Giving and Taking Away: Exploring Federal Grants' Differential Burden on Metropolitan and Nonmetropolitan Regions

Author(s): Jeremy L. Hall

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# Giving and Taking Away: Exploring Federal Grants' Differential Burden on Metropolitan and Nonmetropolitan Regions

**Jeremy L. Hall***

This article examines federal economic development policy implemented through fiscal federalism. A new measure is developed to assess the burden created by local financial match requirements on federal grant awards over time. This measure is applied to counties in three states (Alabama, Georgia, and South Carolina) to determine if burden varies by metropolitan or nonmetropolitan status. By mapping the data and through regression analysis, it was found that match burden is disproportionately higher in nonmetropolitan areas than in metropolitan areas. In spite of the observed geographic differences, burden levels are best explained by wealth, land area, and the level of fiscal distress, not by metropolitan status alone.

In the U.S., federal grants for economic development are primarily distributed through a competitive framework to state and local applicants nationwide. Inherent in any federal program are goals that federal principals seek to accomplish through recipient behaviors induced by program funding (Kettl, 1983). Local priorities may fall prey to federal goals in the interest of "doing something" (Wolman 1996) and as a result budget maximization may displace utility maximization (Quigley and Rubinfeld, 1986). Hall (2008) has demonstrated that unequal capacity levels predispose certain areas to greater federal funding success than others, thereby affecting the ultimate distribution of federal funds. These capacity levels notwithstanding, nonmetropolitan areas may find themselves committing disproportionate amounts of matching resources to leverage much needed federal funding to combat local problems. Because of the varied tax bases of governments across the landscape, their abilities to pay will also vary considerably. As a result, the federal match requirement burden is expected to affect these localities differently. Federal grants are distributed in an uneven fashion, and they do not elicit uniform impact on recipient jurisdictions. Varied match requirements across federal programs yield unequal impacts on recipients as some receive grants that require a greater share of available own-source revenues as match than others. Because it is often the case

*University of Texas at Dallas, jeremy.hall@utdallas.edu

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that fiscal replacement asymmetry occurs following federal funding cuts (Volden 1999), the burdens imposed by federal grants are likely to endure through continued service provision at the local government's own expense.

This study examines three southern states' (AL, GA, and SC) records of federal grant funding at the county[1] level over time, including federal grants to all entities (cities, county, special districts and other organizations) within the county. From the Federal Assistance Award Data System (U.S. Census Bureau, 2009), a subset of competitive federal grant programs related to economic-development are identified, and awards from those programs to recipients in the study states are recorded and summed over time to reveal the dollar amounts of federal investment in each local county geographic area from 1993 to 2005. The subset was identified by first considering only competitive grant programs; within that list, programs that serve an economic development purpose were included in the study. Using grant program information from the Catalog of Federal Domestic Assistance, match requirements were recorded for each of the selected programs and a conservative imputation determines the minimum amount of match required for each of the recorded grant awards identified. These cumulative local match requirements are interacted with population and local budget information to estimate the relative burden level by county.

Match burden levels are reflected graphically on county maps to determine the distribution of burden across space in the selected states. Finally, regression analysis is used to assess the relationship between federal match burden and local characteristics, including metropolitan status. Each observed county ($n=272$) is coded categorically according to its status as a central metropolitan, outlying metropolitan, micropolitan, or nonmetropolitan county in these models to ascertain the difference in relative burden between metro and nonmetro areas. The results contribute to fiscal federalism theory by helping to measure and explain the broader effects of federal economic development funding on local counties as a result of combined federal grant-making policy and local grant-seeking efforts, respectively.

## The Impact of Federal Grants on Local Jurisdictions

Local administrators and managers are accountable to local elected officials and government institutions. Federal agencies are also accountable to their superiors in Congress and to the President. This relationship makes evaluating the collective performance of the larger grant system as a whole more difficult. The decentralized nature of Congress exacerbates this difficulty, because the division of labor through the committee system focuses attention on program performance within the contrived boundaries of substantive committees. Authorizing committees and appropriations subcommittees naturally attend to the affairs of those agencies and

programs within their purview through policymaking and oversight (McCubbins and Schwartz 1984). Following federal budget process reforms such as the Budget Impoundment and Control Act of 1974, the federal budget process has been centralized with the establishment of budget committees, institutionalized with the establishment of the Congressional Budget Office, and as a result is better able to attend to fiscal performance issues across the board. But their concern is with total budget size, deficit spending, and the federal debt. To find a Congressional Budget Office report in the Intergovernmental Relations category that has grants of any kind as a primary focus you must look back twenty years (State-By-State Data on Formula Grant Programs: Report to the Senate Committee On Rules and Administration, CBO 1991).

