT were fully funded, Federal payments would be equivalent to taxes in about 69 percent of all counties. To generate an aggregate national tax equivalency, a fully funded PILT would have to be increased by a factor of almost 3-1/2 times; even then, 18 percent of the counties would still not be tax equivalent.

We assessed the locally perceived benefits and costs associated with Federal lands with a questionnaire administered to the Chief Executive Officer of each sampled county. The questionnaire was divided into three parts, responses to which were based on experience and professional judgement, NOT on a detailed examination of fiscal records or accounts. We received responses to about 76 percent of the questionnaires. For these types of responses, the median (middle) response is the best measure of the typical response.

Part A of the questionnaire sought information about costs imposed on county governments because of the presence of Federal lands and associated management programs. We found little indication of costs imposed. Nevertheless, Federal lands and programs mostly increased local costs for search and rescue, law enforcement, road construction and maintenance, and fire protection and control; but even for those areas of greatest importance, county officials judged the added costs to be "small." Recreation programs were most commonly identified as responsible for cost increases.

Part B of the questionnaire dealt with direct fiscal benefits (cost savings) to county governments associated with the presence of Federal lands and associated programs. Again, we found little indication of direct fiscal benefits. Of the 16 areas of potential fiscal benefits, "use of Federal lands" was rated the highest, but that rating was only "small"; the median rating for all other potential fiscal benefits was "none." (Note: Direct fiscal benefits to county government do not consider indirect fiscal benefits, such as those resulting from economic activity [e.g., timber and land] occurring on Federal lands.)

Part C of the questionnaire dealt with other benefits to communities and individuals in the county. Respondents were provided 21 areas of potential benefits and indicated that "places to hunt and fish," "places to recreate," and "recreational facilities" were the top benefits received by communities or individuals in the county; the median rating for those benefits was "moderate."

Research results seem to provide a basis for a number of conclusions regarding both the tax equivalency issue and the question of local fiscal benefits and costs derived from Federal ownership. Regarding property

tax equivalency: (1) in the aggregate, property taxes are substantially higher than either PILT or PILT plus RS payments, nationally and for regions in FY 1997; (2) the aggregate tax equivalency shortfall notwithstanding, about 62 percent of counties were property tax equivalent in FY 1997; (3) “across-the-board” increases in Federal payments to achieve aggregate equivalency are far more costly than if targeted increases were possible; and (4) under any version of tax equivalency, including that where PILT or RS payments were increased until Federal payments equaled property taxes nationally, some counties were still not tax equivalent.

Regarding local benefits and costs as perceived by local officials: (1) though there may be anecdotal evidence to the contrary, overall costs imposed on local governments were generally rated as “none” or “small,” and “search and rescue” was the top-rated cost item; (2) although specific instances may exist, widespread cost savings received by local governments would be difficult to document because direct fiscal benefits were generally rated as “none,” and “use of Federal lands” was the top-rated cost-savings item; and (3) although the magnitude of benefits to communities and individuals is not overwhelming, indications are that Federal lands and programs mainly help provide a pleasant place to live, enhance the quality of life, and affect lifestyle.

Acknowledgments

This study could not have been accomplished without the active support and cooperation of our Steering Committee, agency lands and resource specialists, and county personnel. The Steering Committee did far more than could be expected and did it well. They traveled across the country to help design the study, argued issues of policy and procedure, and encouraged the research team when confidence waned. The Steering Committee included Dr. Gregory Alward (USDA-FS), Wendy Favinger (USDI-BLM), William Howell (USDI-BLM), Richard Phillips (USDA-FS), Michael Retzlaff (USDA-FS), and David Schmidt (Linn County, OR). Also, the land specialists and other professionals

from the several agencies were a credit to themselves and their agencies. They provided timely information in a competent manner, often in light of many conflicting demands on their time. Finally, county personnel were marvelous. Our questionnaire was directed to the Chief Executive Officer of each sampled county, a group of unquestionably busy individuals; yet nearly 80 percent took the time to respond. Tax-related information was obtained from persons in county tax organizations. We worked with assessors, appraisers, clerks, and more, often on a teleconference at the same time, and on several occasions. With a commitment to accuracy, attention to detail, and down-home cordiality, they made our job a pleasure. To all, thanks.

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Introduction

Almost from the beginning of nationhood, the Federal government of the United States was acquiring, disposing, and retaining lands within its ever-evolving boundaries. According to Clawson (1972), some of the earliest examples of retaining land holdings in Federal ownership involved lighthouses and Coast Guard stations. Although major Federal reservations of public domain did not begin until the establishment of Yellowstone National Park in 1872, local government interest had already been perked. Could local jurisdictions treat reserved Federal lands as if they were private lands and subject to property taxation? Early in the 19th century, the United States Supreme Court answered “no,” holding that local governments could not tax Federal lands within their jurisdictions. Local governments then had a reason to be concerned about Federal retention of the public domain. Federal actions could affect local revenues.

Reservation of public domain for forest reserves in 1891 led to a change in the relationship between the Federal government and local jurisdictions. The Federal government began providing local governments with payments in lieu of (instead of) property taxes. The forests reserves of 1891 became the National Forests of 1905, and legislation passed in 1908 provided that the USDA Forest Service share 25 percent of its revenues (known as the 25-Percent Fund) with local governments. This was followed by legislation providing for additional revenue-sharing arrangements between other Federal agencies and local governments, including the Taylor Grazing Act of 1934, revenue sharing on wildlife refuges, and so on. According to Hibbard (1965), revenue sharing during the 19th century resulted from distributing proceeds from sale of the public domain. According to Clawson and Held (1957), revenue sharing during the 20th century resulted from sale of commodities from public lands.

Historically, interest in revenue sharing focused on property tax equivalency—how well revenue-sharing payments approximated property taxes if those lands were in private ownership. Studies commonly estimated the tax-generating capabilities of Federal lands and compared them to revenue-sharing payments plus “in-kind” payments. In-kind payments refer to activities undertaken by Federal agencies that might otherwise fall to local governments, such as constructing forest highways and controlling fires. The question of tax equivalency is inextricably linked to the magnitude of revenue-sharing payments, which varies with market outcomes—prices and output levels. Conditions of favorable prices and output levels promote tax equivalency, while low prices or output levels discourage equivalency. Moreover, fluctuation in price and output levels create a degree of uncer-

tainty for local governments relative to the dependability of revenue sharing as a source of funds to finance local government activities.

The desire for property tax equivalency and revenue dependability led local government to become interested in the nature of management practiced by Federal land-management agencies. Local governments had a vested interest in management outcomes, be they land allocations to the National Wilderness Preservation System, reauthorization of the Endangered Species Act, or implementation of the concept of ecosystem management. That local governments were too interested in management outcomes and that Federal revenue sharing was not a dependable revenue source was judged undesirable, at least by the Public Land Law Review Commission established by the U.S. Congress to look into these and related matters during the 1960's. In its report, “One-Third of the Nation's Land,” the Public Land Law Review Commission (1970) recommended revamping Federal revenue sharing with a systematic approach that coordinated various revenue-sharing programs in a way that promoted tax equivalency and funding stability.

The Payments in Lieu of Taxes (PILT) Act (31 USC 1601-1607) was passed in October 1976, thus promoting the Public Land Law Review Commission's recommendation of nearly a decade earlier. This Act became effective with fiscal year (FY) 1977 and is administered by the U.S. Department of the Interior's Bureau of Land Management (BLM). PILT held the promise of both stabilizing Federal payments to counties and improving prospects for tax equivalency (Schuster 1995). PILT has now become a significant part of Federal land payments, especially in the West (Schuster 1996). Now after 20 years of operation, the United States Congress directed the BLM to assess several aspects of PILT's performance (U.S. Congress 1996):

1. The extent to which payments under the PILT Act exceed the tax revenues that States and local governments would receive from entitlement lands (as defined in such Act) if such lands were taxed at the same rates as other lands;
2. The nature and extent of services provided by units of local government to visitors to entitlement lands, and the economic benefits resulting from the presence of such visitors;
3. Other economic benefits to communities in areas where Federal lands are located;
4. Recommendations concerning the feasibility and desirability of amending the PILT Act and other laws under which payments are made to local governments on the basis of the location of Federal lands and revenues derived from such lands....

The BLM entered into an agreement with the USDA Forest Service's Rocky Mountain Research Station to develop information needed to satisfy the first three congressional directives; recommendations are deferred to the BLM. In an attempt to provide a cohesive research framework, and after taking some interpretive liberties, this study addressed three topics:

1. Tax Equivalency: Compare Federal payments (PILT and resource-based, revenue-sharing payments) to local governments for entitlement lands, to property taxes those lands would generate if taxed at the same rate as other lands;

2. Costs: Describe the nature and extent of costs imposed on local governments by the presence of entitlement lands and associated management activities; and

3. Benefits: Describe the nature and extent of economic benefits accruing to local communities and individuals, resulting from the presence of entitlement lands and associated management activities.

Information on these topics was developed by a Forest Service research team working in conjunction with a Steering Committee of PILT experts. Focusing on FY 1997, information on tax equivalency came from a nationwide sample of 105 counties, involving the coordinated efforts of county tax specialists and agency land management personnel. Information on benefits and costs was derived through a questionnaire administered to the Chief Executive Officer for sampled counties. Although several types of local government receive PILT payments, they will be referred to collectively as "counties." Research design and methods were formulated to address the weaknesses and strengths identified in an analysis of previous studies. Research was conducted, data were analyzed, and a final report (USDA-FS 1999) was delivered to the BLM. This document has been adapted from that report.

Previous Studies

Long before the PILT Act was passed in 1976, concern was expressed about the level of the revenue-sharing (RS) programs as well as their stability (or dependability). In addition, there was a general feeling that such programs fell far short of compensating counties for the property tax losses. Local governments were concerned that not only were they losing tax revenue, but also that extra costs were being imposed on them due to the need to provide additional services to employees and visitors connected with Federal lands. It was also noted, however, that in addition to any extra costs imposed on local governments by the presence of Federal lands, local governments also receive many types of benefits from these

lands. Though many of these benefits (such as watershed and recreational values) are difficult to quantify, attempts were made to measure other, more tangible benefits. These benefits often took the form of "in-kind" contributions or services that "...could be reasonably expected to have been made by State, county, or other local governments in the absence of Federal expenditures" (Clawson and Held 1957).

In 1950, the National Education Association conducted a study (Committee on Tax Education and School Finance 1950) to estimate the value of all Federal holdings, including land, buildings, and dams. Estimated property taxes for these lands were calculated by local tax officials and compared to revenue-sharing payments. The fiscal problems caused by Federal land ownership were discussed, but no attempt was made to quantify the costs to the State and local governments. Results showed that Federal payments were about 31.4 percent of the estimated taxes. Several problems with this study were noted by Clawson and Held (1957). First, no restraints were placed on those estimating the taxes, and it was felt that local tax officials might have overestimated the taxes lost on Federal lands. Second, no account was taken of the value of in-kind contributions provided by the Federal government, such as fire protection or road construction.

