

## AN ABSTRACT OF THE ESSAY OF

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The federal government owns 60 percent of Oregon's forests and, since 1908, has shared proceeds from federal forest timber harvests with counties. These revenues have provided a relatively stable source of funds for the provision of services by county governments in Oregon. Shared revenues from US Forest Service (USFS) lands are dedicated to county roads and schools (the school portion is put into a county school fund to be passed through to school districts). Shared revenues from Bureau of Land Management (BLM) forests, however, can be used for any county government service. Changes in federal forest management policy during the 1990s reduced federal timber harvest and thus disrupted this relationship. Passage of the Secure Rural Schools and Community Self-Determination Act of 2000 (SRS) replaced the shared revenue system with fixed annual payments to counties that were based on the USFS and BLM payment levels made during years with historically high timber harvests.

This essay explores the relationship between USFS and BLM SRS payments to Oregon counties and county expenditures on ten categories of services in FY2006 and FY 2007. In both years per capita USFS SRS Payments levels are significantly and positively related to per capita county spending on roads and schools, controlling for county income per capita, population density, and property taxes per capita. Controlling for these same factors, per capita BLM SRS payments were positively associated with per capita county expenditures on healthcare and public safety in 2007. These results suggest that federal forest payments associated with USFS land do, as intended, support higher county road and county school fund spending. The finding that counties receiving higher unrestricted BLM payments per capita spend more per capita on healthcare and public safety suggest that these services are accorded high priority by county officials.

### Key words

- timber-county payments
- grants
- grants-in-aid
- Secure Rural Schools and Community Self-Determination Act
- fiscal federalism
- intergovernmental
- local government expenditures
- expenditures

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Federal Timber Payments  
and County Government Expenditures  
in Oregon

by  
Vincent T. Adams

AN ESSAY

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## **1. Introduction**

Oregon is a land known for its beauty and rich natural resources, most notably its expansive stands of coniferous forest. Since the 19<sup>th</sup> century timber extraction in these forests has formed a mainstay of Oregon's economy. Until recent years, this industry has provided a viable source of funds for the provision of services by county governments through revenue sharing policies in connection with timber harvests on federal lands. However, changes in federal forest management policy during the 1990's disrupted this relationship. In recent years the future of these timber-county payments has become very uncertain. In this analysis an econometric approach was used to examine the relationship between federal timber-county payments and the spending of county governments in Oregon, within the context of the intergovernmental grants and determinants of government expenditures literature. Unlike previous research that focused either on total expenditures or spending on programs targeted by the grants funds, here individual expenditure categories spanning all county government expenditures are examined to reveal the effects of timber-county payments.

### **Federal Land Ownership in Oregon**

In 1872, the Congress began setting aside land for national parks and forests. At the same time, it stepped up its role in managing the land for resource use setting aside forests, rangeland, and mineral lands. Of Oregon's 61.6 million acres of land area, 53% or 32.7 million acres are owned by the federal government, excluding trust properties, and are managed by the United States Forest Service (USFS), Bureau of Land Management (BLM), or National Park Service (NPS) (U.S. Census Bureau, 2004). Of that federal land, 30.47 million acres are forest (LRO, 2007). The BLM

manages 2.2 million acres of forestland in Western Oregon under the O&C Act, lands that were revested in 1916 from the defunct Oregon & California Railroad (O&C) (BLM, 2006). The federal government owns 60% of Oregon's forest lands, followed by private industry at 20% and private non-industrial at 15%.

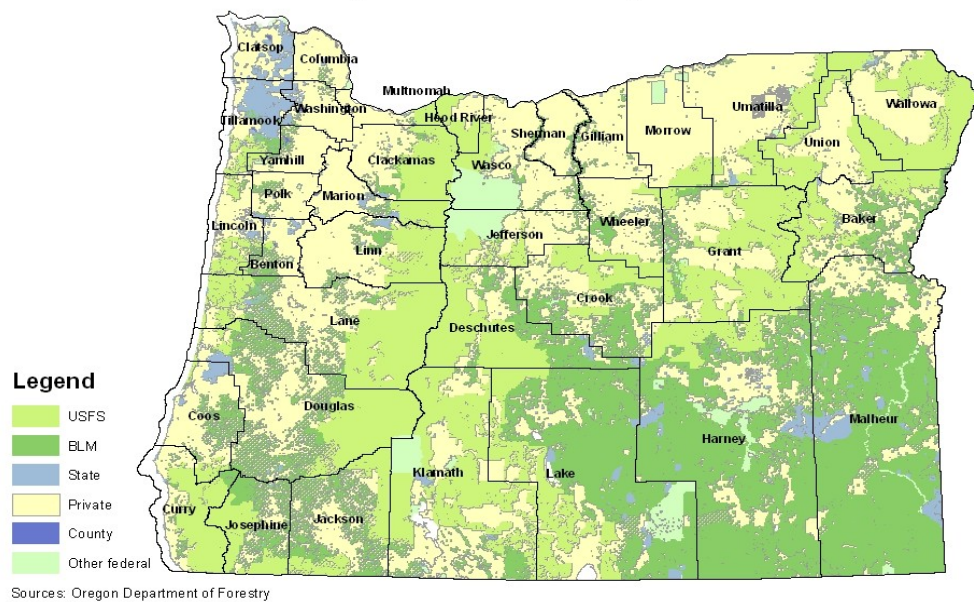
In recent decades, the idea of managing lands for multiple uses rather than strictly natural resource extraction has become the dominant practice in federal agencies. While federal land is used for timber, range, and minerals it is now also managed for fish and wildlife, watershed health, and conservation. Additionally, the USFS and BLM are required to manage forest resources for sustained yield (Gorte, et al, 2007). However, O&C lands, unlike other federal lands, are required to be managed for production and economic benefit for the local communities as well as for environmental concerns (O&C Act, 1937).

## **Why shared revenues?**

Federal ownership prevented local governments from deriving tax revenue from their entire land base. In 1908, Congress passed the 25% Fund Act, which as the name implies, stipulated the sharing of a quarter of all revenues from timber harvest on National Forests with the local government where the sale resided. In 1916, Congress passed the Chamberlain-Ferris Revestment Act, which revoked the title of the O&C Railroad to over 2 million acres of land for failure to comply with the conditions of the land grant, and directed that some of the revenues from timber sales off this land be shared with counties containing O&C lands. In 1937, Congress enacted The O&C Revested Lands Sustained Yield Management Act (O&C Act) that amended the earlier O&C legislation to require 75 percent of the revenues derived from the revested and reconveyed grant lands, formerly held by the O&C Railroad Company and currently managed by the BLM, be paid to eligible counties of which 50 percent are to be used as other county funds (O&C Act, 1937). Twenty-five percent of the proceeds from



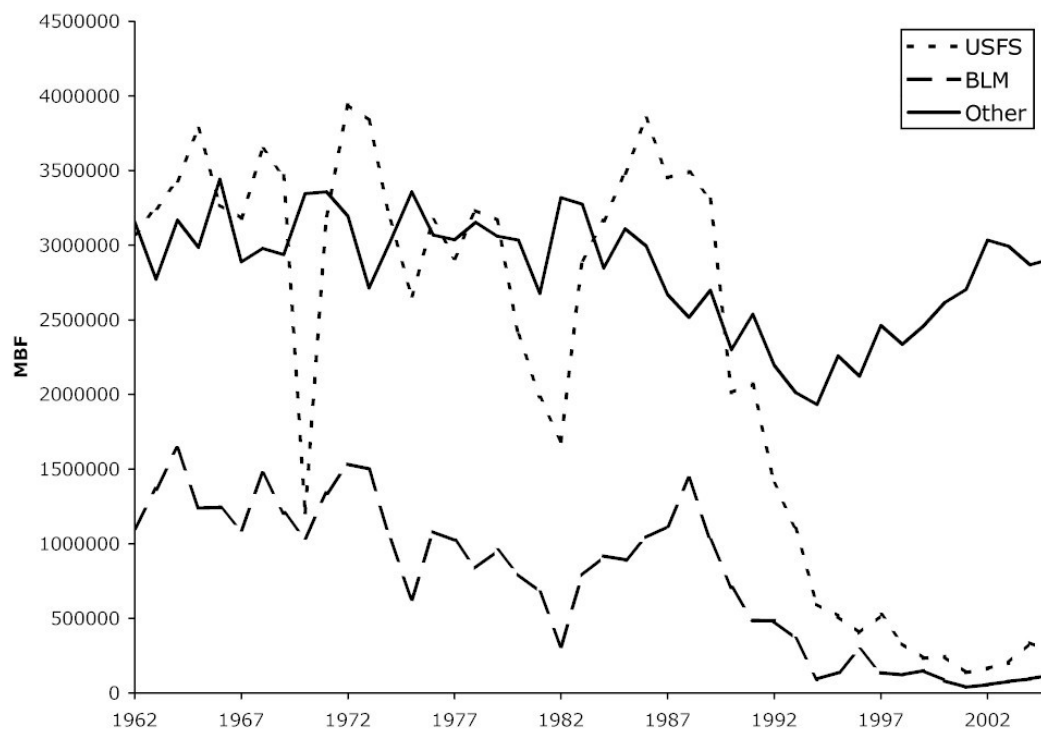
timber production on the O&C lands were to be provided to the federal government to pay back the costs of buying back those lands from the defunct railroad company and then given to the counties as a payment in lieu of property taxes that would have been assessed if the lands were in private ownership. It took until 1952 before that debt was paid back. The counties later agreed to give up that 25 percent in exchange for management of the O&C lands by the BLM. Thirty-three of Oregon's 36 counties have received some funding under the federal forest payments program, and 18 of 36 received funding from O&C lands. These revenue-sharing policies created a strong relationship between local governments, the timber industry, and the federal lands that remained economically vibrant as long as harvests were robust.