So what are the effects of federal grants on local government budgets? There are conflicting views regarding local governments as budget maximizers. Budget maximization may take the place of utility maximization as Leviathan governments seek to increase their size and power (Quigley and Rubinfeld 1986). Some government recipients frame the grant decision in terms of how to spend, whereas others frame the issue in terms of whether to spend or reduce taxes (Nathan 1983). Indeed, the budget maximization mentality may play a very important role in determining the impacts of federal grants on state and local governments, but lower level governments do make choices that impact the influence federal grants may have on them.

One key area where federal grants impact local recipients is in their effort to leverage federal spending with local financial contributions to projects. These match requirements vary considerably across federal programs, allowing selective applicants to pick and choose those with more favorable conditions, but potentially shouldering needier applicants with greater match burden as their incentive to bring in external revenue increases. The burden caused by such match requirements can lead to detrimental effects for the long-term budget outlook of their recipients as they contribute greater proportions of their discretionary revenue to programs of federal interest rather than service provision matched to local needs. As Rubin (1988) and Wolman (1996) observe, there is significant political emphasis at the local government level on economic development, particularly through symbolic efforts. And federal grants offer members of Congress a simple approach to claim credit as well (Lee 2003). Where revenue is tight, local governments are more likely to turn to the federal government for assistance in supporting such programs.

This being the case, federal regulations, policies, and grant programs—even when targeted to areas of particular need—cannot evoke a uniform response by all local areas. The system seeks to ensure an equitable process given the unlikely possibility of equitable outcomes (Stone 2002). Those local governments with greater capacity may have less need for federal funds, and may be able to selectively apply for and receive funds whose characteristics are more appealing in terms of

their required local contributions. Some governments may elect to avoid federal grant funding altogether (twenty-four counties in this study have no reported grant awards for selected programs during the study period). Others may pursue grants that have low, or no, matching requirements. And even if grants were distributed equally, and all locations had equivalent match burdens *relative to the awards they receive*, no two places are alike. A match requirement of equal dollar amount would differently affect a small government with a weak local tax base than larger governments with deeper pockets. Thus, the grant system will likely impose different burdens and evoke different budgetary effects by location. These potential differences call for a better understanding of the federal competitive grant system as a whole, and the relationship between its outputs and local government resources.

Given important population and resource differences, one key distinction worthy of consideration is that between metropolitan and nonmetropolitan counties. The principal research question driving this study is how nonmetropolitan counties differ from metropolitan counties regarding the relative matching funds they contribute as conditions of federal grant awards within their jurisdictions. I hypothesize generally that nonmetropolitan counties bear greater burden relative to local revenue and population than do metropolitan counties. I continue with a brief synopsis of the literature related to federal grant targeting, theoretical exposition, and development of a testable hypothesis that responds to the research question posed above. The remainder of the article presents an analysis of these differences using three southern U.S. states—Alabama, Georgia, and South Carolina.

## Developing Expectations about Local Incentives to Pursue Federal Grants

Targeting has been defined as "federal action to alleviate fiscal disparities among state and local governments" (Morgan and Shih 1991, 60). Long (1987) indicates there has never been a systematic federal rural policy—only fragmented programs. Even so, the federal government's ability to target funding has increased over time (Rich 1989). While federal policy never necessarily ignored rural areas, there was new attention on rural and small town governments from the late 1960s to mid-1970s with the result that some federal programs began to single out small communities for special treatment (Sokolow 1987). Even absent systematic programs, it is important to consider whether federal policies are invoking systematic responses across places. Nonmetropolitan areas' relatively small population size means that infrastructure costs and public program operating expenses must be distributed over a smaller tax base. It is more difficult for rural places to finance projects and programs on par with their urban counterparts. Substantial size inefficiency has been identified in the case of rural roads, for example

(Chicoine, Deller, and Walzer 1989). Communities that have greater need are often the explicit targets of federal programs, and thus their eligibility heightens the likelihood that they would receive greater numbers of grants and larger amounts of targeted federal revenue than their less-needy counterparts. Greenbaum (2004) observes that while there has been considerable geographic targeting of economic development incentives, precious little research examines which areas receive targeted benefits. Montjoy and O'Toole, Jr. (1991) observe that targeting has been examined at length with considerable methodological debate (p. 51).