In a 1955 and 1965 follow-up study, Williams (1955 and 1965) focused on counties containing National Forest land. Payments from the Forest Service's 25-Percent Fund for the year 1952 were compared to the property taxes that might be payable on such land if it were taxed as private property. This study also attempted to estimate the value of in-kind contributions. The 652 counties containing National Forest land were grouped into 34 strata based on location, and natural and economic characteristics. An average of four sample counties was selected from each stratum for a total of 135 counties. In each sampled county, Forest Service personnel contacted local assessment officials to gather information on assessment classes and the average assessed value per acre for each class. The National Forest land was then classified by Forest Service personnel into one of the local assessment classes, an estimated assessed value was computed, and taxes were calculated using local tax rates. In-kind contributions were estimated by looking at Forest Service expenditures on fire control, forest highways, and construction and maintenance of roads, trails, and structures.

Results showed 25-Percent Fund payments to be 58 percent of the estimated per-acre tax. However, when in-kind contributions were added to 25-Percent Fund payments, total benefits to counties were estimated to be 126 percent of the taxes. The 1965 followup report, using data for 1962, divided Forest Service holdings

into National Forests and National Grasslands. Twenty-five Percent Fund payments for 1962 again fell short of being tax equivalent, calculated to be 44 percent of the estimated per-acre tax for the National Forests and 63 percent for the National Grasslands. When in-kind contributions were added, total benefits exceeded the estimated taxes on the National Forests, with total benefits calculated to be 146 percent of the tax per acre. On the other hand, inclusion of in-kind benefits for the National Grasslands did not make up for the loss of taxes, with total benefits still accounting for only 81 percent of the tax per acre.

In 1964, the U.S. Congress established the Public Land Law Review Commission to review existing public laws and regulations and to recommend necessary revisions. One of the key topics addressed was the tax immunity of Federal lands and its impact on State and local governments. A series of studies conducted for the Public Land Law Review Commission by EBS Management Consultants (1968) analyzed 40 Federal statutes providing for compensation to States and/or local governments through revenue sharing and payments in lieu of taxes. These studies were primarily concerned with assessing the impact of Federal lands on the financial policies of State and local governments. Through case studies consisting of 5 States and 50 counties, several issues were addressed: (1) the costs or burdens to State and local governments from the presence of Federal lands, (2) in-kind benefits accruing to local governments because of Federal land, and (3) the difference between State and local government receipts from the various Federal land programs and the taxes "lost" due to the tax immunity of Federal lands. Potential tax revenue from Federal lands was estimated through cooperation of Federal agency field officers and local tax officials. Federal lands were grouped into land classes similar to those for comparable private land, and an assessed value for each class was derived. A value for quantifiable benefits such as land, construction materials, and roads was estimated by Federal agency field officers. Data on the burdens imposed on State and local governments by Federal land ownership were obtained from State and local county officials, but appropriate documentation by these officials had to be provided.

For 1966, it was estimated that revenue sharing and payments in lieu of taxes distributed \$131.1 million to State and local governments. Together with \$13.1 million of in-kind benefits, State and local governments received \$144.2 million in total benefits. Subtracting the \$55 million in estimated additional burdens caused by Federal ownership, it was estimated that State and local governments received an \$89.2 million benefit from the presence of Federal lands. However, for 17 of the 50 counties studied, burdens were greater than Federal payments plus in-kind

benefits, resulting in a net loss to the counties. The study also found revenue sharing programs to be rather arbitrary in nature, having little connection to the amount of revenue needed by a county, to Federal acreage, or to the loss of taxes due to Federal immunity.

The Public Land Law Review Commission concluded that the then-present system was too volatile and provided inadequate compensation (PLLRC 1970). The Commission recommended to Congress that a system of payments in lieu of taxes should be implemented to mitigate the direct and indirect burdens placed on State and local governments by Federal land. The Commission's 1970 proposal became a reality in 1976 when PILT was enacted as umbrella legislation covering several resource-based revenue-sharing programs and assuring a minimum payment level.

In the 2 decades since PILT was established, interest in the tax equivalency and revenue-sharing programs has continued to be a subject of debate and study. The General Accounting Office (U.S. Comptroller General 1979) reviewed Federal land payment programs in six Western States. The objective of the study was to assess inequities in the current programs and to examine alternative land payment programs. In the six States reviewed, the amount paid to State and local governments under the Federal land payment programs in FY 1977 exceeded by \$187.3 million (or \$1 per acre) the amount they would have received on a tax-equivalency basis. Despite these findings, due to the inequities found in the system, a full tax-equivalency program was recommended to replace the system of PILT and revenue-sharing programs.

Huebner and others (1985) compared the system of receipt sharing on National Forest System lands with an alternative, tax-equivalency program. The alternative program included a floor on tax-equivalency payments equal to each county's average 25-Percent Fund payment for 1977 to 1983. Forty counties in eight States were selected for analysis. Neither the counties nor the States were selected by statistical methods but rather chosen to compare east-to-west, north-to-south, differing payment levels, and States with different tax systems. National Forest System lands were classified and assessed in cooperation with local tax authorities. Tax equivalency values were determined with and without the floor. Counting both 25-Percent Fund payments and PILT payments, in 1983, revenue-sharing payments to the 40 counties amounted to \$56,178,260, estimated tax-equivalency payments without the floor were \$32,853,450, and payments with the floor were \$81,157,060. Almost half of the counties in the sample sustained a loss under tax equivalency when looking at both revenue sharing and PILT payments. Counties containing National

Forest land with an abundance of timber received the most money from revenue sharing and PILT. Counties where recreation, wildlife, and wilderness prevailed received the smallest amount. This trend was reversed for tax-equivalency payments. The authors concluded that the tax-equivalency proposal failed to produce many of the desired effects such as a more equitable distribution or eliminating the possibility of increasingly “overcompensating” a few counties.

A recent study of five Western States by the Bureau of Land Management (USDI-BLM 1992) found that Federal payments were greater than what these lands would command in property taxes. The value of the Federal lands was assessed by BLM field officers, realty specialists, and land appraisers. Property taxes on the Federal lands were calculated by comparing comparable tracts of private and public land. Real property tax revenues per acre for selected tracts of privately owned, unimproved land were collected by BLM field officers using public records. These values were then compared to tax information for the public land tracts gathered from State BLM officers. Overall, for FY 1991, PILT and revenue-sharing payments to State and local governments averaged \$0.296 per acre. For tracts of comparable privately owned land, estimated real property tax payments averaged \$0.098 per acre.

A critique of the BLM study by the National Association of Counties (NACO 1992) highlighted several problems. First, BLM officials did not contact local tax officials to request property tax information on comparable private property. The BLM, due to time constraints, had decided against making direct contact with State or local officials concerning the study. Second, the National Association of Counties felt that it was neither accurate nor fair to count revenue sharing and other Federal land payments. Because revenue sharing payments are earmarked for schools and roads, rather than for general county purposes, the National Association of Counties felt they should not be included. Third, in the State of Oregon, timberland, grazing land, and recreational land were grouped together as one classification. According to Oregon officials, only timberland was an accurate classification in Oregon tax law. Other criticisms by Oregon officials included too small of a sample size, use of the wrong private tax rate, and the exclusion of the severance tax on harvested timber. In addition, for several counties in Colorado, county officials felt that the BLM had attempted to “find the lowest possible tax liability” by classifying everything as grazing land or waste land.

Schmit and Rasker (1996), using the Interior Columbia River Basin as a case study, explored the relationship between resource extraction on public land and payments to counties (PILT and revenue

sharing). A tax-equivalency comparison was also done on lands that had recently been transferred into or out of Federal ownership. This comparison showed a great deal of variation among counties, with some counties receiving a great deal more revenue from Federal ownership than private ownership, and others receiving a great deal less.

Finally, a recent study by the General Accounting Office (GAO 1998) looked at the programs used by Federal agencies to compensate State and local governments for the loss in property tax revenue due to the tax-exempt status of Federal lands. Among the issues evaluated were the differences among the programs and the processes used by the States of California, Oregon, and Washington to distribute the Federal payments to local governments. They found distribution processes to be similar, but also found that, in some instances, the differences affected both the amount of revenue-sharing funds received by the counties and how these funds could be used. The General Accounting Office concluded that there were few Federal laws specifying how revenue-sharing funds were to be distributed to the counties, and that it was State laws that controlled the actual amounts that counties received.

Methods

There were two distinct phases in this study. The Tax Equivalency phase compared Federal payments to local governments for entitlement lands to property taxes those lands would generate if taxed at the same rate as other lands. The Benefit-Cost phase described the nature and extent of costs and benefits to local governments and communities due to the presence of entitlement lands and associated management. Research design and policy decisions were made by the five-person research team (the authors) in conjunction with the seven-person Steering Committee, which included Forest Service and BLM economists along with a county commissioner. The following describes the assumptions and limitations of the study, and how we collected and analyzed data for the two phases.

Assumptions and Limitations

Several assumptions were needed to complete this study, either to limit the wide variety of complex situations with which we were to deal, or to keep this study's scope compatible with resources available to the research team or to county and agency cooperators. The assumptions were developed by the research team and discussed with and agreed to by the Steering Committee. As with all research results, study findings need to be interpreted in light of the assumptions.

Six of the most important assumptions made in this study are:

1. **Local Government**—This study focused on the units of local government eligible for PILT payments. In most cases, that was the general purpose, local government within the geographical subdivision is known as a county (parish in Louisiana, township in New England, or borough in Alaska); in FY 1997, that also included cities in “unorganized” areas of Alaska. In no case did the concept of local government include special-purpose governments within counties, such as independent school districts, fire districts, irrigation districts, and so on.

2. **Land Use**—This study assumed no change in land use. This decision was based on the impracticality of allowing a change in land use, including determining what that use would be. Wildlands commonly have several concurrent land uses. Land uses identified for this study were the “dominant” use, rather than the subordinate use; they also reflected uses that were “allowed” or permitted under current plans and regulations.

3. **Property and Values**—This study was limited to land and its value in its current use. It did not explicitly consider personal property or structures and improvements affixed to the land, even if Federally owned.

4. **Tax Rate**—When determining the tax bill for Federal lands, the taxable value was multiplied by the general county-wide tax rate (the mill rate), excluding tax rates for other special-purpose taxing jurisdictions within the county (e.g., independent school districts).

5. **Revenue-sharing Payments**—Although the Congressional direction to the BLM only called for a comparison between PILT and property taxes, this study additionally, but separately, reflected those revenue-sharing payments considered as “prior year payments” in PILT calculations, such as payments under the Taylor Grazing Act.

6. **Land Classification**—This study sought agreement between agency and county tax personnel on how agency lands would be treated within and among tax classes; if irreconcilable differences occurred, we deferred to the county’s classification.

Tax-Equivalency Phase

The tax-equivalency phase of this study took extra precautions to ensure that the likely property taxes generated from Federal lands were determined in accordance with the way local taxing authorities would make the assessment. In the case of special assessments (e.g., for timber or grazing), current land use had to be compatible with applicable statutory standards.