*Figure 1: Land Ownership in Oregon*

However, the federal government owns more than just forestland, and in 1976 the Payment in Lieu of Taxes (PILT) Act was passed forcing the federal government to compensate all local governments for the loss of tax revenue due to any federal ownership of lands within their jurisdiction. This includes BLM owned rangelands, Bureau of Reclamation lands, Projects under the Corps of Engineers, any wilderness

areas, parks, and of course, national forests. The calculus of PILT is complex. It is indexed such that counties that are more populous receive more funds, but every county gets some payment. Since there are offsets for timber payments, and there is currently a cap at \$2.2 million for a payment to any single county (PILT, 1993), the payment to Oregon counties are actually a tiny fraction of this amount.



*Figure 2: Oregon Timber Harvests 1962-2004*

## **Recession and the Northwest Forest Plan**

The revenue sharing arrangement between local governments and federal agencies functioned as intended from 1908 into the 1980's when economic recession significantly altered softwood timber markets. Because of the high proportion of lumber that is used in home building, the lumber and wood products industry was

weakened by decreased demand for new housing during the 1980 and 1981-82 recessions (Scaggs, 1983). “Between 1985 and 1989, a significant drop in uncut volume under contract was largely the result of timber buy-back legislation, where the government bought back uncut sales from timber purchasers who had paid prices that could not be recovered at current market conditions of that time” (Tuchmann, 1998).

In the 1990s, the continued cutting of old growth began to conflict with the Clean Water Act, the National Environmental Policy Act, and most importantly, the Endangered Species Act (ESA). Prior to this, projections of timber availability were already declining according to a comprehensive report (Sessions et al, 1991), and in 1990 the northern spotted owl was listed as threatened under the ESA, and received critical habitat designation two years later. Northern spotted owls can be found in most of western Oregon, and the critical habitat designation affected counties throughout the region. Litigation at the time defending the owl (and other species) had created an impasse that effectively stopped most timber harvests on affected federal lands.

The Northwest Forest Plan (NWFP) was the culmination of a nearly decade of forest management policies aimed at sustainable management of late successional forests, but resulted in large declines in harvest on federal land. Adopted by the Clinton Administration in 1994, it was intended to not only preserve the northern spotted owl, but also be a “comprehensive design for managing federal forests; providing economic assistance to hard-pressed workers, businesses, and communities; and coordinating the activities and responsibilities of federal agencies and state, local, and tribal governments in western Oregon, western Washington, and northern California” (Tuchman, 1996).

The reduction in federal harvest in the 1990's (see Figure 2) greatly reduced the shared revenues received by local governments. The long-standing nature of these revenue sharing arrangements and the steady loss of federal timber revenues caused counties dependent on the natural resource economy to experience significant budget shortfalls.

### **Secure Rural Schools and Community Self-Determination Act**

Recognizing this trend, Congress enacted provisions in the Omnibus Budget Reconciliation Act of 1993 (OBRA), providing an alternative annual safety net payment to counties in which Federal timber sales had been restricted or prohibited by administrative or judicial decision to protect the northern spotted owl. The OBRA modified the 25% Fund Act such that local governments would receive in 1994 85% of the 25% payment they would have received based on the annual averages of the harvest years 1986 through 1990 national forest lands. In the fiscal years of 1995 through 2003 the amount of payment to the local governments would be reduced by 3% annually. An identical schedule was applied to the 50% payments from the Bureau of Land Management to local governments that had O & C timber lands in their districts.

The OBRA was repealed by the passage of the Secure Rural Schools and Community Self-Determination Act of 2000 (SRS), which also provided counties with payments indexed to the 1986 - 1990 harvest years. SRS was intended to stabilize the payments to local governments but to also target the allocation of funds to specific functions of local governments, primarily education and roads. However, there were subtitles in the law that provided for the funding of projects that would increase the economic capacity of the communities as well. However, the funding for these ancillary projects was extremely small compared to the main disbursements of SRS.

Congress allowed SRS to expire on schedule in the fall of 2006.

## **Renewals of Timber-County Payment Legislation**

The next year, a one-year extension was attached to the Iraq Accountability Appropriations Act (IAA). There have been several legislative attempts at reauthorization, which have failed. Oregon Governor Ted Kulongoski convened a task force to address the issue and the Association of Oregon Counties (AOC), in conjunction with the National Association of Counties, has driven a lobbying effort. More recently, the Emergency Economic Stabilization Act of 2008, originally introduced in March 2007, was selected as a vehicle to pass a relief bill as an amendment to the whole bill. The House failed to pass the original amendment co-opting the bill on September 29, 2008, but passed the Senate version on October 3, 2008 for \$700 billion (GovTrack.us, H.R. 1424--110<sup>th</sup> Congress, 2007). The final bill included a number of revisions and additions, including four-years of funding for county payment. Though he did not vote for the “bailout bill”, Oregon Senator Ron Wyden was responsible for attaching his version of the county payments language to the Senate’s bill (Wyden, 2008).

## **2. Literature Review**

### **Fiscal Stress**

The economic hardship of governments has been discussed at some length in the academic literature terming this condition “fiscal stress.” The literature surveyed in this report was aimed specifically at local and municipal governments and how they manage fiscal stress. Much of the seminal work in this literature was done in the economic downturn of the early and mid 1980’s, but has since made a strong resurgence in recent years as we have approached the current national recession.

#### ***Cyclical vs. Structural Fiscal Stress***

Cyclical fiscal stress stems from short term fluctuations in economic climate. An economic downturn may temporarily reduce revenues. One study found that use of unreserved fund balances was found to be a favored and successful technique for dealing with short-term fiscal stress followed by reducing expenditures, engaging in capital spending (to grow the local economy), and increasing revenues from external sources (Hendrick, 2004).

Structural fiscal stress arises from institutional structures rather than external forces (such as a bad economy) that lead to budget shortfalls. Structural fiscal stress is typically long-term in duration and must be addressed accordingly. Use of reserve funds or retained fund balances to make up budget shortfalls due to long-term structural fiscal stress has been called a recipe for disaster (Kinney, 2002).

#### ***Structural Factors in Oregon***

##### **Tax System**

Oregon counties have three key structural factors that underlie their unsettling fiscal condition. The first factor is a pair of constitutional amendments, Measures 5 &

50 that limit the extent to which local governments can increase their property taxes. Measure 5, passed by the voters in 1990, limited property tax rates local governments can impose. Measure 50 placed a new limit on the total property tax by fixing the maximum assessed value of properties, limiting the growth of those values to 3% per year and creating a fixed permanent tax rate for each taxing district. This situation contrasts with the situation of many local governments across the nation where increasing property taxes is typically a viable option. The ability of local governments to raise property taxes temporarily beyond these limits is structurally very limited in Oregon and thus not a viable a strategy for coping with fiscal stress.

### **Timber Payments and Revenue Sharing**

The second structural factor contributing to the fiscal stress of many of Oregon's counties is the revenue sharing arrangements around timber harvest on federal lands. Historically, counties with large amounts of federally owned land base have relied on revenues shared from the sale of timber harvests. Beginning in 1989, timber harvests on federal lands in Oregon dropped sharply, and consequently shared revenues from these sales did as well. The Secure Rural Schools and Self-Determination Act of 2000 (SRS) was passed to replace a portion of these funds so local governments could maintain services. SRS was scheduled to expire in 2006, but legislation in October 2008 resulted in the extension the payments until fiscal year 2011-2012. Many of Oregon's counties still rely on SRS payments for a large portion of their discretionary and road spending and there are no clear options for replacing this revenue stream.

### **Rural Economic Base**

Many of the counties facing fiscal stress in Oregon are rural communities that have historically relied on resource related industries (timber, fishing, and farming) as

their primary economic drivers. Since the 1970's, these industries have shared a decreasing proportion of Oregon's economy as technology and information industries have emerged. However, these new industries have located in predominantly urban areas. This has left rural communities in Oregon with the same "specialized economic bases [making them] vulnerable to market disturbances that affect only a few industries but reduce jobs and income in particular communities" (Hite & Ulbrich, 1986). The means of dealing with fiscal stress are structurally constrained as well. Contracting out government services and privatization can be a way to achieve greater efficiency. However, rural communities may not have the abundance of contractors and businesses to ensure vibrant competition, so these methods may be problematic (Straussman, 1981).

### ***Surveys of Local Government Responses to Fiscal Stress***

Over the past two decades, there have been at least seven surveys of local governments in the United States seeking information about responses to fiscal stress. During Spring 2008 the Rural Studies Program at Oregon State University conducted a survey of Oregon county governments to ascertain the effects of the elimination of the Secure Rural Schools Program by the federal government. In a review of academic studies on local government responses to fiscal stress, six other studies were identified and reviewed for this report. Each was based on a survey similar to that used by OSU in 2008. The 2008 Secure Rural Schools Survey focused on five general areas of county government including general fiscal condition, capital budgets, operating budgets, local fiscal adjustments, and future fiscal prospects. This survey identified the policies used by Oregon counties to deal with fiscal stress. Of the 30 collected articles from the academic literature reviewed, six were found to have used a survey to measure fiscal stress policy responses by county and municipal government officials in the United States.



### ***How do Oregon Counties Compare?***

The most frequently mentioned and used revenue-side responses in Oregon and elsewhere were increases in fees. Oregon counties also commonly pulled resources out of capital reserves to increase their revenues, which local governments in other states were more reluctant to do. Some counties have attempted to create new County Service Districts with their own tax base (e.g. Deschutes County's rural and urban sheriff districts). Some counties reported attempting local option levies.