Federal economic development remains important; many communities have fallen on hard times, and relied on federal economic development programs to recreate their economies (Markusen and Glasmeier 2008). There are extremely distressed places that still lack such basics as clean water, adequate housing, and other infrastructure, indicating there is still need for targeted assistance (Markusen and Glasmeier 2008b). Does the federal government's economic development targeting effort have broader effects than simply in the amount of funds distributed? Does the system yield equitable results for communities? This article will help to inform these questions.

We still know very little about the cumulative performance of the federal grant enterprise. A plethora of available programs makes it difficult to assess whether targeting is realized even within a substantive area such as economic development. This article moves beyond single program studies by looking at awards across a large sample of programs for which eligible expenditures may be used to fulfill an economic development purpose. More significantly, it also moves into a previously untouched area of study by evaluating the impacts of these award distributions on local budget decisions brought about through federal match requirements. And finally, this article examines the geographic impacts of those award burdens across metropolitan and nonmetropolitan areas of three states.

In approaching this problem, it is necessary to engage in a brief theoretical exposition to develop a hypothesis regarding expectations for the allocation of grant burden. The research question inquires as to the geographic distribution of burden according to a local county's metropolitan status. There are numerous advantages to being located in or near a metropolitan area from an economic development and local government perspective. Metropolitan areas are centers of activity with large populations, and consequently large tax bases. Moreover, economy of scale in urban areas makes it possible to provide services at a lower cost per person. There are very real reasons why the federal government would feel obligated to come to the aid of less developed areas where the tax base is too weak to support even basic public services such as water and transportation. In addition to economy of scale matters, metropolitan areas contain a much denser and richer organizational landscape with larger government agencies and greater capacity to deliver services. Greater management capacity and planning lead to an expectation

that these areas are better equipped to review and selectively pursue available grant opportunities than their nonmetropolitan counterparts.

Looking at economic development effort specifically, metropolitan counties are mature service economies that typically have more diverse, and consequently more resilient, industrial bases than their nonmetropolitan counterparts. The result is less pressure to "do something" in more advanced economies than in remote areas with limited industry. When considering federal grants that may be able to provide relief to local needs, match requirements could certainly come into consideration in the decision to apply. Higher match requirements are expected to discourage application because they offset local spending priorities to a greater extent than programs with low, or no, match requirements. Larger places with deeper pockets are in a better position to focus only on programs that cause minimal distortion in their spending priorities. Small places with few resources may prefer the federal funding because it stretches their available resources in spite of the potential distortion to local spending priorities. With more sophisticated governments writing proposals to their preferred programs, cherry picking over time by those with superior political and management skill may lead to a disadvantageous allocation of match burden to areas willing to accept any assistance they can obtain.

In seeking meaningful results, it is necessary to preserve as much variance as possible. Rather than limiting the analysis to strict metropolitan and nonmetropolitan designations, I utilize the richer U.S. Census classification that distinguishes among nonmetropolitan, micropolitan, outlying metropolitan and central metropolitan counties (http://www.census.gov/population/www/metroareas/metroarea.html). Metropolitan counties are those that include urbanized areas with population of at least 50,000. Within this group, counties at the core of metropolitan areas are referred to as central metropolitan counties while urbanized counties that extend beyond the urban core are referred to as outlying metropolitan counties. These adjacent counties demonstrate a high degree of social and economic integration with the urban core (through employment and commuting patterns). Continuing to less developed areas, micropolitan counties have an urban core of at least 10,000 (but less than 50,000) and typically function as isolated regional centers in otherwise sparsely populated areas. Nonmetropolitan counties are sparsely populated and lack defined urban development. The differences in economy of scale and density across these four categories will provide a better picture of the extent to which counties of each type are burdened by the competitive economic development grants they receive.