Data Collection—The focal point of this study was “entitlement” lands. According to the BLM (1997a):

...entitlement lands consist of lands in the National Forest System and the National Park System, lands administered by the Bureau of Land Management, and lands dedicated to the use of Federal water resource development projects. Also included are dredge disposal areas under the jurisdiction of the Army Corps of Engineers, National Wildlife Reserve Areas withdrawn from the public domain, inactive and semi-active Army installations used for non-industrial purposes, and certain lands donated to the United States Government by State and local governments.

Agencies administering entitlement lands include the USDA Forest Service; the USDI Bureau of Land Management, National Park Service, Bureau of Reclamation, and Fish and Wildlife Service; and the USDD Army, including the Corps of Engineers.

The sampling unit in this study was a county (parish, township, or borough) containing entitlement lands. The sampling frame was based on MASTREC.DB for FY 1997, a database used in PILT calculations and containing entitlement acreage totals for each county (USDI-BLM 1997b). Nationwide, 2,170 counties contain entitlement lands. Because we did not know the variability of the tax-related data, nor the cost and time to collect information from a sampled county, we could not calculate the optimal sample size needed. Accordingly, the research team had extensive discussions with Dr. Hans Zuuring (Professor of Forest Biometrics, University of Montana) about the sampling design and size. Our ultimate goal was to obtain information from the largest feasible sample, consistent with our time frame, the geographical distribution of entitlement lands, and the geographical distribution of PILT-receiving counties. In the end, it was decided to draw a stratified, random sample of 118 counties. Thirteen counties were later excluded from the tax-equivalency sample because they contained less than 500 acres of entitlement land, a restriction we adopted to avoid incurring costs with small paybacks.

The final tax-equivalency sample of 105 consisted of 40 counties from the Interior West, 30 counties from the Pacific West, 25 counties from the East, and 10 boroughs from Alaska. The East region included Minnesota, Nebraska, Kansas, Oklahoma, Texas, and all States to the east. The Pacific West included California, Oregon, Washington, and Hawaii. The Interior West contained all counties located between the Eastern and Pacific West regions. Counties were sampled by region to ensure that the distribution of sampled counties reflected the distribution of entitlement acres, PILT payments, and other revenue-sharing payments. States were grouped into regions based on logic and

custom: the public land States were assigned to the Western regions and then simply stratified into Pacific West and Interior West.

Originally, Alaska was sampled as part of the Pacific West. However, Alaska was found to be quite unlike other States in that several local governments in Alaska contain vast amounts of Federal land but do not use property taxes for financing. To illustrate, the North Slope Borough (not in our sample) contains over 46 million acres of entitlement lands, an amount of land slightly larger than North Dakota, and receives Federal payments of about 1 cent per acre, all of which exceeds the property tax of 0 cents per acre! With our sample of East counties totaling 522 thousand acres, the North Slope Borough alone contains nearly 10 times the acreage of our entire sampled East. Clearly, Alaska can affect overall and regional results. We thought it best to keep Alaska separate.

Determining the estimated tax bill for Federal entitlement lands required interaction of county tax specialists, agency personnel, and research team members. Knowledge of the property tax system and the specific land-use categories used by the counties was needed. To gain needed knowledge of the property tax system, we initially worked through the State offices responsible for oversight of the property tax and by accessing appropriate Internet sites. The specific land categories and in-depth knowledge of the standards or criteria used to assign land to each category were developed by teleconference with the county assessor or county appraiser. Once the classification systems were understood by the research team and agreed to by county tax personnel, data-collection forms outlining the land classes and instructions defining the land classes were developed and sent to the appropriate agency personnel for completion. In most cases, this amounted to two to three agency contacts per county; but in one case, almost a dozen agency persons were contacted for one county. Agency contact was restricted to those agencies managing at least 500 acres and accounting for at least 1 percent of the entitlement acres in the county. However, the excluded acres were included in the final calculations by assigning them the estimated county-wide value per acre for the included acres. Completed and returned data forms were reviewed by research team personnel for completeness and forwarded on to the county assessor for concurrence. If disagreement between agency and county personnel occurred, county and agency personnel along with the research team would work to rectify the difference. After agreement was achieved, county assessors provided the research team with average assessed values per acre for each land-use category and general county-wide tax rates applicable to FY 1997. (Note: we use the term "tax rate" rather than "mill rate," because tax rate seems to be more widely

used and understood. Whereas the mill rate is measured in terms of 1/1000th dollar, the tax rate, measured in 1/100th dollar, is a percentage.) With all needed information collected, the research team calculated the estimated tax value for the entitlement acres.

Data Analysis—The main hypothesis implied by the Congressional directive is whether Federal payments to counties are equivalent to the estimated tax payments (i.e., Federal payments \geq tax payments). Additionally, the payments to counties and estimated tax payments were statistically tested at the regional level (e.g., East, Interior West, Pacific West, and Alaska).

The equivalency of PILT (and PILT plus revenue-sharing) payments and the estimated taxes of the entitlement lands were statistically compared. This entailed comparing the PILT (or PILT plus revenue sharing) payments per acre to the taxable value of the entitlement lands per acre. The combined ratio estimators approach outlined by Cochran (1977) and Steel and Torrie (1980) was used to test equality of sample means. The statistical analysis consisted of estimating ratios (e.g., tax per acre) and their corresponding variances and calculating the following test statistic:

$$t = \frac{\hat{R}_1 - \hat{R}_2}{\sqrt{v(\hat{R}_1) + v(\hat{R}_2)}}$$

where: \hat{R}_1 and \hat{R}_2 are the estimated combined ratios and $v(\hat{R}_1)$ and $v(\hat{R}_2)$ are the corresponding variances.

This analysis was conducted on a regional and national level. Probability levels were determined.

Logistic regression analysis was used to statistically test the effect of county attributes on tax equivalence. If the difference between Federal payments and tax payments was positive (i.e., equivalent), tax equivalence was assigned a value of one. If the difference was negative, tax equivalence was assigned a value of zero. The logistic regression model is defined as follows:

$$\text{Logit}(Y) = B_0 + B_1 \cdot \text{TCR} + B_2 \cdot \text{ST} + B_3 \cdot \text{FP} + B_4 \cdot \text{PT} + B_5 \cdot \text{POP} + B_6 \cdot \text{TCA} + B_7 \cdot \text{AB} + B_8 \cdot \text{PA} + B_9 \cdot \text{ETV} + B_{10} \cdot \text{PD} + B_{11} \cdot \text{REG} + e_i$$

where: Y is the tax equivalency measure (0 or 1),

B_0 - B_{11} are regression parameters to be estimated,

TCR is total county revenue,

ST is the county 1998 sales tax percentage,

FP is percent 1997 Federal payments of 1992 county property tax,

PT is percent 1992 property tax of total 1992 county revenue,

POP is the 1996 county population,

TCA is total county acres,

AB is an indicator variable for A or B county designation, based on the FY 1997 PILT calculation,
 PA is percent entitlement acres of total county acres,
 ETV is percent entitlement taxable value of total county taxable value
 PD is the county 1996 population density, and
 REG is an indicator variable for region.

All PILT-related information came from PILT databases (USDI-BLM 1997b). County financial data came from the 1992 Census of Government (USDC-BOC 1997), while sales tax information was provided by the National Association of Counties (NACO 1998). Stepwise logistic regression analysis was used to estimate the model and determine which independent variables were statistically important. A significance level of $\alpha = 0.05$ was used to determine variable entry. If the region variable (REG) was found significant, region-specific models would be developed.

Benefit-Cost Phase

Determining the costs imposed by, or the benefits resulting from, the presence of entitlement lands and associated management activities could entail substantial research endeavors. They could easily involve in-depth analysis of fiscal records or rigorous comparisons of spending patterns. However, the language of the Congressional directive to the BLM suggests a lesser effort, an effort intended more to illuminate the issue rather than provide a definitive, quantitative analysis. Therefore, we addressed both topics through a questionnaire directed to county officials.

The Questionnaire—The questionnaire (available on request from the authors) used to assess costs and benefits of entitlement lands called for judgmental responses, as opposed to quantitative dollar estimates. In the questionnaire, we wanted to assess the nature and extent of costs and benefits but not necessarily their dollar magnitude. County officials were asked the importance of a series of cost or benefit items that were developed after talking to a sample of county officials and agency personnel to identify what they considered important. The draft questionnaire was edited and stylized by questionnaire specialists at the University of Montana's Bureau of Business and Economics Research. Because questionnaire results were to be used by the BLM to better understand its customers, the questionnaire carried the Office of Management and Budget approval number designated for that purpose. The final questionnaire had three parts: (1) direct fiscal costs, (2) direct fiscal benefits, and (3) general community benefits. The questionnaire was mailed to the Chief Executive Officer in the 118 counties initially sampled in the Tax Equivalency

phase; in most cases, that person was the chair-person of the county commissioners.

Data Analysis—The survey results were summarized to determine average responses for each question by region. Logistic regression was used to statistically analyze how the county responses were effected by county attributes (A-B designation, size of county, etc.).

Response to each part of the questionnaire involved a four-level scale, including "none," "small," "moderate," and "substantial." Initial analysis simply consisted of estimating the medians and means for all questions. The medians were used to rank the questions for relative importance, and the means were used to break ties. The summary tables produced from this analysis allowed quick determination as to which cost or benefit items were judged most important to the county.

Logistic regression analysis was used to statistically determine the affect of county attributes on questionnaire responses. The dependent variable was the questionnaire response. To estimate the logistic regression model, responses were collapsed from the original four-point scale to a two-point scale. The categories of "none" and "small" were merged and the categories of "moderate" and "substantial" were merged to form the two-point scale. The two-point scale served as the dependent variable in the logistic regression model. The logistic regression model allowed for the testing of the relationships between the county attributes (identified largely by the Steering Committee) and questionnaire response. The logistic regression model is defined as follows:

$$\text{Logit}(Y) = B_0 + B_1*TCR + B_2*ST + B_3*FP + B_4*PT + B_5*POP + B_6*TCA + B_7*AB + B_8*PA + B_9*ETV + B_{10}*PD + B_{11}*REG + B_{12}*AL + B_{13}*TE + e_i$$

where: Y is 0 for the none-small category and 1 for the moderate-substantial category,

B_0 - B_{13} are regression parameters to be estimated,

TCR is total county revenue,

ST is the county 1998 sales tax percentage,

FP is percent 1997 Federal payments of 1992 county property tax,

PT is percent 1992 property tax of total 1992 county revenue,

POP is the 1996 county population,

TCA is total county acres,

AB is an indicator variable for A or B county designation, based on the FY 1997 PILT calculation,

PA is percent entitlement acres of total county acres,

ETV is percent entitlement taxable value of

total county taxable value,
 PD is the county 1996 population density,
 REG is an indicator variable for region,
 AL is agency land distribution, and
 TE is tax equivalency (estimated Federal
 payments - estimated total tax).

Stepwise logistic regression analysis was used to estimate the model and determine which county attributes were statistically significant. A significance level of $\alpha = 0.05$ was used to determine variable entry into the model. One model was estimated for all regions combined. However, individual regional-level models were also investigated.