County governments are focusing primarily on the expenditure side of their budgets, especially on their public works/road departments. This attention is in the form of cuts to (most frequently) or cutting altogether other programs in deference to road services. Expenditure side balancing measures reported in the survey focused on personnel and service cuts: Oregon counties responded most commonly by cutting services and hours of service, and by reducing workforce (FTE) commitments and capital construction. These responses were more severe than those commonly reported by local governments in other states, who mentioned freezing hiring more frequently than reducing workforces, and deferring rather than cutting capital construction.

Oregon counties have been pursuing increased efficiency in service delivery even before the expected termination of the Secure Rural Schools funding in 2008. Among the most widely adopted fiscal adjustments reported during three fiscal years prior to FY 2008 were reorganization and consolidation of services and restructuring to reduce middle management. These responses suggest a higher level of stress than that experienced in other states. The most commonly used policy responses to fiscal stress reported by other states are contracting out and restructuring existing debt; consolidation is reported much less frequently in other states.

The 2008 Survey found that Oregon counties reported adopting policies that were aimed at increasing government efficiency more frequently in past years than in

the survey year. This could suggest that counties cannot identify additional efficiency actions to employ to help alleviate their fiscal stress.

## **Determinants of Expenditures and Grants Literature**

### ***Why Intergovernmental Grants?***

Since 1960, federal grants to state and local governments have increased in absolute terms and as a proportion of federal outlays. Moreover, grant funds have been increasing as a proportion of state and local government revenues, so the importance of intergovernmental transfers in explaining the fiscal behavior of lower level governments has become increasingly significant. Rosen in 2005 offered an explanation for this change over time:

*“One explanation for the growth of grants emphasizes that over the last several decades, the demand for the types of services traditionally provided by the state and local sector—education, transportation, and police protection—has been growing rapidly. However, the state and local revenue structures, based mainly on sales and property taxes, have not provided the means to keep pace with the growth of desired expenditures. In contrast, federal tax revenues have grown automatically over time, largely due to the progressive nature of the federal personal income tax and, until the advent of indexing in the mid-1980's, inflation. Hence there is a “mismatch” between where tax money is collected and where it is demanded. Grants from the central government to states and localities provide a way of correcting this mismatch. However, this mismatch theory is unsatisfying because it fails to explain why states and localities cannot raise their tax rates to keep up with increases in the demand for local public goods and services.”*

Despite Rosen's reservations on the capacity of state and local governments to raise revenues in line with the desires of their citizens, this explanation fits well in the context of Oregon's fiscal situation. We can say with certainty that over the time

period in question that there has been an increase in demands for services in Oregon that has been roughly comparable to that observed nationwide. However, unlike the vast majority of other states in the union, Oregon citizens have repeatedly eschewed sales tax initiatives by wide voting margins. Moreover, Measures 5 and 50 effectively cap the amount of property tax that local governments can extend creating a situation where exogenous revenue sources have become especially important to state and local government as demand for services has risen in Oregon.

Over the last 60 years there have been three generations of studies that have analyzed the determinants of local government expenditures and the response of local governments to various types of grants from state, provincial, and federal governments. The earliest works such as Fabricant (1952), Fisher (1961), and Sacks (1964) utilized one equation multilinear regression models where local government expenditures were expressed as a function of various exogenous variables. Most important of these variables were per capita income, some variable expressing population and/or population density or urbanization, and grants from higher levels of government. In 1965, Bahl and Sauders found in their analysis that change in federal grants to states was the only factor significant in determining changes in state and local per capita spending even though they included variables that were found to be important in previous research such as per capita income, population density, and urbanization. Work that followed in the second generation was grounded largely in public choice theory in which utility maximization was assumed on the part of decision makers in local governments such as Henderson (1968), Gramlich (1968), and Slack (1980). In this research estimating equations were derived from utility maximization functions specified with local expenditures, taxes, and demographic variables. Typically, the parameters of these equations were estimated using cross sectional data. More recent work of the third phase of research has focused on the disaggregation of grant structures in the estimation of models and as in Savage and

Weber (1983) and Dahlberg (2008), and the inclusion of political variables like Strouse and Jones (1974) and Stine (2006). Also, by the 1970's there is a mingling of the grants literature with the determinants of local expenditure research as fiscal federalism became more institutionalized and the importance of intergovernmental transfers became increasingly more obvious in explaining local government fiscal behavior (Strouse, 1974).

A variety of methodological approaches have been employed in empirical research on the determinants of local government expenditures. Early research relied on single equation OLS regressions that were unable to take into account the various policy structures of intergovernmental grants (i.e. conditional, non-conditional, matching, capped, etc. discussed later). There were also issues of simultaneous causation with regards to grants and expenditures that these single equation models were unable to address (Gramlich, 1977). Disaggregation of grants by policy structure and the usage of multiple equation regression techniques were later used to address these issues. Recent empirical research centers around the technical elaboration on these two themes and more nuanced inclusion of demographic and political variables.

### ***Types of grants***

There is a myriad of intergovernmental grant programs across the world in nations where fiscal federalism is employed. We can coarsely divide these programs into conditional and non-conditional grants. In the case of conditional grants there can be stipulations as to where the funds will be spent, whether those funds are matching or not, and the duration of the revenue stream. Matching grants require that the grantee put up a specified amount of their own money towards a target expenditure before grant funds will be released. Unconditional grants have little or none of these stipulations and are often known as block grants or revenue sharing. Grant policies can have any of these features in varying degrees yielding a diversity of funding

vehicles.

Timber-county payments provided by SRS administratively look like grant payments similar to those of other grant policies widely researched such as those for healthcare and roads. In Oregon, both the USFS and the BLM manage federal forest lands that contribute to the economies of counties. As such, these local governments receive payments from

both agencies. Payments from the USFS are targeted at expenditures for roads, schools, and specific projects approved by Resource Advisory Committees while BLM payments are unconditional and go to the general fund of the county governments that receive them. Therefore we can view USFS

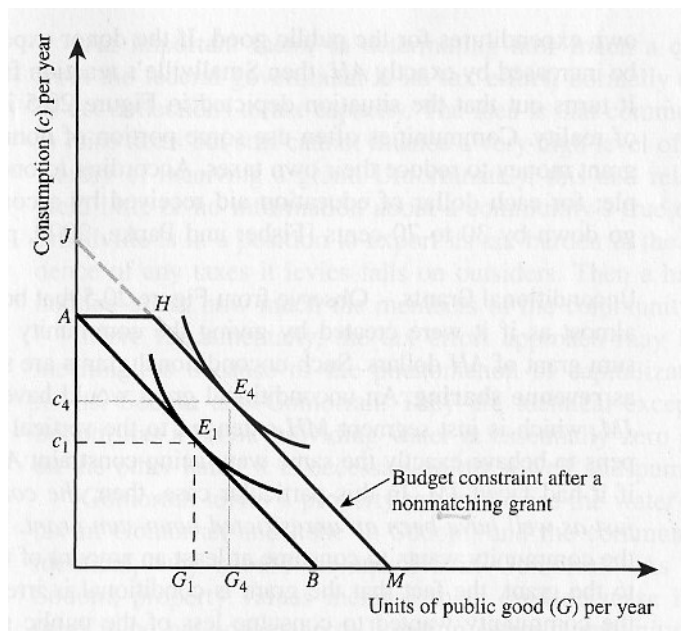


Figure 3: Budget constraint after a non-matching grant (Rosen 2005)

payments as non-matching conditional grant funds and payments from the BLM as unconditional.

Figure 3 shows the budget constraint of a hypothetical local government. The horizontal axis is the production of services by government  $G$  and the vertical axis is consumption by citizens,  $c$  of the hypothetical county. Line  $AB$  is the government's original budget constraint of  $G$  and  $c$ . The county's preferences for  $G$  and  $c$  are represented by indifference curves and assuming the county maximizes utility it will consume at point  $E_1$  where service production is at  $G_1$  and consumption is at  $c_1$ .

Suppose the local government receives a grant stipulating an increase in the production of a specific public service equal to the magnitude of the segment  $AH$ . Assuming the citizens of the county want to consume an amount of government services equal to or greater than the grant they will maximize utility at point  $E_4$  and the government would produce services at  $G_4$  and citizens would consume at  $c_4$ . Note that the magnitude of the increase in production of services is not equal to the amount of the grant  $AH$ . This accounts for the shifting of tax revenue from the target service, either to other services or as tax reduction. If the grant was unconditional then the adjusted budget constraint would be described by the line  $JHM$ . In this example an unrestricted block grant would be as effective as the described conditional grant. However, if the citizens want to consume less government services than the amount of the grant placing the optimum point of the indifference curves left of  $H$ , then the policy structure of the grant would be important and would influence behavior (Rosen 2005).

All intergovernmental grant policies aim at providing additional resources for the production of public services. Largely the empirical research has found that grants stimulate spending much more than theory suggests. In many studies nationwide estimates of the effect of unconditional grants approach unity, or rather for every dollar of grant revenue extended nearly a dollar was spent on services. Because funds sent out by federal governments tend to “stick where it hits” this phenomenon was named the “Flypaper Effect” by Arthur Okun.