Nonmetropolitan counties, having greater socioeconomic need, should be less selective in their grant seeking efforts, leading them to pursue programs that can provide fiscal relief even though they may have higher match requirements. Distributing that burden over fewer people and over a smaller tax base, as characterize nonmetropolitan areas, means the relative grant burden will be greater

in nonmetropolitan local areas, and greater per person as well. Because of differences in local governmental resources, and particularly in an area's local tax base, the impact of any single grant's match requirements will be felt differently depending on the county that receives it. Take for example a $1 million award with a 50 percent match requirement: a county that has $1 million in local government revenues would have to devote $500,000 in match, or 50 percent of their local revenues. A county with $2 million in local government revenues still has to match with $500,000, but this amount reflects only 25 percent of local government revenues. Thus, the same grant can result in profound differences in effect on the local government budget, depending on that government's characteristics. When awards are aggregated over time and applicants, a picture emerges of these relative burdens' cumulative effect on local area fiscal positions. As federal requirements consume local budgets, local policy discretion declines.

Because the selected dataset crosses state lines, political and institutional factors may also contribute to differences in counties in one state versus the others. Political influence, state policies, or other state-controlled differences such as institutionalized professional councils of government (Hall 2008) may affect the search and application for, and receipt of, federal grants. To ensure that state-to-state differences do not disguise variance across counties of different metropolitan status in each state, it is necessary to control for each county's state.

I therefore hypothesize that central metropolitan counties will reveal the lowest match burden, followed by outlying metropolitan counties, micropolitan counties, and with nonmetropolitan counties revealing the greatest match burden relative to local area own source revenues and match burden per capita. As already mentioned, this hypothesis is tested using two dependent variables—match relative to own-source local revenues, and match per person. It is also examined with various controls to determine whether the distribution of burden is in fact due to metropolitan status alone, or due to underlying factors that are more difficult to assess.

## Measuring Grant Burden

### Developing the Index

In measuring the differential match burden imposed by federal grants on local areas of varying metropolitan status, I focus specifically on programs that could be used by local governments to further their economic development goals. Three contiguous states (Alabama, Georgia, and South Carolina) are selected to reflect conditions across the U.S. South. Together, they provide 272 county units of analysis. The South has a long history of branch plant recruitment as a key economic development strategy, and economic development efforts are expected to dominate local policy effort. The particular selection of states was guided by a

desire to concentrate within a region where political culture would be fairly similar across states, avoiding those that border other regions. The selection of multiple states provides a greater number of units for analysis and permits some investigation of state-to-state differences on the distribution of federal grants and their associated burden. Within these parameters, the three states were selected for convenience.

I next select for consideration a broad set of programs that may have economic development utility. The challenge was to identify a series of competitive federal grant programs from which community development projects may benefit from the list of over 1,700 federal grant programs in the Catalog of Federal Domestic Assistance (CFDA). This broader set of programs was selected by first cross referencing local government eligibility with the functional areas of economic development, community development, business and commerce, public works, regional development, training, transportation, and vocational rehabilitation in the CFDA. Duplicate programs across these functional areas were removed. This list was then cross-referenced with the list of 1,040 project grant programs (also identified within the CFDA) to remove all nonproject grants or noncompetitive formula grants. The selected programs included in this analysis may be found in Appendix A in the Supplementary Material available at Publius online.

The selected programs vary in their funding amount and in their match requirements, and provide for the possibility that local governments "shop" for grant programs that have low, or no, match requirements—in addition to obvious criteria such as eligibility and amount—as they pursue their economic development programs. Match requirement information was obtained by cross-referencing each program with its description in the CFDA, and is also reported in the appendix.[2] These match data are used to determine the percentage of federal dollars that the local government is required to commit to the project funded by the federal award.

Grant funding is competitive, so many areas do not receive awards in particular programs each year. Most of the selected programs grant only thirty to ninety awards nationwide annually. To circumnavigate this problem, I pool grant award data from the Federal Assistance Award Data System (FAADS) for each county over a thirteen year period from 1993 to 2005 rather than using panel data by year. Looking at a single program can be problematic. As Collins and Gerber (2006) note, the zero-inflated bias associated with a single program means that many localities will not receive grants from a program in a given time period because of the small number of total awards distributed. Looking at a broader group of federal programs focused on economic development better captures the extent to which the area is receiving both funding and burden within a substantive policy area of importance to local officials. Across a series of programs intended to address unique economic development needs in many communities, we can expect

to obtain a better view of the federal government's impact on local fiscal characteristics.