Results

This study developed information on the equivalency of Federal payments relative to likely property taxes, and on direct fiscal benefits and costs to local governments due to the presence of Federal lands and related management programs. Data were obtained from a nationwide sample of 105 counties, and involved coordinated efforts of study personnel, agency resource specialists, and county tax officials. Benefit and cost information was derived through a questionnaire administered to the Chief Executive Officer in each sampled county. All data and analyses focused on FY 1997.

According to PILT records, there were about 594.6 million acres of entitlement lands in FY 1997, contained in some 2,170 units of local government eligible for PILT payments. Our sample of 105 counties contained 73.1 million acres, about 12 percent of the total. As indicated earlier, we excluded counties with very small amounts of entitlement lands. Even then, sampled counties ranged from containing a low of 547 acres of entitlement lands to a high of about 6.4 million acres. As a percent of total land in the county, entitlement acres ranged from a low of 0.07 percent to almost 100 percent, averaging about 31 percent (fig. 1). County populations varied widely, from a low of 66 persons to a high of over 2.6 million.

Tax systems also varied widely. For example, as a percent of total county revenue, property taxes ranged from a low of 0 percent (for six sampled governments in Alaska without a property tax) to a high of almost 81 percent, averaging about 35 percent (fig. 2); in about 85 percent of the counties, property taxes accounted for 20 to 60 percent of county revenue. About half of the counties studied also levied a sales tax, and those ranged from a low of 0.13 percent ($\frac{1}{8}$ of a percent) to a high of 5.0 percent. Although we found the expected negative correlation between county reliance on property taxes for revenue and magnitude of the sales tax, the correlation was quite low (-0.104) and statistically

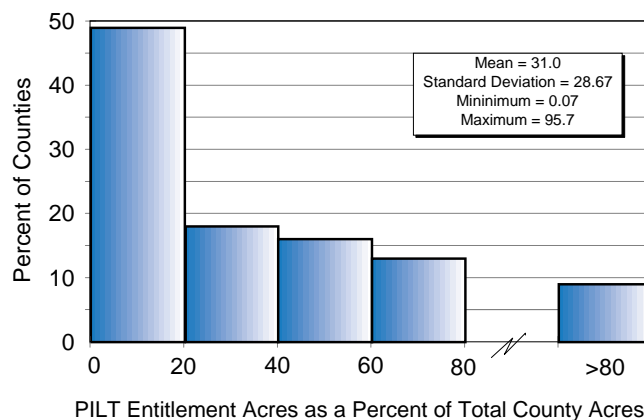


Figure 1—Distribution of counties: entitlement acres as percent of total county acres.

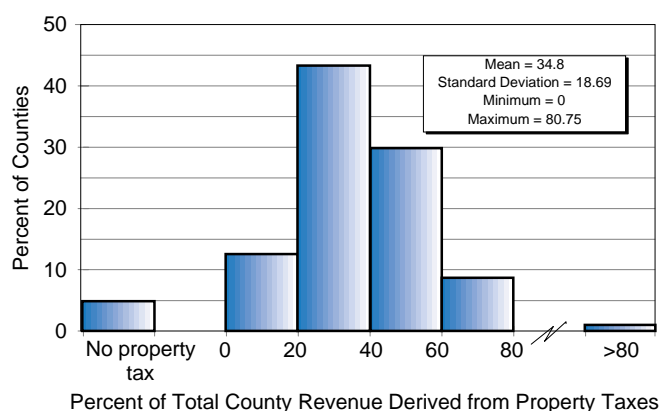


Figure 2—Distribution of counties: property tax as percent of total county revenue.

nonsignificant. Excluding the six counties without a property tax, Federal payments (i.e., PILT and revenue-sharing payments) ranged from a low of about 0 percent of property taxes to a high of over 300 percent. Within this backdrop of substantial variability, we assessed tax equivalency.

Tax Equivalency

In this study, tax equivalency is measured by the difference between the amount of Federal payments per acre of entitlement land and the amount of property-related taxes those lands would have generated, had they been taxed at the same rates as similar non-Federal lands, holding constant, current land use. If the Federal payments equaled or exceeded the taxes that would be generated, the payments are said to be equivalent. In the process of assessing equivalency, we found substantial variability. Some governmental units levy no property tax, others do so with a very high tax

rate. High tax rates, however, do not necessarily imply high taxes, because there is substantial variability in tax systems with regard to establishing taxable value. Some units focus exclusively on market value, while others use a complex system of preferential tax treatments. Local issues and concerns prompt these variations, which certainly frustrate analyses and comparisons.

Taxable Value—Early on, it became quite clear that taxation terminology is anything but uniform. Depending on the county and circumstance, assessed value, taxable value, highest and best-use value, along with market value may or may not mean the same thing. We adopted the term “taxable value,” referring to the value against which the tax calculation is made. Determining the taxable value for each agency’s lands in sampled counties constituted the bulk of work expended in this study. Contacts were made with each county’s tax assessor. We then developed a set of land-use classes and class definitions into which agency lands could be classified prior to determining taxable value. In some cases, State law controlled or influenced classes and definitions. For example, under North Dakota law, all nonresidential property was classified as either cropland or noncropland, and State officials specified per-acre values to be used in each county. In other cases, there were no State guidelines and counties were totally free to develop whatever classes were needed. This proved to be a problem in an Alaska jurisdiction where the existing property base consisted of urban, residential properties; there was no experience in taxing rural, wildland properties.

Preferential assessments were a major factor affecting taxable value. In many cases, a property’s market value is used as the basis for determining the tax. In other cases, social goals are reflected in preferential taxation for certain kinds of land uses. When this happens, the taxable value of a property may be only a small portion of its market value. Preferential taxation was common in our analysis of entitlement lands, involving open space, grazing, and riparian considerations. It also involved timber production, which has major implications for taxable values in California, Oregon, Washington, and Montana.

Preferential timber assessments affect taxable value in two ways. First, in most cases they involve replacement or modification of the ad valorem system, often through a two-part system that involves an annual bare-land tax and a tax on harvested timber. Although these systems are supposed to be revenue-neutral (affecting only the timing of tax payments), they seem to generate a substantial reduction in tax bills. Second, the general rule is that to receive preferential timber taxation, the timber must be available for harvest; it is not merely a matter of the land being forested. Hence, different parcels of an agency’s for-

ested lands within a county could be treated differently. In Oregon for instance, forested lands within designated wilderness areas, National Parks, and some National Wildlife Refuges are not available for timber harvest and are not eligible for preferential taxation. Consequently, those types of lands generally have to be treated under the original, ad valorem system and generate substantially higher taxable values than similar lands available for timber harvest. This aspect of preferential taxation clearly complicates and confuses comparisons of tax burdens among agencies.

Once a set of land-use classes and definitions was developed and approved by county tax personnel, that information was communicated to agency personnel with entitlement lands in the county. Following definitions provided, agency personnel assigned land holdings into the land-use classes. Most counties involved two to three agencies, and we only had to contact one or two individuals within each agency. In the extreme, one county contained entitlement lands from six agencies, where the Forest Service’s holdings involved four National Forests and eight Ranger Districts, the National Park Service involved multiple units, and so did the Fish and Wildlife Service. County tax personnel reviewed each agency’s allocation of land into tax classes; disagreements were resolved; county endorsement was secured. The last involvement of county tax personnel was to provide an estimate of the average taxable value per acre for each land-use class. Sometimes that value was readily available from other tax records; sometimes it was developed from information on comparable sales; and sometimes it was provided by State tax personnel (as in the case of timber taxation).

Overall, Federal entitlement lands in our sampled counties have an estimated taxable value of about \$16 billion (table 1). This represents about 2.4 percent of the total taxable value contained in those counties, which, of course, does not reflect the estimated Federal entitlement land values. On a county basis, the taxable value of entitlement lands relative to county taxable value ranged from essentially 0 percent (wealthy urban counties with little entitlement lands) to several hundred percent (rural counties dominated by Federal holdings). The Pacific West contained the most taxable value, accounting for 90 percent of total taxable value in sampled counties and 48 percent of the taxable value on entitlement lands. Alaska lies at the other extreme, accounting for less than 1 percent of the county taxable value, but 13 percent of the taxable value of entitlement lands. This is because many Alaska jurisdictions have very small amounts of private landholdings, but contain extensive acreages of entitlement lands. Our estimates of overall taxable values derives from the taxable value per acre, wherein

Table 1—FY 1997 tax characteristics of sampled entitlement lands, by region.

Region	Total county taxable value	Entitlement lands		
		Acres	Taxable value	Value per acre
East	\$16,638,717,742	580,813	\$774,940,649	\$1,334
Interior West	51,738,280,694	40,847,757	5,672,048,052	139
Pacific West	606,526,005,722	20,099,514	7,705,792,311	383
Alaska	489,055,560	14,147,770	2,045,157,881	145
Overall	\$675,392,059,718	75,675,854	\$15,915,316,586	\$210

the East leads with an average taxable value of \$1,334 per acre.

The Tax Bill—The amount of property taxes due a landowner is determined by multiplying taxable value by a tax rate. Two aspects are noteworthy. First, theoretically, this tax rate (in our case, a percent of taxable value) is calculated annually and reflects local government budget and total taxable value. Sometimes, however, tax rates are not calculated annually. They are prescribed by State law as when following property tax relief legislation. For example, as a consequence of Proposition 13, all California counties used a 1 percent tax rate in FY 1997.

Second, although the county government typically administers the property tax within a county, only a portion of the tax bill will reflect the county's government. That is, there may be several jurisdictions within a county authorized to levy property taxes, including a school district, fire district, irrigation district, etc. Although these are governments within a county, they are not the county's government and do not spend PILT payments. To keep our accounting straight, we focused exclusively on the county's government, that which is typically associated with a Board of County Commissioners.

We obtained the county-government-only tax rate for FY 1997 from the county assessors. In most cases, these rates were developed by the county in accordance with State guidelines. A county's tax rate is determined by dividing the total taxable value into the budget needed to be obtained. In FY 1997, over half of the sampled counties had tax rates of 1 percent or less, not counting counties with no property tax (fig. 3). County tax rates, for sampled counties with property taxes, averaged 1.57 percent (or 15.7 mills), ranging from a low of 0.11 percent (1.1 mills) to a high of 13.03 percent (130.3 mills). To illustrate, a tax bill of \$1,570 would result from a property with a taxable value of \$100,000 being taxed at a rate of 1.57 percent. Are property owners in a county with a tax rate of 10 percent taxed 5-times higher than an owner where the rate is 2 percent? Probably not. Other things equal,

the high tax rate may be used in a county where assessment procedures produce relatively low taxable values, and the low rate in counties producing higher taxable values.