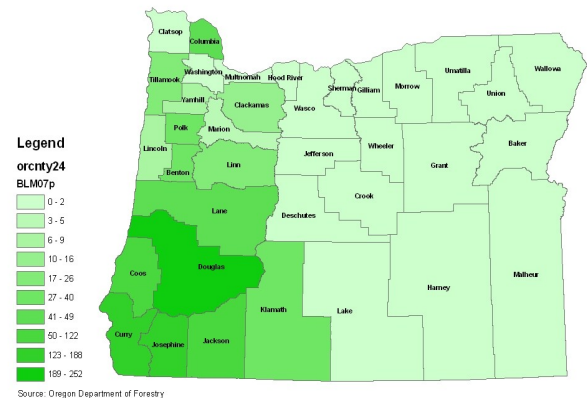
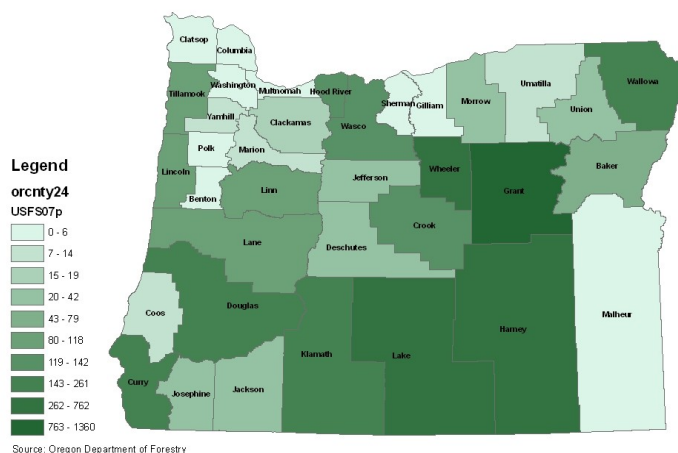


Figure 4: 2007 Per capita BLM payments

### ***Discussion on Grants Literature***

There is much literature discussing the influence of federal grants on local expenditures, but many researchers have not included the institutional policies in the form of conditions associated with intergovernmental grants in their analyses (Gramlich, 1968 and Hines, 1995). This is of key importance with regards to SRS payments because the allocation rules between USFS and BLM disbursement are different. Moreover, the geographical distribution of payments from these agencies to local governments in Oregon is heterogeneous (see Figures 4 and 5). In this analysis, these differences between agency payments is captured by separating them so that influences on specific expenditures categories can be accounted for (i.e. USFS payments have an influence on public works and education spending, but BLM payments do not).

However, because of the unique relationship of local governments in Oregon with these revenue streams, SRS payments are not the same as grants sought by governments for specific programs or services. SRS payments were intended to replace shared revenues from timber harvests that were lost due to reductions in cutting from the NWFP and not necessarily as support of specific programs or services. Governments in Oregon were largely dependent on these shared revenues for the provision of services at the time of the institution of the NWFP. While many



*Figure 5: 2007 Per capita USFS payments*

programs within the jurisdiction of local governments across the nation are dependent on grant funding (e.g. community health, libraries, etc.), several county governments in Oregon are still reliant on SRS payments for large portions of their discretionary spending. Finally, grant policies typically have well defined conditions for renewal or cessation providing recipients of funds knowledge of the relative stability of the revenue stream. This is not the case with regards to SRS and recipient local governments have been witnessing intense political conflict over renewal of the policy that has created an atmosphere of uncertainty over the stability of timber-county payments. For these reasons timber-county payments may not have the stimulative effect on spending by local governments in Oregon as compared to the empirical results found in the grants literature discussing more typical intergovernmental transfer programs.

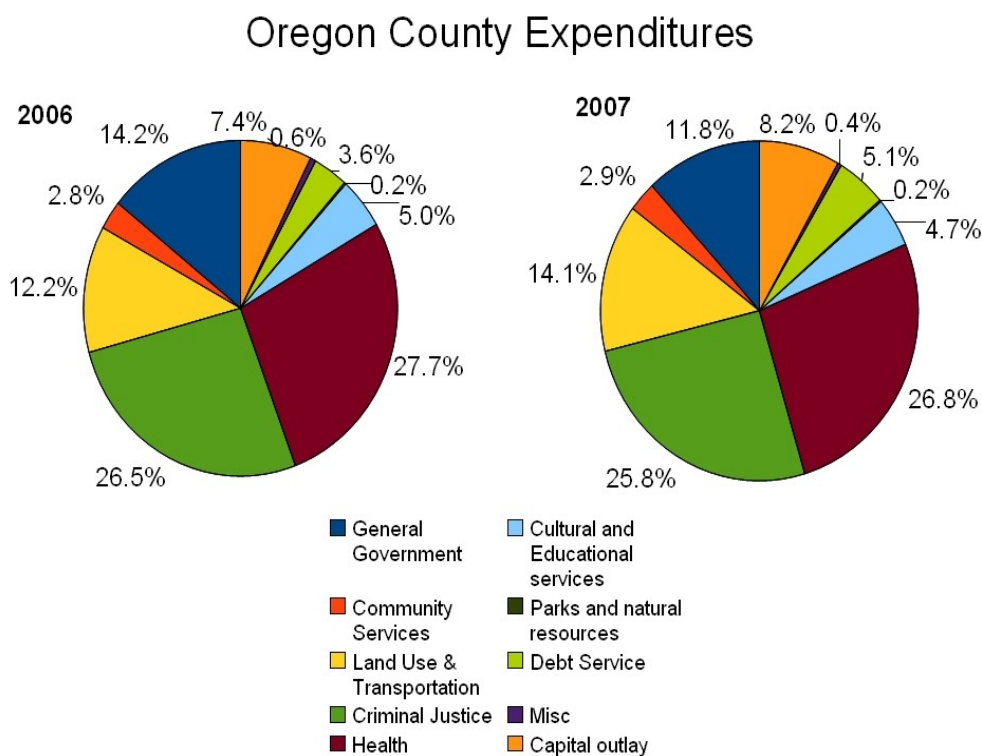


### 3. Empirical Model

A multilinear statistical approach was used to examine the relationship between SRS payments and local government spending on particular services.

#### 2006-2007 Oregon County Expenditure Data

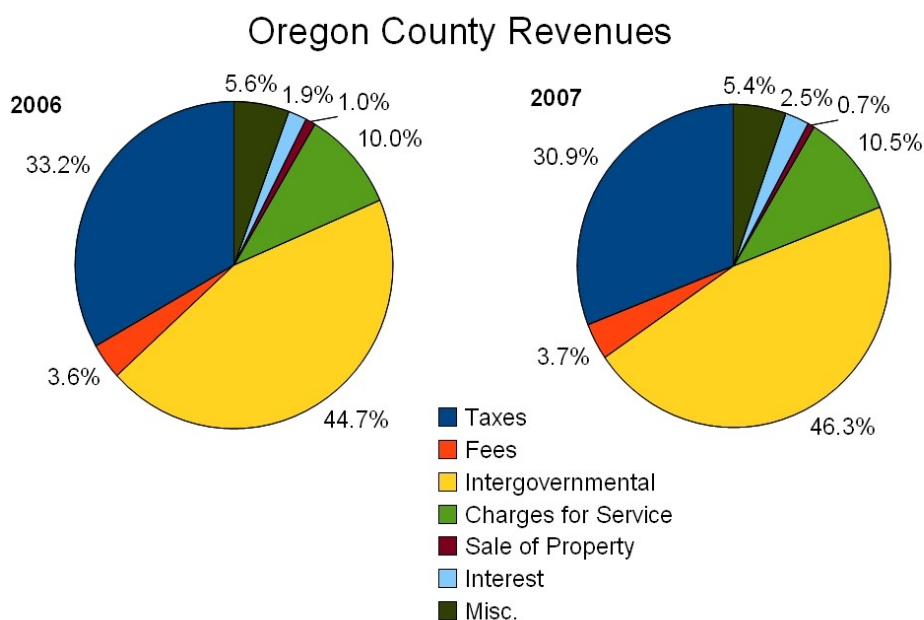
For researchers, policy makers, and residents of counties, ready access to transparent budget information is useful for understanding the fiscal situation that Oregon counties face today. Each county government publishes an adopted budget that provides detailed fiscal information. Annually, these budgets are audited and a report is submitted to the State of Oregon Audits Division for review, publishing, and archiving. In the winter of 2008 a team from the Rural Studies Program at Oregon



*Figure 6: Oregon County Government Expenditures*

State University collected budgetary data for county governments in Oregon. As researchers examining the fiscal, social, and economic situation around the termination of funding from SRS we were interested in comparing fiscal data across all counties in Oregon.

*Figure 7: Oregon County Government Revenues*



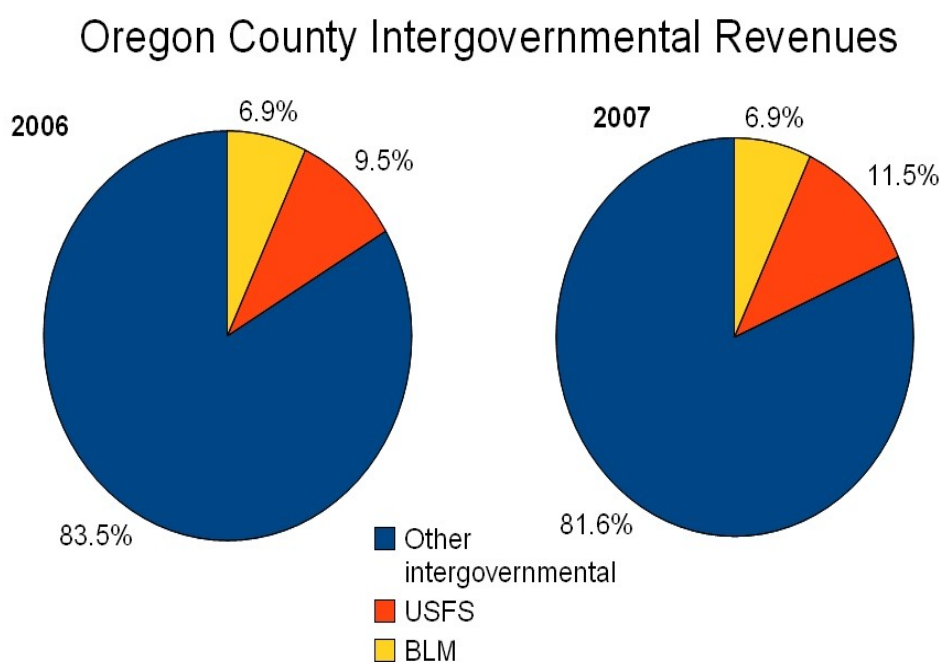
While there are well established conventions in financial reporting, there are significant differences in how each county government goes about structuring its budget. These differences make it very difficult to effectively compare the budget of one county to that of another. In our initial explorations we quickly realized that county budgets presented too much detail to be our primary source of data. Instead, we turned to the annual financial audit reports, but here too, we found that while accounting conventions make them look similar, there were still broad differences

between them. However, the information in the audit reports is much more succinct making audit reports a suitable source of fiscal data for making general comparisons.