One criticism of past studies is their failure to reflect the simulated taxable value associated with Federal holdings in the tax rate calculation. Other things equal, if Federal holdings were taxed and if their taxable value were included in the tax rate calculation, the tax rate ought to drop. We made those calculations by (1) determining the taxable value associated with the tax rate discussed above; (2) calculating the county budget implied by those taxable values and tax rates, and holding the budget constant; (3) adding the simulated taxable value from Federal holdings to the county's existing taxable value, while subtracting the Federal payments (PILT and revenue-sharing payments) lost if the lands were taxed; and (4) calculating a new tax rate. To our surprise, the tax rate did not always decrease. In fact, the average of the tax rates increased from 1.57 percent to 1.61 percent, with the tax rate in almost half of the sampled counties going up. Whether the new tax rate goes up or down depends on the estimated taxable value per acre for the Federal lands versus its current value in terms of Federal payments per acre. If the Federal lands

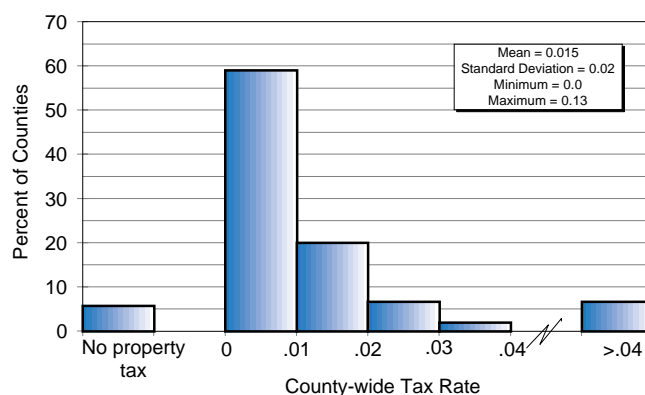
**Figure 3**—Distribution of counties: county-wide tax rate.

Table 2—Estimated FY 1997 taxes on sampled entitlement lands, by region.

Region	Property taxes		Timber	Total tax
	Tax 1 ^a	Tax 2 ^b	harvest tax	
East	\$3,837,048	\$3,441,915	\$0	\$3,837,048
Interior West	31,972,948	28,777,965	0	31,972,948
Pacific West	61,333,409	47,698,716	8,762,177	70,095,586
Alaska	10,133,728	979,497	0	10,133,728
Overall	\$107,277,132	\$80,898,093	\$8,762,177	\$116,039,310

^aTax 1 uses actual 1997 tax rates.

^bTax 2 uses 1997 tax rates adjusted to reflect inclusion of entitlement land values.

generated more Federal payments (e.g., PILT and revenue-sharing payments) than revenues if taxed, the county tax rate will increase; otherwise it will decrease.

The final part of the tax bill involved the tax on timber harvest. Not to be confused with a “severance” tax (Hall and others 1959), this tax is applicable to timber lands given preferential timber taxation in California, Oregon, and Washington, the annual bare-land tax portion being reflected as taxable value. To determine the timber harvest tax, State tax officials specify an expected stumpage price, depending on factors such as market conditions, species harvested, and location and difficulty of the sale. The actual tax is a percentage of harvest value, which is determined by multiplying harvest volumes by State-specified, expected stumpage price. All rates were obtained, along with timber harvest information needed to simulate the amount of taxes generated by the harvested timber. These amounts were added to the estimated FY 1997 property tax bill.

Federal entitlement lands in sampled counties would have produced about \$116 million dollars in tax receipts in FY 1997 (table 2). About 92 percent (\$107 million) of these receipts result from property tax revenues based on the tax rates applicable to that fiscal year. The remaining property tax receipts would have been generated through the tax on timber harvested on entitlement lands in California, Oregon, and Washington. Table 2 also shows that property tax revenues would have dropped by 18 percent, to \$80 million, if the taxation rate was calculated to reflect an influx of Federal taxable value (i.e., Tax 2). Information and analyses that follow will be oriented toward Tax 1, exclusively.

Federal Payments—For purpose of this study, Federal payments to counties consisted of PILT payments plus revenue-sharing payments used in PILT-payment calculations as specified in PILT legislation. This approach limits revenue-sharing payments to those received and controlled by the county government. It does not reflect revenue-sharing payments

received by State governments that may or may not be transmitted to the county (most notably from mineral leasing revenues). Neither does it reflect those revenue-sharing payments received by other governments within a county (most notably independent school districts). This limitation is particularly important to the 25-Percent Fund administered by the Forest Service. Although 25-Percent Fund payments may be used for schools and roads within a county, many county governments only provide for roads. Schools are financed through independent school districts, not controlled by the county government.

FY 1997 PILT payments were obtained from USDI-BLM records, and reflect a 53.33 percent proration of that allowed, needed because PILT appropriations fell short of the amount needed for full funding. Assuming prior-year payment information provided to PILT administrators is accurate, we obtained internal FY 1998 PILT records to determine the level of revenue-sharing payments received in FY 1997. Overall, we found that revenue-sharing payments were more than 3-times those of PILT payments in FY 1997 (table 3). This was especially true in the Pacific West where revenue-sharing payments exceeded PILT payments by almost 10-fold. Only in the Interior West region did PILT payments exceed those from revenue sharing. Overall, payments made to county governments in the Pacific West accounted for over 70 percent of the Federal payments identified.

Equivalency—This study developed a substantial amount of PILT- and tax-related information, and we were able to simulate several versions of tax equivalency. On a “per-acre” basis, Federal entitlement lands in the sampled counties would generate an average of \$1.48 per acre in tax revenues (table 4). In the several versions of Federal payments we evaluated, none were equivalent to the estimated property taxes. Overall, PILT payments amount to 17 cents per acre, only 11 percent of the tax bill; at 54 cents per acre, PILT plus current revenue sharing account for 36 percent of the tax; a fully funded PILT would account for 22 percent; and a fully funded PILT plus current revenue sharing

Table 3—Estimated FY 1997 Federal payments on sampled entitlement lands, by region.

Region	Revenue sharing	PILT payments	PILT + revenue sharing
East	\$376,404	\$322,729	\$699,133
Interior West	6,390,853	8,625,127	15,015,980
Pacific West	34,308,243	3,364,198	37,672,441
Alaska	929,717	795,976	1,725,693
Overall	\$42,005,217	\$13,108,030	\$55,113,247

Table 4—Estimated FY 1997 total tax and Federal payments per acre, by region.

Region	Total tax	Federal payments			
		PILT	PILT+ revenue sharing	PILT ^a	PILT ^a + revenue sharing
		<i>\$ per acre</i>			
East	\$6.61	\$0.56	\$1.20	\$1.04	\$1.69
Interior West	0.78	0.21	0.37	0.40	0.55
Pacific West	3.49	0.17	1.87	0.31	2.02
Alaska	0.72	0.06	0.12	0.11	0.17
United States	\$1.48	\$0.17	\$0.54	\$0.32	\$0.68

^a = Fully funded PILT.

Table 5—Results of statistical test of difference in per-acre estimates of tax versus Federal payments, by region.

Region	Tax versus PILT		Tax versus PILT + revenue sharing	
	t-value	P level	t-value	P level
East	2.17	0.04	1.94	0.06
Interior West	2.68	.01	1.90	.06
Pacific West	5.08	.01	2.20	.04
Alaska	3.75	.01	3.35	.01
Overall	3.22	0.01	1.74	0.08

Table 6—Estimated FY 1997 tax equivalency (Federal payments - total taxes) per acre, by Federal payment type, by region.

Region	PILT	PILT + revenue sharing	PILT ^a	PILT ^a + revenue sharing
	<i>\$ per acre</i>			
East	-6.05	-5.40	-5.56	-4.92
Interior West	-.57	-.42	-.39	-.23
Pacific West	-3.32	-1.61	-3.17	-1.47
Alaska	-.66	-.59	-.61	-.55
United States	-1.31	-.94	-1.17	-.80

^a = Fully-funded PILT.

would account for 46 percent of the tax bill, in the aggregate. On a per-acre basis, the East region dominates both taxes and PILT-related amounts, averaging \$6.61 per acre in taxes and 56 cents per acre in PILT payments. However, when revenue-sharing payments are added to PILT payments, the Pacific West dominates; this is because of the high level of revenue-sharing payments received by Pacific West counties (see table 3). By all measures, government units in the Alaska region have the lowest level of taxes or Federal payments per acre of entitlement lands.

Information shown in table 4 resulted from a sample-based, statistical estimation process. But before the equivalency issue can be reliably assessed, it must be determined if the regional estimates of tax per acre and Federal payments per acre are statistically different. We conducted two sets of statistical tests, one comparing our estimates of tax per acre to PILT per acre and the other comparing our estimates of tax per acre to Federal payments (= PILT + Revenue Sharing) per acre. In all cases, estimates of taxes per acre and payments per acre are statistically different (table 5). Consider our Pacific West estimates of \$3.49 tax per acre and \$1.87 per acre PILT plus revenue-sharing payments per acre (table 4); statistical test results (t -value = 2.20) indicate that there is a 96 percent chance (= $1.0 - P$ level of 0.04) that the estimates are different. In the case of Alaska, there is virtually a 100 percent chance (= $1.0 - P$ level of <0.01) that our estimates of \$0.72 tax per acre and \$0.06 PILT payments per acre (table 4) are different. Statistical test results reflect the closeness of our per-acre estimates, the variability of the data, and the sample size. Too small of sample sizes will often fail to detect statistical differences. However, because our analyses detected statistical differences, our sample size of 105 seems to have been adequate. Consequently, we can confidently use our estimates of tax per acre and payments per acre to assess tax equivalency at both the regional and national levels.

Estimates of taxes per acre and Federal payments per acre from table 4 reflect several versions of tax equivalency (Federal payments – total property taxes) in table 6. Overall, no version is equivalent, meaning that estimated property taxes always exceeded Federal payments. Deficiencies ranged from –80 cents per acre to –\$1.31 per acre. Predictably, the most equivalent version of tax equivalency is under a fully funded FY 1997 PILT and revenue sharing, followed by FY 1997 PILT and revenue sharing, followed by a fully funded FY 1997 PILT, and lastly by FY 1997 PILT only. This general pattern of best and worst tax equivalency is followed by each region. However, the middle positions switch, depending on the region. In the Pacific West, the second-best equivalency situation is with FY 1997 PILT and revenue sharing; but in the

Interior West, second-best is with a fully-funded PILT and no revenue sharing. These intermediate position results simply reflect that the Pacific West receives relatively more revenue-sharing payments relative to PILT payments, and the Interior West receives relatively more PILT payments.

Tax equivalency information in table 6 can also be used to estimate the budget required to achieve overall tax equivalency. For example, under a fully funded PILT, there would still be an overall equivalency deficit of \$1.17 per acre. In FY 1997, PILT payments totaled about \$113 million, but that was only 53.33 percent of the authorized payment. A fully fund PILT would cost about \$212 million, \$99 million more than was available. But even when fully funded, it would cost an additional \$696 million (= 1.17×595 million acres) to make PILT payments equivalent to total taxes on the 595 million acres of entitlement lands. The total cost would be \$908 million, \$113 million in the original FY 1997 PILT payments, plus an additional \$795 million (\$99 million to achieve full funding plus \$696 million to achieve equivalency).