With help from John Krawczyk, County Administrator for Yamhill County in Oregon, we were able to create categories that capture the various revenue and expenditure items in the annual county financial audits reports. Typically these aggregation categories (see Appendix A) are report items that appear frequently among the county reports. Only expenditure data from the Oregon county audit reports were used in this analysis so revenue aggregation categories are not displayed here.

A spreadsheet was created with the aggregation categories and their audit items listed across the top and the 36 Oregon counties listed on the left side. Three columns were included for each aggregation category and audit item with the intention of collecting data for 2006-2008. Additionally, there were three columns for each county

*Figure 8: Oregon County Intergovernmental Revenues*



for the revenue fund from which each expenditure was spent; general fund, road fund, or total funds spent (which does not discriminate between funds). Monetary values from summaries in the county audits were then entered into the spread sheet using a two person method that ensured accuracy. There are many cells in a row on the revenue and expenditure sheets that are left blank. This is because an individual county audit report will have only a few or a single value under an aggregation category, and that value was placed in the column for the item it best fits (usually the item was identical). The values were then summed into their aggregation categories in a table on the right side of revenue and expenditure sheets (miscellaneous expenditures were also brought over to the main expenditures sheet). To obtain total county expenditures statewide summaries were created by summing each aggregation category for each of the data years.

There are ten individual expenditure aggregation categories and an additional category for total expenditures for a total of eleven Oregon county government expenditure variables. While data for expenditures spent from the general and road funds were collected from the county audits, for this analysis only total funds spent were considered. The data were divided into the the two years FY 2006 and 2007. There are 36 observations for each year for at total of 792 data points.

## **Model**

Production of government services is a function of inputs and demands for those services. Physical capital, informational inputs, and labor are secured using revenues. Therefore, in this analysis inputs for the production of government services are represented by revenue variables such as taxes and grants. Also, in this analysis local government expenditures are used as a proxy for government services produced. Because of differences across governmental units and economies of scale using expenditures as an expression for service output can be problematic. However,

measurement of actual service output across all local government services would require methodologies outside the scope of this analysis. It is assumed that increases in expenditures by local governments in Oregon correspond to an equivalent increase in service output. Given this assumption, expenditures can be expressed as a function of revenue inputs and exogenous demand variables.

$$\text{Expenditures} = f(\text{revenue}, \text{demand}) \quad (1)$$

This model can be elaborated by specifying specific variables that determine government expenditures. Local government revenues are derived from several sources but are predominantly taxes, fees, and intergovernmental transfers or grants. The primary interest in this analysis was the influence, if any, of timber-county payments on expenditures. Per capita income of citizens demanding services from state and local government has been shown repeatedly to have a positive influence on expenditures. People who earn more will have a higher propensity to consume incurring sales taxes and fees, and typically own property of greater value which garners higher property tax. A rational citizen who pays more in taxes demands more services from government. Population and the spatial distribution of people has also been shown to be important in explaining local government expenditures. All things being equal, as population grows there is a greater demand for public services and thus increased spending to meet the needs of more people. However, economies of scale come into play when populations become denser and more people can be served with the same infrastructure and personnel. Combining these concepts, an elaborated economic model can be constructed:

$$\text{Expenditures} = f(\text{Grants} + \text{Per capita Income} + \text{Population Density} + \text{Property Tax}) \quad (2)$$

Using the results of previous analyses examining the determinants of local government expenditures and intergovernmental grants an econometric model was constructed to perform an analysis on county-level financial data in Oregon.

The SRS legislation functions as a two part grant program. Payments to county governments in Oregon from the USFS are required to be spent for roads, education, and smaller community specific programs that are designed to enhance the natural resource value of federal lands. Payments from the BLM are in accordance with O&C act and go to the general fund of the county governments receiving them and are used for discretionary spending. Since these two types of timber-county payments are functionally different, and the distribution of them across the counties in Oregon is heterogeneous, they were divided into two separate variables by federal agency. These variables were then placed in a general econometric model based on the economic equation 2 above:

$$EXP_{ijk} = \beta_0 + \beta_1 USFS_{jk} + \beta_2 BLM_{jk} + \beta_3 Income_k + \beta_4 Density_{jk} + \beta_5 Taxes_{jk} \quad (3)$$

Here **EXP** represents the local government expenditures for a given category **i**, where **j** is one of the data years 2006 or 2007, and **k** is the county in Oregon. **USFS** and **BLM** are the timber-county payments disbursed to the counties in the given data year. **Income** is the per capita personal income in the county for 2006 which is used as the income variable for both years. **Density** is the number of people per square mile in the county. **Taxes** is the property tax extended within Measure 5 limits by the county government in the given fiscal year. To control for population all variables expressed in monetary terms (all save for Density) were converted to per capita terms at the county level. A full list of variables used in this analysis and their sources can be found in Appendix E.

Previous research has shown that intergovernmental grants have a stimulative

effect on government spending at the local level (Hines 1995, Hirsch 1990, Oates 1972 and 1999, and Rosen 2005). Therefore, it is expected that SRS payments should have a similar effect. Because of the differing policy structure of the payments from the USFS versus the BLM they must be considered separately.

### ***Explanatory variable correlations***

Correlations were run on all variables included in the analysis (see Appendix B). Pearson correlation coefficients and two-sided t-tests were performed on each pairwise combination. Payments from the BLM and Taxes were found to be significantly correlated in Oregon over the data years.

***Table 1: Correlations of Independent variables***

	year	USFS <sup>†</sup>	BLM <sup>†</sup>	Income <sup>†</sup>	Density	Prop. Tax <sup>†</sup>
USFS <sup>†</sup>	2006	1.000	-0.056	-0.130	-0.186	-0.011
	2007	1.000	-0.063	-0.130	-0.186	-0.006
BLM <sup>†</sup>	2006	-	1.000	0.036	-0.106	-0.387*
	2007	-	1.000	0.036	-0.107	-0.389*
Income <sup>†</sup>	2006	-	-	1.000	0.573***	-0.292
	2007	-	-	1.000	0.573***	-0.305
Density	2006	-	-	-	1.000	0.058
	2007	-	-	-	1.000	0.043
Property Tax <sup>†</sup>	2006	-	-	-	-	1.000
	2007	-	-	-	-	1.000

<sup>†</sup> per capita; all expenditure categories are in per capita terms

The Pearson's correlation coefficients were -0.387 in 2006 and -0.389 in 2007; both were statistically significant at the 95% level. In some regressions where BLM payments was an explanatory variable of interest, dropping per capita property tax imposed changed the sign and magnitude of the coefficient in the general government,

2006 community services, transportation, criminal justice, cultural education aggregation categories as well as total expenditures. The changes in the BLM coefficients with the removal of the Taxes variable was determined to be attributable to omitted variable bias because per capita property tax imposed is a good predictor of local government expenditures and diagnostics did not indicate a multicollinearity problem.

The correlation calculations showed that Density and Income were also significantly correlated. The Pearson's correlation coefficient was 0.573 in both years and was statistically significant at the >99.9% level. The coefficients were the same for both years because 2006 income data was used as a proxy for 2007 and population density likely did not change appreciably between the two years. Test regressions were run dropping either variable from the general model. Dropping density from the model did reverse the sign of Income, but the magnitude of Income was very small. In the models where Income or Density were found to be significant, dropping the correlated variable (i.e. keeping income and dropping density and the reverse) did not change the sign of the coefficient used and did not appreciably change the magnitude of the remaining variable. Dropping the correlated variables slightly improved the fit of the model, but this was due to the reduction in regression degrees of freedom in a data set where there are so few observations ( $N = 36$  in each year). Both Income and density are important variables for the explanation of local government expenditures and the majority of previous analyses include these variables. Because of their explanatory importance and that removal of correlated variables did not significantly improve the model it was decided to leave both Income and Density in the model.

## **Quantitative Methods**

All but the earliest analyses examining the influence of intergovernmental grants on state and local government expenditures have used regression techniques



employing two or more equations; of these, two-stage least squares being the method most frequently used. In the late 1960's researchers learned that while grants certainly stimulated expenditures, there was a reciprocal negative relationship. It was found that policy makers favored awarding grants-in-aid to governments that had lower expenditures on the programs targeted by the grant program. This circular causation was handled by creating a government expenditure function similar to those in this analysis and creating a second equation to express grants as a function expenditures and other applicable variables.

Because SRS payments are indexed to harvest years and have been reduced across the board in subsequent renewals the technical problem of analyzing circular causation between grants and expenditures is averted. Since this is the case, ordinary least squares regression is appropriate for this analysis.