Even though overall or regional Federal payments may not be equivalent to taxes in the aggregate, they are equivalent for many individual government units. For example, based on the PILT plus revenue sharing version of tax equivalency, almost 62 percent of government units receive Federal payments equal to or exceeding property taxes (table 7). PILT payments alone are equivalent to property taxes in 51 percent of the government units. If PILT were fully funded and revenue-sharing payments remained as they were in FY 1997, almost 69 percent of the governments would be tax equivalent. Under all versions of tax equivalency, the Pacific West has the lowest percentage of counties equivalent, averaging just over 30 percent for the situations studied. However, regions that fare the best varies with the situation, although Alaska tends to be the highest, averaging just under 70 percent.

Results from tables 6 and 7 may seem inconsistent. Consider the tax equivalency version involving PILT plus revenue sharing. Table 6 indicates that, overall, there is a tax equivalency deficiency of \$0.94 per acre. Table 7, however, indicates that, overall, tax equivalency was found in 62 percent of the counties. Moreover, counties that are tax equivalent contain more entitlement acres than the counties that are not tax equivalent. These seemingly inconsistent results are reconcilable because the tax and Federal payment attributes of tax-equivalent counties are so different from those not equivalent (table 8). In addition to most of the counties being tax equivalent, about 58 percent of the entitlement acres are contained in tax-equivalent counties, with Alaska ranging to almost three-fourths. However, tax-equivalent counties account for

Table 7—Percent of tax equivalent counties, by Federal payment type, by region.

Region	PILT	PILT + revenue sharing	PILT ^a	PILT ^a + revenue sharing
		----- percent -----		
East	44.0	48.0	68.0	68.0
Interior West	57.5	62.5	70.0	75.0
Pacific West	10.0	43.3	23.3	50.0
Alaska	60.0	70.0	70.0	70.0
United States	51.0	61.7	63.4	69.2

^a= Fully-funded PILT.**Table 8**—Distribution of tax and Federal payment attributes by tax equivalent and not tax equivalent counties, by region.

Region	Entitlement acres	Total taxes	PILT + revenue sharing
	----- percent -----		
Tax equivalent counties			
East	45.8	1.5	61.9
Interior West	51.6	6.5	53.0
Pacific West	42.8	9.9	72.0
Alaska	73.7	5.2	72.2
United States	58.2	6.2	63.3
Counties not tax equivalent			
East	54.3	98.5	38.1
Interior West	48.4	93.5	47.0
Pacific West	57.2	90.1	28.0
Alaska	26.3	94.8	27.8
United States	41.8	93.8	36.7

Table 9—Characteristics of logistic regression model of FY 1997 tax equivalency (Federal payments—total tax).

Variable description	Characteristic		Relative importance
	Coefficient	P value ^a	
1. Total county revenue	—	—	—
2. Sales tax percentage	—	—	—
3. Percent Federal payments of property tax	0.2796	0.002	0.2412
4. Percent property tax of total county revenue	-.0305	.094	-.0766
5. 1996 county population	—	—	—
6. Total county acres	—	—	—
7. A/B county designation	—	—	—
8. Percent entitlement acres of total county acres	—	—	—
9. Percent entitlement taxable value of total county taxable value	-.4649	.002	-.2390
10. Population density	-4.4721	.063	-.1031
11. Region	—	—	—

^aSignificant at 0.10.

only 6 percent of the tax bill, while accounting for 63 percent of the Federal payments. Nonequivalent counties account for about 94 percent of the tax bill, ranging to a high of over 98 percent in the East. Tax-equivalent counties may account for 58 percent of the acres, but the average tax bill on those acres is a mere \$0.24 per acre, as opposed to an average tax bill of \$3.02 per acre for the nonequivalent counties.

It may be very costly to change Federal payments to a level where all governments receive payments equivalent to property taxes. Consider the version of equivalency portrayed in table 6 under a fully funded PILT and current revenue sharing, with an overall shortfall of 80 cents per acre. To generate overall tax equivalency (i.e., no shortfall), the fully funded PILT would have to be increased by a factor of 3.5. Similarly, the same thing could be accomplished by holding PILT payments constant at full funding and increasing revenue sharing payments by a factor of almost 3.2. Although either approach could generate overall tax equivalency, not all government units would be equivalent. With the three-fold increase in PILT, about 82 percent of the units could be made equivalent, meaning that 18 percent would still not be equivalent; with the three-fold increase in revenue-sharing payments, about 77 percent would be equivalent. PILT payments must be increased more than revenue-sharing payments because they play a smaller role in Federal land payments. Under these versions of equivalency, Interior West governments fare the best, and Pacific West governments fare the worst.

The problem with “across the board” increases in PILT or revenue-sharing payments is that all counties are made better off, not just the ones below tax equivalency. For example, we estimate that Federal payments (PILT plus revenue sharing) are already equivalent to property taxes in 62 percent of counties. Full funding of PILT (roughly doubling PILT) would make an additional 7 percent of the counties equivalent, bringing the overall to 69 percent. To make the 7 percent tax equivalent, the 62 percent originally equivalent are made even better off. As mentioned, starting from a fully funded PILT, revenue-sharing payments would have to be increased by almost 3.2 to generate overall tax equivalency, and even then 23 percent of the counties would still not be tax equivalent. If additional funds could be distributed to the nonequivalent counties only, revenue-sharing payments would only have to be about doubled (over a fully funded PILT) to achieve overall tax equivalency, and all counties would be tax equivalent.

We looked into the question of why Federal payments to some government units are equivalent to property taxes and not for others. We sought general answers, not unit-specific explanations. Focusing on the PILT plus revenue-sharing version of tax equiva-

lency, we coded each county as being equivalent or not, and then built statistical models (logistic regression) designed to assess the importance of several explanatory variables in promoting (the likelihood of) tax equivalency. Not knowing which explanatory variables would be most useful, we identified about a dozen candidate variables that fell into three broad categories: (1) those depicting the county’s tax system, (2) those depicting the importance of Federal lands in the county, and (3) those depicting the size of the county.

The model we built correctly predicted tax equivalency in about 87 percent of the counties in our sample (table 9), an outstanding result. The final model selected contained four independent variables, and regional designation was never even tentatively viable (which is why region-specific models were not built). Variables depicting the importance of Federal entitlement lands in the county (variable 3 and 9) seemed to be the most influential, followed by population density (variable 10) and the importance of property taxes in county financing (variable 4). Consider variable 3: the likelihood of tax equivalency increases as Federal payments (PILT plus revenue sharing) increase as a percentage of county property taxes. This is possibly the case of a timber-rich (to generate Federal payments) but sparsely populated county (to keep the tax base low). In the case of variable 9, however, the likelihood of tax equivalency decreases as the taxable value of Federal lands increases relative to the property tax base (as possibly in the case of a county where National Parks or National Forests dominate).

Benefits and Costs

Part of the BLM’s directive from Congress was to assess the costs imposed on local governments by the presence of Federal land and the benefits that counties receive from such land. We addressed these topics through a questionnaire (available on request from the authors) directed to the Chief Executive Officer of the sampled counties. One hundred and eighteen questionnaires were sent, asking county officials to assess the magnitude of a series of cost and benefit items on a scale ranging from None to Substantial. For each item, respondents were also asked to identify the Federal program (timber, recreation, etc.) most responsible for the costs or benefits (from a list of 10 programs). Ninety questionnaires were returned, for an overall response rate of 76 percent.

The questionnaire consisted of three sections: (1) direct fiscal costs to the county government, (2) direct fiscal benefits to the county government, and (3) benefits to communities and individuals within the county. For each section, questionnaire topics were ranked based on the median response with the

Table 10—Characteristics of responses to questions regarding cost-imposing items (fiscal costs to county governments).

Cost-imposing item	Median rating	Mean rating	Distribution of responses				Primary program(s)
			None (1)	Small (2)	Moderate (3)	Substantial (4)	
			----- percent -----				
Search and rescue	2	2.35	25	35	21	19	Recreation
Law enforcement	2	2.29	21	41	25	13	Recreation
Road maintenance	2	2.24	27	33	29	11	Recreation
Fire protection and control	2	2.15	28	37	26	9	Fire
Road construction	2	2.02	35	35	21	9	Recreation
Judicial and legal	2	1.87	32	51	15	2	Recreation
Animal control	2	1.70	47	39	12	2	Recreation
Sewage and solid waste	1.5	1.63	50	42	3	5	Recreation
Public welfare	1	1.65	56	29	9	6	Recreation
Water supply	1	1.63	60	24	9	7	Water
Correctional facilities	1	1.62	51	37	11	1	Recreation
Health services	1	1.56	55	36	8	1	Recreation
Education	1	1.48	67	22	8	4	General
Hazardous waste	1	1.41	63	34	3	0	General

mean response used to break ties. For numerical analyses, the response of None was quantified as 1, Small as 2, Moderate as 3, and Substantial as 4. Additionally, the most important questionnaire topics from each section were analyzed in more detail, using analysis of variance to determine statistical importance and difference. Once the top-ranked questionnaire items were identified, we used logistic regression to statistically analyze how the responses were affected by 13 county attributes. These attributes were: (1) total county revenue, (2) sales tax percentage, (3) percent Federal payments of property tax, (4) percent property tax of total county revenue, (5) 1996 county population, (6) total county acres, (7) A/B county designation, (8) percent entitlement acres of total county acres, (9) percent entitlement taxable value of total county taxable value, (10) population density, (11) region (East, Interior West, Pacific West, or Alaska), (12) agency land distribution, and (13) tax equivalency (based on Federal payments – total property taxes).

Costs Imposed on Local Governments—The first section of the questionnaire listed 14 potential county-cost items along with space where the county official could specify any additional cost items. County officials specified (using their best professional judgment) the portion of their county's total expenditures on the item that could be attributed to Federal entitlement lands or associated management activities. Officials also identified the Federal management program(s) most associated with that cost item. For this first section only, general guidelines were given regarding the magnitude of the cost increase associated with the response categories: None (0 percent), Small (less than 10 percent), Moderate (10 to 50 percent), and Substantial (more than 50 percent).

We found little indication that the presence of Federal lands imposes extra costs on counties. Table 10 lists the cost items, ranked by the median and mean responses, the distribution of the responses into the four categories, and the primary program most often associated with the cost item. Over half (8 out of 14) of the cost items had a median response of Small, meaning that less than 10 percent of the county's expenditures on that item were attributed to Federal entitlement lands and activities. The remaining six items had a median rating of None. However, for the top three cost items (Search and Rescue, Law Enforcement, and Road Maintenance), more than 10 percent of the respondents indicated that Federal entitlement lands and associated management activities were responsible for greater than 50 percent of these expenditures. More than 25 percent of respondents indicated Federal lands and activities were responsible for 10 to 50 percent of the expenditures on these items.

Recreation programs were most commonly identified as the management program responsible for cost increases, with two-thirds of the cost items attributed to Recreation. The other items were attributed to Fire programs, Water, and the General presence of Federal agency or entitlement lands. Four counties specified other cost items where they felt Federal lands had a substantial impact on costs; two listed county "weed control" costs, one listed "hazardous materials," and another county listed expenses for the "coroner."