All data were compiled into a single MSEXcel workbook where preliminary calculations were done and a final data set was created on a single spreadsheet. This data set was imported into the SPSS software package for analysis. Correlation coefficients were calculated between all of the variables. In the final refinements of the model, plots were done to detect non-linear relationships. Models were estimated using OLS methods and two sided t-tests were done on all parameters. Adjusted coefficient of determination and F-tests were used to determine goodness-of-fit.

## 4. Results

Over all model specifications, USFS payments were a good predictor of spending on transportation and education, BLM payments had a weak relationship with general government, criminal justice, and healthcare spending, mostly in 2007. Property taxes were a good predictor of transportation and total expenditures, but especially criminal justice spending. None of the explanatory variables were useful in explaining Oregon local government expenditures on community services, natural resources, debt service, miscellaneous expenditures, and capital spending in any of the models. In the data for the community services aggregation category, Gilliam County in 2006 and both Gilliam and Wallowa Counties in 2007 had unusually high values for the community services spending variable that may have biased the results of regressions on this variable. Explanations for these outliers could not be reasonably made so outlier data points were retained. In the data for the natural resources and miscellaneous aggregation categories over half of the counties had no expenditures and observations of zero were recorded reducing the number of observations and rendering them unsuitable for regression. The data for the debt and capital expenditures aggregation categories appeared sound. The lack of explanatory power of the chosen variables for predicting these local government expenditures may be due to variables that were omitted, that may be useful in predicting debt and capital expenditures, or these expenditure categories may not have a predictable pattern to them.

### ***Model: USFS and BLM payments with property taxes***

All expenditure categories were regressed on the five explanatory variables in both years of the the data set (see Table 2) in accordance with equation 3. Per capita USFS payments were positively and significantly related with regards to 2007 general

government, transportation, cultural education spending, and 2007 total expenditures. Per capita BLM payments were positively related to 2007 general government, 2007 criminal justice, and healthcare spending. Population density was positively associated with 2007 healthcare expenditures. Per capita property taxes were statistically significant predictors of general government, transportation, criminal justice, total expenditures and 2007 healthcare spending.

**Table 2: SRS payments with property taxes**

	year	Const.	USFS <sup>†</sup>	BLM <sup>†</sup>	Income <sup>†</sup>	Density	Tax <sup>†</sup>	Adj. R <sup>2</sup>	F
General Government	2006	36.9	0.13	0.929	-0.004	-0.092	1.370***	0.460	6.95**
	2007	-21.6	0.204***	0.586*	-0.001	-0.109	0.952***	0.785	26.6**
Trans.	2006	122.0	0.716***	0.083	-0.005	-0.058	0.877***	0.876	50.3**
	2007	-61.1	0.435***	0.278	0.000	-0.091	1.003***	0.765	23.8**
Criminal Justice	2006	218.0*	0.047	0.270	-0.004	-0.013	0.682***	0.796	28.3**
	2007	203.0**	0.017	0.325*	-0.004	-0.022	0.824***	0.901	65.1**
Healthcare	2006	62.9	0.068	0.746*	0.002	0.136*	0.132	0.209	2.85*
	2007	2.00	0.046	0.531*	0.003	0.124	0.209*	0.227	3.05*
Cultural Education	2006	-55.0	0.329***	0.092	0.002	0.003	0.090	0.595	8.83**
	2007	-23.2	0.315***	0.004	0.001	0.005	0.088	0.494	7.84**
Total Expenditures	2006	460.0	1.043	2.576	-0.011	-0.210	4.168***	0.399	5.64**
	2007	-76.2	0.934***	1.588	0.012	-0.293	3.377***	0.688	16.4**

† per capita; Significance: \* = 95%, \*\* = 99%, \*\*\* = >99.9%

The coefficients for Per capita USFS payments were statistically significant at the 99% level or greater in all expenditure categories where they were significant. For 2007 general government expenditures the coefficient for per capita USFS payments was 0.204. For every dollar of per capita USFS payments, all things being equal, general government expenditures in that year should be about 20 cents higher. The coefficient for per capita USFS payments was not significant in 2006. In both 2006

and 2007 the coefficients for per capita USFS payments were positive and significant with regards to transportation expenditures. In 2006 the coefficient was 0.716 and in 2007 it was 0.435 indicating a smaller influence on transportation spending in the latter year. This may reflect county decisions to hold USFS payments in road reserves rather than spend these payments on road services. The coefficients for per capita USFS payments were significant and positive in both data years for cultural education spending. In 2006 the coefficient was 0.329 and in 2007 the coefficient was 0.315, which shows a relatively stable level of influence between years. In 2007, the coefficient for per capita USFS payments was significant with a value of 0.934, indicating an overall stimulative effect on total expenditures.

Where per capita BLM payments were significant the coefficients were so at the 95% level. For 2007 general government expenditures the coefficient for per capita BLM payments was 0.586 and for 2007 criminal justice expenditures the coefficient was 0.325. The coefficients for per capita BLM payments were not significant for 2006 general government or criminal justice expenditures. The coefficients for per capita BLM payments were significant with regards to healthcare expenditures in both 2006 and 2007. In 2006 the coefficient was 0.746 and 0.531 in 2007.

For 2006 healthcare expenditures the coefficient for population density was 0.136 and was significant at the 95% level. The coefficient for population density was not statistically significant with regards to healthcare in 2007.

Where the coefficients for property taxes were significant, they were so at the 99% level save for 2007 healthcare where that coefficient was significant at the 95% level. For both data years per capita property taxes were important in explaining general government expenditures. In 2006, the coefficient was 1.370 and 0.952 in 2007. For the transportation expenditure category, the 2006 property tax coefficient was 0.877 and 1.003 in 2007. The 2006 criminal justice property tax coefficient was

0.682 and 0.824 in 2007. For the 2007 healthcare expenditure category, 0.209 was the property tax coefficient. For total expenditures in 2006 the property tax coefficient 4.168 and was 3.377 in 2007.

The goodness-of-fit for the model varied appreciably between expenditure categories and between years. The 2006 general government expenditure category had only one variable coefficient that was significant (property taxes) and captured 46% of the variation in the dependent variable. In 2007 there were three significant independent variable coefficients (USFS payments, BLM payments, and property taxes) and the model captured more than 78% of the variation in general government expenditures. For the transportation category, two independent variable coefficients were significant (USFS payments and property taxes) in both years. The 2006 model captured over 87% of the variation in transportation expenditures while in 2007, 76% was captured. In the 2006 criminal justice category, only the coefficient for property taxes was significant, but the model still captured nearly 80% of the variation in the dependent variable. In the 2007 model, the coefficients for BLM payments were significant as well as property taxes and the model captured over 90% of the variation in criminal justice expenditures! In both years the healthcare category had two significant variable coefficients. In 2006, the coefficients for BLM payments and population density were significant and the model captured just under 21% of the variation. In 2007, the coefficients for BLM payments and property taxes were significant and the model captured almost 23% of the variation in the healthcare expenditures. USFS payments were the only variable with significant coefficients in either years for the cultural education category. In 2006 the model captured nearly 60% of the variation in education spending, while in 2007 the model captured just over 49%. Property taxes was a predictor of total expenditures in both years, while USFS payments was a predictor in only 2007. In 2006 the model fit nearly 40% of variation in total expenditures while in 2007 the model captured nearly 69%.

## **5. Discussion**

The statistical results of the 2006-2007 Oregon county government expenditure data show that dependent on the policy structure of timber-county payment, the data year, but most importantly, the expenditure category, SRS payments have a stimulative effect on county government spending. This finding is unique in the context of the literature on the topic. Early research on the determinants of local government expenditures found that population and per capita income were important in explaining government spending. Later research showed that intergovernmental grants had trumped these demographic variables in explanative importance. These later studies showed that grants have a greater stimulative effect on spending than new tax revenues. Here we have found that SRS payments from the USFS had a notable stimulative effect on those expenditure items the funds are aimed at. The stimulative effect from BLM payments was not as consistent in either year, perhaps as a consequence of the dramatic changes in the fiscal climate for county governments in Oregon. Because BLM SRS payments were unconditional, the patterns of discretionary expenditures may reveal the priorities of budget makers.

### **USFS Payments**

SRS payments from the USFS are conditional in nature. County governments are obligated to spend these funds on roads, education, and specific projects that comprise a small fraction of total disbursements. As expected, USFS payments had a strong stimulative effect on the transportation and cultural education aggregation categories where spending associated with these payments occurs. Per capita USFS payments appear to have a stimulative effect on spending overall as evidenced by the significant positive coefficient in the total expenditures category in the 2007 version of the model.

In the 2007 version of the model, the coefficient for USFS payments became significant in explaining general government expenditures. Since USFS payments are dedicated to roads and schools, this result may signal that counties with higher USFS payments have more capacity to (or have been more successful in) raising general government funds through fees or other mechanisms. It may also signal that, at any particular level of property taxes per capita, counties receiving higher USFS payments do not need to use as high a proportion of property taxes for roads, freeing up tax revenue for spending on general government instead of roads.