Analysis of variance results indicated that the ratings for the top five cost items could not be distinguished from each other but were higher than the rest. We used logistic regression (contrasting None and Small versus Moderate and Substantial) to determine if the responses to the top five cost items were affected by any of 12 county attributes. In most cases (80

percent), county attributes had no detectable (statistically significant) effect on the rating of cost items (table 11), but in 20 percent of the cases, one of the county attributes had a statistically significant effect on the questionnaire response. (Note: In the cases of significant effect, table 11 contains a "Yes," and the direction of the effect is given in parenthesis along with additional information.)

Table 11 can be evaluated "by cost item" or "by county attribute." Using the "by cost item" approach for Law Enforcement, Region was the only county attribute that had a significant effect on the rating, and that was because responses from the Interior West tended to indicate a higher (+) cost imposed by Federal lands and programs than did other regions. No other county attribute had a consistent, systematic effect on the rating for Law Enforcement. However, four county attributes affected the rating on Fire Protection and Control, including Region (attribute 11) and Total County Acres (attribute 6). The rating on Search and Rescue was related to the percent of entitlement acres in the county (attribute 8) and Agency Land Distribution (attribute 12), where table 11 shows Yes (-) FWS, indicating that the effect was in the negative direction for Fish and Wildlife Service lands. In other words, counties with a larger percentage of Fish and Wildlife Service lands were more likely to respond None or Small than they were to respond Moderate or Substantial. Two county attributes affected the rating for Road Maintenance costs, including the percentage of a county's total revenue

made up by property taxes (attribute 4). In this case, counties that depend more on property tax as a revenue source were more likely to respond that Federal land had little or no impact on road maintenance costs. Finally, the Road Construction rating, which was affected by three county attributes, was the only one to be affected by the Tax Equivalency variable (attribute 13). Counties with a larger difference between Federal payments and estimated per acre taxes were more likely to answer that Federal lands had a Moderate or Substantial impact on the county's road construction expenditures.

Using the "by county attribute" approach, we can assess the extent to which a particular attribute influences costs imposed on county governments. For example, Region (attribute 11) is most influential, affecting the rating on three cost items, Law Enforcement, Road Maintenance, and Fire Protection and Control. In all cases, counties in the Interior West indicated a higher cost imposed than did other regions. Several county attributes affected one or two cost items, and four attributes had no effect on ratings for any cost item. Interestingly, whether a county is an A or B county had no effect on ratings, although the dependency B counties have on Federal lands may have already been reflected in another attribute, such as the percent of entitlement acres.

Fiscal Benefits to Local Governments—The second part of the questionnaire dealt with direct fiscal benefits to county governments. Respondents were given a list of 16 potential Federally-provided

Table 11—County attributes having a statistically significant effect on questionnaire responses regarding direct fiscal costs imposed on county governments, by cost-imposing item.

County attribute	Search and rescue	Law enforcement	Road maintenance	Fire protection and control	Road construction
1. Total county revenue	No	No	No	No	No
2. Sales tax percentage	No	No	No	No	No
3. Percent Federal payments of property tax	No	No	No	Yes(-)	No
4. Percent property tax of total county revenue	No	No	Yes(-)	No	No
5. 1996 county population	No	No	No	No	No
6. Total county acres	No	No	No	Yes(+)	Yes(+)
7. A/B county designation	No	No	No	No	No
8. Percent entitlement acres of total county acres	Yes (+)	No	No	No	No
9. Percent entitlement tax value of total county tax value	No	No	No	Yes(+)	Yes(+)
10. Population density	No	No	No	No	No
11. Region	No	Yes(+) Interior	Yes(+) Interior	Yes(+) Interior	No
12. Agency land distribution	Yes (-) FWS	No	No	No	No
13. Tax equivalency	No	No	No	No	Yes(+)

Table 12—Characteristics of responses to questions regarding cost-saving items (fiscal benefits to county governments).

Cost-saving item	Median rating	Mean rating	Distribution of responses				Primary program(s)
			None (1)	Small (2)	Moderate (3)	Substantial (4)	
----- percent -----							
Use of Federal land	2	1.85	47	31	13	9	Recreation
Fire protection and control	1	1.76	60	12	21	7	Fire
Data and information	1	1.68	58	20	17	5	Fire
Road maintenance	1	1.64	55	32	7	6	General
Road construction	1	1.64	58	26	10	6	Timber, general
Technical expertise	1	1.60	51	39	9	1	General
Law enforcement	1	1.58	55	37	3	5	General
Environmental education	1	1.49	62	30	6	2	General
Water improvements	1	1.46	66	25	5	4	Water
Use of Federal employees	1	1.45	68	22	8	2	General
Use of Federal facilities	1	1.44	67	26	4	3	General
Insect and disease control	1	1.37	75	14	10	1	Timber
Training opportunities	1	1.35	71	24	4	1	General
Construction materials	1	1.35	74	20	4	2	General
Weed control	1	1.30	78	15	6	1	Grazing
Use of Federal equipment	1	1.24	77	22	1	0	General

Table 13—County attributes having a statistically significant effect on questionnaire responses regarding direct fiscal benefits received by county governments, by cost saving item.

County attribute	Use of Federal land	Fire protection and control	Data and information	Road maintenance	Road construction
1. Total county revenue	No	No	No	No	No
2. Sales tax percentage	No	No	No	No	No
3. Percent Federal payments of property tax	No	No	No	No	No
4. Percent property tax of total county revenue	No	No	Yes(-)	No	No
5. 1996 county population	No	No	No	No	No
6. Total county acres	No	No	Yes(-)	Yes(-)	Yes(-)
7. A/B county designation	No	No	No	No	No
8. Percent entitlement acres of total county acres	No	Yes(+)	No	No	No
9. Percent entitlement tax value of total city tax value	No	Yes(-)	No	No	No
10. Population density	No	No	No	No	Yes(-)
11. Region	No	Yes(+)	Yes(+)	Yes(+)	No
		Interior	Interior	Interior	
12. Agency land distribution	No	Yes (+)	Yes(+)	Yes(+)	Yes(+)
		FS	BLM	FS	FS,FWS
13. Tax equivalency	No	No	No	No	No

goods and services (along with an “Other” category). They were asked to indicate the magnitude of any “cost saving” to their county government due to the good or service being provided by the Federal agency at a reduced cost or for free. Respondents were also asked to indicate the Federal management program associated with the benefit item.

We found little indication that the presence of Federal lands in a county had any direct fiscal benefits (table 12). Only one Federally-provided good or service (Use of Federal Land) had a median rating as high as Small. The rest of the potential cost-saving items had a median rating of None. For over half of the items, the primary Federal program associated with the benefit item was the General presence of Federal agency or entitlement lands. Unlike the cost-imposed section, which identified the recreation program as associated with several cost items, the only direct fiscal benefit associated with Recreation programs was Use of Federal land. The only benefit listed under the Other category was “emergency preparedness,” which was ranked as providing a substantial cost savings to that particular county’s government.

We determined that the top five questionnaire items in the cost-savings section of the questionnaire were indistinguishable from each other, but significantly different from the rest of the questionnaire responses. These five questions were analyzed in detail and the results are shown in table 13. For the top-rated benefit item, Use of Federal land, none of the 12 county attributes analyzed had any significant effect on how the question was answered. For Fire Protection and Control, four variables were found to significantly affect the responses. Percent of entitlement lands in the county (attribute 8), Region (attribute 11), and Agency Land Distribution (attribute 12) all had a positive effect on the responses, while Percent entitlement taxable value of total county taxable value (attribute 9) had a negative effect.

Concerning the Data and Information question, Region (attribute 11) had a significant effect as did the percent of property tax, Total County Acres, and Agency Land Distribution (attributes 4, 6, and 12). Larger counties and counties more reliant on property taxes as a revenue source were less likely to perceive data/information as a moderate or substantial benefit. Counties with a large percentage of BLM land and Interior counties were more likely to respond that Federally provided Data and Information provided Moderate or Substantial cost savings.

The rating for Road Maintenance was affected by three county attributes including Total County Acres, Region, and Agency Land Distribution (attributes 6, 11, and 12). Large counties were less likely to feel that Federally provided road maintenance was an important cost savings for their government, while counties

with a large percentage of BLM land were more likely to perceive road maintenance as a Moderate or Substantial benefit. As with Road Maintenance, larger counties (attribute 6) were less likely to perceive Federally provided Road Construction as a benefit as were counties with a high population density (attribute 10). However, counties with large percentages of Forest Service or Fish and Wildlife Service land (attribute 12) were more likely to perceive Federally provided road construction as a cost savings for their government.

The county attribute having the greatest effect on the county’s perception of fiscal benefits was Agency Land Distribution (attribute 12), affecting the rating of four of the five benefit items. The only other county attribute affecting more than one item was Region (attribute 11), with counties in the Interior West indicating greater cost savings from Federally provided Fire Protection, Data and information, and Road Maintenance than other regions.

Benefits to Communities and Individuals—

The last section of the questionnaire dealt with a broader range of benefits than did the previous section, which only focused on fiscal benefits to the county government. This part of the questionnaire was more concerned with general benefits to people and communities in the county. The format consisted of 24 potential benefit items, and response followed the same pattern as before.

The responses to this portion of the survey (table 14) indicate that county officials perceive benefits to people and communities to be of higher magnitude than direct fiscal benefits or costs accruing to the county’s government. Unlike the low-rated responses in the previous sections, three of the benefit items in this section received a median rating of Moderate. All three of these items (Places to Hunt and Fish, Places to Recreate, Recreational Facilities) were associated with recreation programs. Of the remaining 21 items, 18 received a median rating of Small, but only three had a median response of None. As far as the primary programs associated with the benefit items, 42 percent of the items were associated with the General presence of Federal lands, 25 percent with Recreation, and the remainder went to Water, Grazing, Timber, Power, and Fire suppression.

Ratings for the top three benefit items were significantly different from the rest and were singled out for further analysis. Table 15 shows the three benefit items and the significant effects associated with them. Counties with a relatively large percentage of entitlement acres (attribute 7) were more likely to respond that Places to Hunt and Fish along with Places to Recreate provided a Moderate or Substantial benefit to the community. Region was also an important factor in the responses to these two questions, with counties

Table 14—Characteristics of responses to questions regarding benefits received by communities and individuals.

Benefit item	Median rating	Mean rating	Distribution of responses				Primary program(s)
			None (1)	Small (2)	Moderate (3)	Substantial (4)	
			----- percent -----				
Places to hunt and fish	3	3.08	13	14	24	49	Recreation
Places to recreate	3	2.97	16	12	32	40	Recreation
Recreational facilities	3	2.76	19	16	34	31	Recreation
Watershed protection	2.5	2.33	27	23	41	9	Water
Aesthetic setting	2	2.42	29	23	27	21	Recreation
Road network	2	2.31	31	24	29	16	Recreation
Lifestyle base	2	2.30	31	26	25	18	Recreation
Ecosystem protection	2	2.26	27	26	41	6	Grazing
Data and Information	2	2.07	36	31	22	11	General
Employment opportunities	2	2.05	26	51	15	8	Timber, general
Agency as economic base	2	2.04	41	24	25	10	General
Gathering forest products	2	2.02	38	31	21	10	Timber
Fire protection and control	2	2.00	47	21	17	15	Fire
Community stability	2	2.00	39	29	26	6	General
Permanent ground cover	2	1.93	45	28	16	11	Timber
Grants and agreements	2	1.86	41	40	13	7	General
Education programs	2	1.86	38	43	14	5	General
Increased property values	2	1.85	46	32	13	9	General
Civic leadership and service	2	1.77	45	36	15	4	General
Law enforcement	2	1.72	49	36	9	6	General
Water improvements	1.5	1.89	50	21	19	10	Water
Work force diversity	1	1.74	53	29	10	8	General
Support industrial base	1	1.64	58	24	14	4	Timber
Electric power	1	1.46	71	16	10	4	Power

Table 15—County attributes having a statistically significant effect on questionnaire responses regarding benefits received by communities and individuals, by benefit item.

County attribute	Places to hunt and fish	Places to recreate	Recreational facilities
1. Total county revenue	No	No	No
2. Sales tax percentage	No	No	No
3. Percent Federal payments of property tax	No	No	No
4. Percent property tax of total county revenue	No	No	No
5. 1996 county population	No	No	No
6. Total county acres	No	Yes(+)	No
7. A/B county designation	No	No	No
8. Percent entitlement acres of total county acres	Yes (+)	Yes (+)	No
9. Percent entitlement tax value of total city tax value	No	No	No
10. Population density	No	No	No
11. Region	Yes(-) Pacific West	Yes(-) Pacific West	No
12. Agency land distribution	No	No	No
13. Tax equivalency	No	No	No

in the Pacific West being less likely than counties in the East to perceive Places to Hunt and Fish or Places to Recreate as a Moderate or Substantial benefit to their community. Finally, larger counties (attribute 5) were more likely to perceive that Places to Recreate provided a Moderate or Substantial benefit to their community. None of the variables were found to have a significant effect on the question regarding Recreational Facilities.

Discussion

The United States Congress asked the USDI Bureau of Land Management to address several PILT-related topics. First, it wanted to know “the extent to which payments under the PILT Act exceed the tax revenues that States and local governments would receive from entitlement lands ... if such lands were taxed at the same rates as other lands” (U.S. Congress 1996). Based on this analysis, the simple response to this question is that, overall, PILT payments do not exceed tax revenues. In fact, overall, PILT payments are about \$1.31 per acre of entitlement land less than the amount of property taxes those lands would generate if taxed at the same rate as other lands. In some regions, this shortfall is far greater (as in the East and Pacific West), while it is only half that amount in Alaska and the Interior West. But even with this shortfall, about 51 percent of the counties are tax equivalent. If PILT-related revenue-sharing payments were added to the equivalency computation, the shortfall drops to \$0.94 per acre, and about 62 percent of the counties are equivalent. Under a fully funded PILT plus revenue-sharing payments, the equivalency shortfall drops to \$0.80 per acre, and 69 percent of the counties would be equivalent, but full funding would add about \$99 million to the \$113 million already allocated for FY 1997. To achieve overall equivalency, another \$696 million would have to be added to the fully funded PILT, and even then 18 percent of the counties would not be equivalent. If additional funding could be variably distributed, overall equivalency could be achieved at substantially less expense. This is because any “across-the-board” increase in either PILT or revenue-sharing payments would (unnecessarily) increase payments to counties that were already tax equivalent.

Congress also wanted to know about the “nature and extent of services provided by units of local governments ... and the economic benefits resulting,” along with other “economic benefits to communities” (U.S. Congress 1996). These issues were addressed by a questionnaire directed to 118 county Chief Executive Officers. Although we did not conduct an accounting-level inquiry as to the magnitude of costs imposed and direct fiscal benefits received by local governments,

the magnitudes are probably small. Even for the item felt most costly (Search and Rescue), fully 25 percent of the counties indicated that there was no additional cost imposed. In addition to Search and Rescue, county officials indicated that the presence of entitlement lands and associated programs appeared to add costs to Law Enforcement, Road Maintenance, Fire Protection and Control, and Road Construction. Most officials linked cost increases to Federal recreation programs. As with costs imposed, cost savings to local governments are also infrequent. Except for local government's Use of Federal Land, the majority of county officials indicated there was no cost saving for any other type of cost. However, the majority of county officials indicated that their community receives moderate or substantial benefits from recreational aspects of entitlement lands—Places to Hunt and Fish, Places to Recreate, and Recreational Facilities.

Our research was clearly directed toward addressing the questions raised by Congress. But in the process of understanding those topics, we came to some additional realizations pertinent to this type of research:

1. **Tax Rates**—After reviewing the literature, we thought it a mistake to not recalculate the tax rate, so as to reflect the additional taxable value of entitlement lands. We thought the initial (the rate used in FY 1997) tax rate would always be too high, and thus overstate the Federal tax bill on entitlement lands. This is not necessarily so. Whether the tax rate goes up or down depends on the amount of taxes the land could generate versus the amount of PILT and revenue-sharing payments the county would forego. Many tracts of entitlement lands produce more Federal payments than they would taxes. On balance, entitlement lands would generate about 25 percent less taxes when the “correct” tax rate is used, compared to the initial tax rate.

2. **Agency Comparisons**—When we began this study, it seemed possible to compare the taxable value of lands administered by several resource management agencies. We discovered, however, that State and local procedures are so controlling that comparisons between agencies are almost meaningless. For example, consider two identical tracts of timbered land in a State that provides preferential timber taxation; one tract is administered by an agency where timber harvest is permitted and the other by an agency where harvest is not permitted (and hence not eligible for preferential taxation). It is entirely possible for the tract that cannot be harvested to have taxable value of \$2,000 per acre and the other tract of \$200 per acre because of the preferential timber tax treatment.

3. **Differences in Tax Systems**—Throughout this study, we struggled with the implications of the wide variation in property tax systems. Some locations had

no property tax, while others had property taxes along with a sales tax, liquor tax, and so on. Some locations had substantial local discretion, while State law and procedures controlled others. However, we came to the realization that variation in tax systems does not complicate our jobs; in fact, it is irrelevant to our job. The Congressional directive to the BLM (U.S. Congress 1996) clearly focuses on “tax revenues ... from entitlement lands...” Our job was to focus on land and land taxes, to compare the amount of PILT and revenue-sharing payments produced by entitlement lands to what they would have generated if taxed as other lands. The Congressional question is one of equivalence between Federal land payments and likely property tax on entitlement lands, and does not involve sales taxes paid by agencies or their employees, user fees, or other county-financing considerations.

4. Tax Equivalency—At some point in the past, property taxes were the dominant, if not the exclusive, instrument of county finance. Under that circumstance, a comparison between Federal payments (e.g., PILT plus revenue sharing) and likely property taxes provided an accurate portrayal of overall tax equivalency. But over the years, the supremacy of property taxes has eroded. Other forms of financing were expanded and developed. Today, counties are financed through a wide range of instruments, sometimes not even including the property tax. Under this circumstance, the comparison between Federal payments and likely property taxes may not accurately depict overall tax equivalency. A comprehensive study of overall tax equivalency would involve far more than likely property taxes on Federal entitlement lands.

5. County Government—Any study of tax equivalency must address the question of what it is that taxes are supposed to be equivalent to. In this study, the Congressional directive to the BLM clearly focused on payments made under the PILT Act. Indeed, the Act specifically states that payments will be made to “units of local government,” meaning “a county, parish, township, municipality, borough...below the State which is a unit of general government....” Though we termed them all “counties,” this study focused on counties, parishes, townships, and boroughs. Accordingly, we set out to determine the relationship between Federal payments to county government and the amount of property taxes payable to the county government. Yet, within the geographical boundary of a county there are numerous other “governments” (beyond the “county government”) authorized to levy property taxes—cities, rural fire districts, school districts, etc. This study focused equivalence on county government, not governments within the county.

This study attempted to avoid known mistakes of past research in the matter of property tax equivalency. Nevertheless, our own procedures introduced

several deficiencies that limit the authority of our results:

1. Study Assumptions—We made two assumptions that necessarily tended toward understating the estimated tax bill on entitlement lands: (1) land would be taxed in its current use, and (2) valuation would reflect land and natural resources, not structures and improvements. Depending on the amount of acreage and value differentials involved, these deficiencies may be more conceptual than real. In many rural circumstances, the value of structures, improvements, or a small acreage with a high potential use is dwarfed by the vast surrounding wildlands. In more urban settings or where very valuable special uses are involved (e.g., dam/hydro-electric generation facilities), the assumption may be more influential. Although the assumptions tended to understate taxable values, we had no realistic option to the assumption.

2. PILT-related Information—This study relied heavily on databases associated with administering the PILT program. In several instances, we uncovered discrepancies ranging from minor to quite substantial. For instance, a minor discrepancy occurred when we found that jurisdiction over a particular tract of entitlement land had transferred 10 to 15 years earlier from one PILT-relevant Federal agency to another. In this instance, results were not effected because we simply dealt with the new agency. However, a major discrepancy occurred when we found a situation where the amount of entitlement land attributed to a PILT-relevant Federal agency was too high, by an enormous amount. These discrepancies suggest internal audit procedures.

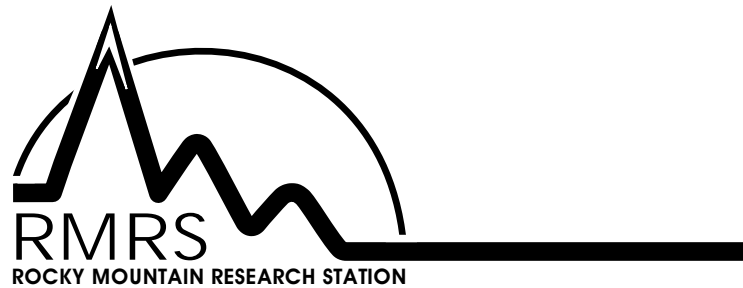
3. Study Procedures—Study procedures are always a compromise between the desired and the possible. One of the most important procedural compromises involved the valuation process. In reality, if a tract of land is to become part of a county's tax base, a site-specific appraisal is conducted. This could involve several person-hours for a few-acre parcel. This study estimated the taxable value on over 75 million acres of entitlement lands, with parcel size ranging from a few acres to several million acres. Consequently, we had to adopt a type of “mass appraisal” process that relied on county records, average tax rates, and expert judgments. We do not understand how our less-indepth procedures affected results. However, there was no realistic alternative.

Earlier, reference was made to several questions asked BLM by the United States Congress, questions pertaining to tax equivalency and benefits and costs to local governments. In the fourth question, the BLM was asked to make “recommendations concerning the feasibility and desirability of amending the PILT Act and other laws under which payments are made to

local governments...in order to provide assistance to local governments that is more uniform and consistent and less subject to fluctuations” (U.S. Congress 1996). The research reported here was intended to address tax equivalency, benefits and costs to local governments, and to provide the BLM a basis for those recommendations.

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