## BLM Payments

BLM payments had a detectable stimulative effect in two expenditure categories: healthcare and criminal justice. The fact that BLM payments showed up as an important predictor of any spending is remarkable. SRS payments from the BLM are unconditional and go to the county

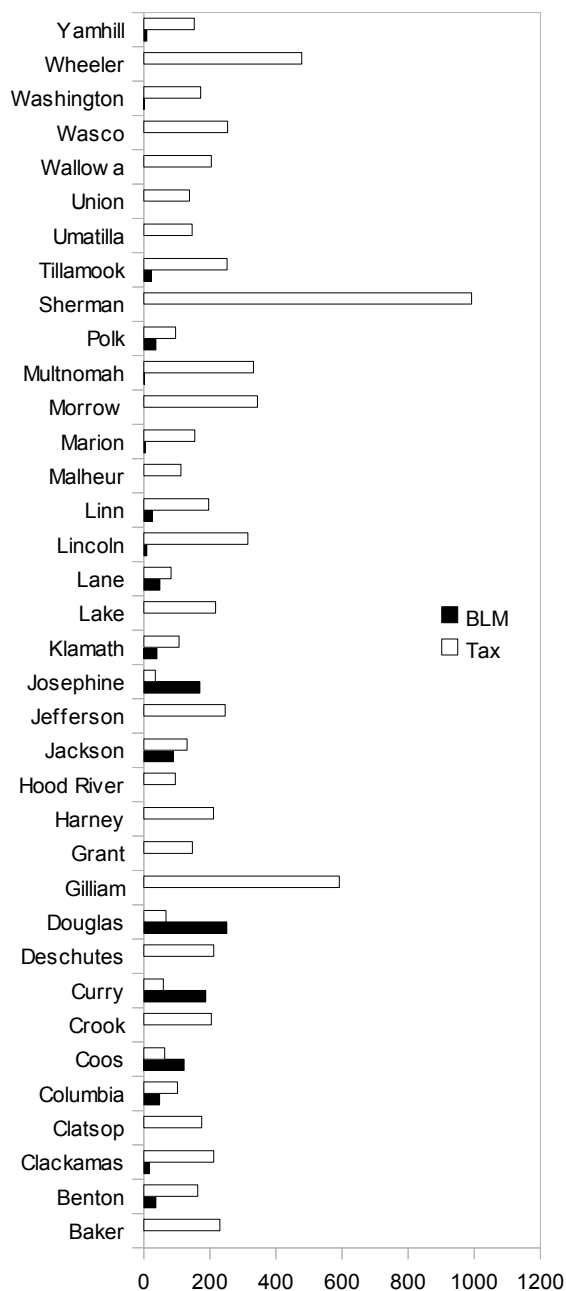


Figure 9: 2007 Per capita property tax extended and per capita BLM payments

government's general fund and can be spent at the discretion of budget makers. These discretionary funds could be spread throughout a county's budget making the expenditure category specific effect difficult to detect. By comparing the means and the maximums of the revenue variables (see Table 3) we see that the size of per capita BLM payments is much smaller than average and maximum USFS payments and average per capita property taxes. It is possible that some of the effect of BLM payments was diluted by the larger revenue variables, especially property taxes which were correlated with BLM payments. BLM payments were not found to be correlated with any expenditure categories.

**Table 3: Means of Revenue Sources**

	<b>year</b>	<b>Mean</b>	<b>Max</b>
<b>USFS</b>	2006	127	1114
	2007	154	1360
<b>BLM</b>	2006	27	232
	2007	31	252
<b>Taxes</b>	2006	205	948
	2007	214	992

Examination of the spatial distribution of BLM payments (see Figures 4 and 9) reveals that 5 of 36 counties in the southwestern corner of the state (Douglas, Curry, Josephine, Coos, and Jackson) receive the lion's share of BLM payments and that these counties are those that have a large proportion of O&C lands. The fact that BLM payments are relatively small compared to other revenue sources and that they accrue in relatively large amounts to only a few counties highlights the regional specificity of the BLM payment regression results.

Because timber-county payments from the BLM are spent like cash in county budgets these findings reveal the priorities of budget makers in the counties



where BLM SRS payments accrue. In both data years Per capita BLM payments were important in explaining health care spending. In 2007, BLM payments showed up as a predictor of criminal justice spending as well. This was also a year of notable discussion of timber-county payments and fiscal stress in the media, especially cuts to law enforcement. We can infer that health services and public safety are high priorities for county governments and their constituents because this is where discretionary SRS payments ended up.

Since five southwestern Oregon counties receive the majority of BLM payments, their budgets may have a large influence on the signal seen in the healthcare and criminal justice expenditure categories. When comparing per capita BLM payments to per capita property tax extended (see Figure 9), four of the five O&C counties receive greater revenue from BLM SRS payments than they do from taxes hence the statistically significant negative correlation between BLM payments and property taxes (see Table 4).

**Table 4: Correlation of revenue sources**

	year	USFS	BLM	Taxes
<b>USFS</b>	2006	1.000	-0.056	-0.011
	2007	1.000	-0.063	-0.006
<b>BLM</b>	2006	-	1.000	-0.387*
	2007	-	1.000	-0.389*
<b>Taxes</b>	2006	-	-	1.000
	2007	-	-	1.000

The tax variable excludes other districts and levies, but does contain the tax allocated for the operation of the county government. Since BLM payments are a significant source of funding to these counties, we should also see some stimulative effect with regards to total expenditures. Indeed, the coefficients for BLM payments

in the total expenditures category in the model are positive and greater than unity, but are not statistically significant. Another possible explanation for the lack of overall stimulative effect with regards to BLM payments is the allocation of these revenues to reserve funds. In interviews with officials from three Oregon county governments hit hard by the potential loss of SRS funding, Gaid<sup>1</sup> found in 2009 that two county governments she studied allocated large amounts to road reserve funds in FY2007. Revenues allocated to reserve funds would not show up in this analysis because only expenditure data were collected.

## **Density**

The existence of economies of scale in public service provision would suggest that with increasing population density more people can be served with fewer inputs of production. This would be observed in a negative relationship between population density and healthcare expenditures. However, in 2006 this analysis found that for every additional person per acre, per capita healthcare expenditures were about 14 cents higher, all other things being equal. One possible explanation for this finding could be that there may be greater demand for a broader array of services in areas of greater urbanization resulting in higher costs of production of healthcare services.

## **Taxes**

Property taxes was a predictor for four of the ten expenditure categories (general government, transportation, criminal justice, and healthcare) and total expenditures. It is important to note that if taxes are correlated with other intergovernmental grants the taxes variable could be capturing some of the effect of other intergovernmental transfers for roads, healthcare and other expenditures because these intergovernmental

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<sup>1</sup> Gaid, Dawn Marie. 2009 Changing Federal County Payments and Rural Oregon Counties: Analysis of Policy Impacts and Responses from Loss of Secure Rural Schools Funding in Selected Oregon Counties. Rural Studies Program Working Papers Series RSP #09-04

grants were not differentiated in the data set and thus could not be controlled for.

## Changes in model fit between 2006 and 2007

There were three categories of the model that showed marked changes in coefficient of determination between the two data years. In all three cases 2007 was the year with superior goodness-of-fit metrics (see Table 5).

**Table 5: Changes in goodness-of-fit**

	<b>2006 R<sup>2</sup></b>	<b>Significant variables</b>	<b>2007 R<sup>2</sup></b>	<b>Significant variables</b>
<b>General Government</b>	0.460	taxes	0.785	USFS, BLM, taxes
<b>Criminal Justice</b>	0.796	taxes	0.901	BLM, taxes
<b>Total Expenditures</b>	0.399	taxes	0.688	USFS, taxes

In all three cases the emergence of one or both of the coefficients for the SRS payment variables as statistically significant greatly improved the fit of the model. The presence of USFS payments in the total expenditures category is of particular interest because this indicates that in 2007 SRS payments from the USFS were having an overall stimulative effect that is detectable independent of the specific expenditure categories that particular SRS payment is aimed at. Improvements in the fit of the general government expenditure category in the model can be also attributed to the coefficient for USFS payments becoming statistically significant (see Table 10 in Appendix C). BLM payments did not have nearly as powerful effect on the goodness-of-fit of the models where it was included.

This analysis could have been significantly improved with the inclusion of additional years of data. Even one more year would have allowed the inclusion of

time lagging variables. The additional degrees of freedom would allow a much more elaborate model that included political variables and dummy variables for individual years. This analysis only examined the expenditure side of the data collected. Revenue-side data were also obtained that could be included to clarify the influences of SRS payments.

## 6. Policy Implications

The State of Oregon is blessed in many ways particularly in its wealth in natural resources; trees being chief among these. This fact was not lost on those living over a hundred years ago who forged the agreement that allowed Oregon's forests to serve the nation. The shared revenues from the harvest of federal timber fueled the economies of rural communities in the past, and like then, the health and security of Oregonians today is dependent on the stable funding of local governments. The future of Oregon's federal forests appears uncertain, but we know that a return to the big harvests of the early 20<sup>th</sup> century is impossible. Above all else, local governments in Oregon need stable funding.

The regressions of the FY2006-2007 Oregon county audit data provide evidence that local governments are treating some SRS payments like other intergovernmental grants. SRS payments from the USFS had a clearly stimulative effect on roads and education overall, but also had a strong positive effect on general government spending and total expenditures in 2007. The influence of discretionary BLM payments shows that county governments are placing a priority on critical services. BLM payments were associated with some stimulative effect on healthcare spending, but the observed magnitude of the effect was small. BLM payments were also found to positively influence general government and criminal justice spending in 2007. If only total expenditures had been analyzed the stimulative effect of BLM payments would not have been detected.

The results showing a stimulative effect SRS payments on spending means that the policy is functioning as intended and that, for BLM payments, county governments are using these intergovernmental funds to augment spending on particular highly valued services. While these results appear encouraging, local governments in Oregon remain in a dire fiscal state. Twenty four of Oregon's 36 counties would be hard hit by the phase out of the SRS legislation. The Oregon Governor's Task force on

Federal Forest Payments and County Services identified 6 counties that “may be unable to meet the most elemental needs of public health and safety within a year or two after these payments terminate.” Loss of SRS payments would spell deep budget shortfalls on the local level that would cascade upward into state government as county governments hand over services.

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## Appendix A: Financial Audit Aggregation Categories

**Table 6: 2006-2007 County financial audit data aggregation categories**

### **General Government**

Administrative services  
Board of Commissioners  
Building inspection  
Communications  
County Treasurer  
County Assessor  
County Clerk  
County Surveyor  
Court House Building  
Information Services  
Local Government services  
Organizational infrastructure  
Personnel  
Tax Dept

### **Community Services**

Children and families  
-Community Development  
Economic Development  
Land use planning  
Veterans

### **Transportation**

County roads  
Highways & streets  
Highways, streets and airport(s)  
Land use, housing and transportation  
Transportation

### **Criminal Justice**

Emergency services  
District Attorney  
Juvenile Department  
Prosecution and justice  
Public Safety  
Sheriff- Criminal  
Sheriff- Jail  
Sheriff- Marine

### **Health**

Animal Control  
Health & Welfare  
Health Services  
Human Services  
Mental Health Services  
Sanitation

### **Cultural and educational services**

Apportionments to school districts  
Culture & recreation  
Education  
Fair  
Library  
Library Services  
Parks and Community Service  
School Services

### **Parks and natural resources**

Conservation  
Environmental Services  
Forestry  
Natural resources and environment

### **Debt service**

Debt service - principal  
Debt service - interest

### **Capital outlay**

### **Miscellaneous**

Business, private and special development  
Intergovernmental  
Liability payment  
Motorpool  
Nondepartmental  
Operating Contingency  
Other programs  
Unfunded actuarial



**Table 8: Correlations of dependent variables**

	year	Gen. Govt.	Comm. Svcs.	Trans.	C.J.	Health	Ed.	N.R.	Debt	Misc.	Cap	Tot.
Gen. Govt.	2006	1.000	0.865	0.692	0.877	-0.033	0.199	-0.089	-0.270	-0.090	-0.078	0.973
	2007	1.000	0.411	0.908	0.860	0.092	0.398	-0.096	-0.179	-0.065	-0.013	0.927
Com. Svcs.	2006	-	1.000	0.397	0.635	-0.129	-0.022	-0.044	-0.203	-0.065	-0.161	0.862
	2007	-	1.000	0.465	0.342	-0.145	-0.089	-0.050	-0.085	-0.104	0.211	0.596
Trans.	2006	-	-	1.000	0.725	0.010	0.610	-0.101	-0.299	-0.063	-0.124	0.758
	2007	-	-	-	0.772	0.034	0.479	-0.124	-0.250	-0.013	-0.057	0.924
C.J.	2006	-	-	-	1.000	0.042	0.168	-0.054	-0.251	-0.232	-0.040	0.858
	2007	-	-	-	1.000	0.187	0.129	-0.054	-0.209	-0.160	-0.049	0.816
Health	2006	-	-	-	-	1.000	0.141	-0.107	0.107	-0.202	-0.118	0.030
	2007	-	-	-	-	1.000	0.220	-0.108	-0.075	-0.073	-0.074	0.189
Ed.	2006	-	-	-	-	-	1.000	0.009	0.190	-0.049	0.184	0.340
	2007	-	-	-	-	-	1.000	-0.018	-0.109	0.309	0.055	0.468
N.R.	2006	-	-	-	-	-	-	1.000	-0.008	0.077	-0.065	-0.079
	2007	-	-	-	-	-	-	1.000	-0.048	0.232	-0.124	-0.109
Debt	2006	-	-	-	-	-	-	-	1.000	-0.011	0.116	-0.221
	2007	-	-	-	-	-	-	-	1.000	-0.077	-0.075	-0.153
Misc.	2006	-	-	-	-	-	-	-	-	1.000	-0.106	-0.112
	2007	-	-	-	-	-	-	-	-	1.000	-0.146	-0.049
Cap	2006	-	-	-	-	-	-	-	-	-	1.000	-0.045
	2007	-	-	-	-	-	-	-	-	-	1.000	0.137
Tot	2006	-	-	-	-	-	-	-	-	-	-	1.000
	2007	-	-	-	-	-	-	-	-	-	-	1

† per capita; all expenditure categories are in per capita terms





## Appendix C: Regression

**Table 10: Per capita USFS and BLM payments; per capita tax included**

	year	Const.	USFS <sup>†</sup>	BLM <sup>†</sup>	Income <sup>†</sup>	Density	Taxes <sup>†</sup>	Adj. R <sup>2</sup>
General Government	2006	36.9	0.125	0.929	-0.004	-0.092	1.370***	0.460
	2007	-21.6	0.204***	0.586*	-0.001	-0.109	0.952***	0.785
Community Services	2006	45.6	-0.212	0.304	-0.004	-0.128	1.047	0.009
	2007	13.8	-0.042	-0.196	0.000	-0.077	0.291	-0.060
Transportation	2006	122	0.716***	0.083	-0.005	-0.058	0.877***	0.876
	2007	-61.1	0.435***	0.278	0.000	-0.091	1.003***	0.765
Criminal Justice	2006	218*	0.047	0.270	-0.004	-0.013	0.682***	0.796
	2007	203**	0.017	0.325*	-0.004	-0.022	0.824***	0.901
Healthcare	2006	62.851	0.068	0.746*	0.002	0.136*	0.132	0.209
	2007	2.004	0.046	0.531*	0.003	0.124	0.209*	0.227
Cultural Education	2006	-54.909	0.329***	0.092	0.002	0.003	0.090	0.595
	2007	-23.221	0.315***	0.004	0.001	0.005	0.088	0.494
Natural Resources	2006	8.481	-0.004	-0.023	-3.24E-005	-0.003	-0.012	-0.127
	2007	6.126	-0.003	-0.016	3.79E-005	-0.004	-0.011	-0.129
Debt	2006	11.113	-0.009	-0.045	0.001	0.015	-0.027	0.065
	2007	-75.586	-0.036	-0.083	0.005	-0.037	-0.028	-0.021
Misc.	2006	16.399	-0.005	-0.048	-2.63E-005	-0.004	-0.027	-0.111
	2007	11.827	0.002	-0.023	0.000	0.000	-0.014	-0.117
Capital Exp.	2006	-6.130	-0.011	0.268	0.003	-0.066	0.035	-0.096
	2007	-131.208	-0.004	0.182	0.007	-0.083	0.062	-0.064
Total Exp.	2006	460.196	1.043	2.576	-0.011	-0.210	4.168***	0.399
	2007	-76.197	0.934***	1.588	0.012	-0.293	3.377***	0.688

† per capita; significance (\*) 0.05, (\*\*) 0.01, (\*\*\*) 0.001

## Appendix D: Descriptive Statistics

**Table 11: Financial Data Descriptive Statistics**

	year	Min	Max	Mean	SD
USFS	2006	0	1114	127	231
	2007	0	1360	154	283
BLM	2006	0	232	27	53
	2007	0	252	31	60
Income	2006	19550	41378	28588	4466
Density	2006	1	1612	105	286
	2007	1	1631	107	289
Property Tax	2006	33	948	205	168
	2007	35	992	214	176
General Government	2006	34	1790	228	308
	2007	31	852	205	190
Community Services	2006	0	2889	104	479
	2007	0	910	67	195
Transportation	2006	50	999	234	244
	2007	50	994	226	237
Criminal Justice	2006	142	738	263	128
	2007	140	925	275	152
Healthcare	2006	0	420	182	95
	2007	0	436	182	95
Cultural Education	2006	0	487	67	98
	2007	0	490	76	118
Natural Resources	2006	0	66	4	12
	2007	0	64	4	12
Debt	2006	0	74	21	19
	2007	0	268	37	61
Miscellaneous	2006	0	82	8	20
	2007	0	45	4	11
Capital Expenditures	2006	0	348	79	84
	2007	0	339	75	88
Total Expenditures	2006	562	6394	1189	1032
	2007	491	3710	1150	710

## Appendix E: Data Sources

**Table 12: Dependent and Explanatory Variables**

<b>Explanatory Variables</b>		
<b>Variable</b>	<b>Unit</b>	<b>Source</b>
USFS payments	Per capita dollars	Oregon Department of Forestry, <a href="http://tbabs.org/ODF/STATE_FORESTS/FRP/Charts.shtml">http://tbabs.org/ODF/STATE_FORESTS/FRP/Charts.shtml</a>
BLM payments	Per capita dollars	Oregon Department of Forestry, <a href="http://tbabs.org/ODF/STATE_FORESTS/FRP/Charts.shtml">http://tbabs.org/ODF/STATE_FORESTS/FRP/Charts.shtml</a>
Combined federal payments	Per capita dollars	Calculated from collected data
Personal income (2006 only)	Per capita dollars	State & County Quickfacts, <a href="http://quickfacts.census.gov/qfd/states/41000.html">http://quickfacts.census.gov/qfd/states/41000.html</a>
Population density	people/sq. Mile	State & County Quickfacts, <a href="http://quickfacts.census.gov/qfd/states/41000.html">http://quickfacts.census.gov/qfd/states/41000.html</a>
Property tax imposed	Per capita dollars	Calculated from data obtained from the Oregon Property Tax Statistics Supplement, Table 2.1.1, <a href="http://www.oregon.gov/DOR/STATS/statistics.shtml">http://www.oregon.gov/DOR/STATS/statistics.shtml</a>
<b>Dependent Variables</b>		
<b>Variable</b>	<b>Unit</b>	<b>Source</b>
General Government	Per capita dollars	County Audit Report dataset, Rural Studies Program, OSU
Community service	"	"
Transportation	"	"
Criminal justice	"	"
Healthcare	"	"
Cultural Education	"	"
Natural resources	"	"
Debt service	"	"
Miscellaneous	"	"
Capital expenditures	"	"
Total expenditures	"	"

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