With the list complete, I next impute the burden each grant causes on the local area through its match requirement. For each award in the dataset, the grant's CFDA number was used to cross reference the program's required match formulas to impute the minimum match effect each award would induce; these were then aggregated by county over the duration of the study period. The method employed is conservative in that I assume only the minimum required local match amount is contributed. Match amounts may certainly be greater than the minimum required, but any additional funds contributed would be the result of local decisions, not the federal award requirements. The federal and imputed local shares across the selected programs were totaled by county over the study period to generate an absolute measure of total federal grant funding to each county and of total grant burden associated with those awards in required local match dollars. From this pooled data I calculate the cumulative burden each local county faces as a result of federal grant receipts in the selected programs. This cumulative burden—the imputed match—is then used to compute the relative measures based on local revenue and population. Relative measures are preferred for comparing receipts and burdens across geographic areas because local populations and fiscal structures vary considerably.

Two derived measures focus on these grant-seeking and grant-making effects relative to conditions in each local county. The *Relative Grant Burden Index* divides the cumulative imputed match required by an average year's county own-source government revenue. Own-source revenue was obtained from the Compendium of Government Finance, 1997 and 2002. After first being converted to real 2000 dollars, these amounts were then averaged to estimate total annual local government revenue. *Grant Burden per Capita* divides the imputed match by the county's 2000 population to determine the relative burden imposed on a per person level. It should be noted that twenty-four counties have no grant receipts *in the selected programs* over the period studied; these areas are treated as missing values in the raw amount computations, but are categorized as receiving no grants for the purpose of mapping. In the case of government revenue and population, census year data were selected because it provides actual counts rather than estimates. These years were chosen because they fall within the time period over which the grant funding data are summarized. In the case of the Census of Governments, two observations were available, so they were averaged. While these measures may not reflect the precise average in any given year, they are suitable proxies for each local county's average annual resources and population over the study period where annual information is not available.

Using the data described above, each county was assigned to a category on each measure according to the percentile of its score and then mapped to evaluate

the distribution of relative burden across the local government landscape. So, for *Relative Grant Burden*, for example, all county scores were converted to percentile—those in the seventy-fifth percentile and above were classified as highest burden, those from the fiftieth percentile to the seventy-fifth percentile had slightly lower burden, and so on.

For *Relative Grant Burden*, cumulative match divided by an average year's own-source revenue, county scores ranged from zero to 0.89 (89 percent of one average year's own-source revenue; see table 1). This indicates that the most burdened county expended approximately 7 percent of its total own-source revenues over the period on match for federal grant programs. Counties were then mapped according to their burden quartile as shown in figure 1. Counties not shaded in figure 1 had no reported grant activity during the period and have no *Relative Grant Burden* score. Low categories reflect lower burdens (lighter shades) and higher categories reflect higher burdens (darker shades). The distribution of relative grant burden appears to have some geographic association in that neighboring counties have similar burdens. In particular, a rudimentary examination of figure 1 suggests that nonmetropolitan counties have greater burden than metropolitan counties. The *Relative Grant Burden per Capita* analysis followed the same process; imputed match was divided by the county population to arrive at a real cost per person of match to federal programs. Counties were again categorized by quartile, ranging from a low score of zero to a high of $630.68 per person over the thirteen year period. In similar fashion, nonmetropolitan counties appear to have higher burdens per capita than do more developed counties (map not shown; its overall character is similar to figure 1).

**Table 1** Summary statistics

| Variable | Obs | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|---|
| Grant $ (selected programs) | 248 | 6,644,951 | 13,900,000 | 1,534 | 153,000,000 |
| Imputed Match (2000 $) | 248 | 2,509,793 | 4,848,682 | 0 | 49,700,000 |
| Average Own-Source Rev. (97, 02) | 272 | 101,000,000 | 243,000,000 | 2,084,655 | 2,790,000,000 |
| Population | 272 | 61,197 | 103,871 | 2,077 | 816,006 |
| Relative GBI (own-source rev.) | 248 | 0.0719553 | 0.1099497 | 0 | 0.8915246 |
| RGBI Categories | 272 | 2.279412 | 1.28397 | 0 | 4 |
| Relative GBI Per Capita | 248 | 68.33792 | 86.21079 | 0 | 630.6791 |
| Relative GBI per capita Categories | 272 | 2.279412 | 1.28397 | 0 | 4 |
| 1999 Per Capita Personal Income | 272 | 16,503 | 3,255 | 10,163 | 30,003 |
| County Area | 272 | 510.221 | 251.7231 | 120.8 | 1,597 |
| County Population Density | 272 | 136.5553 | 263.4936 | 8.497653 | 2,482 |

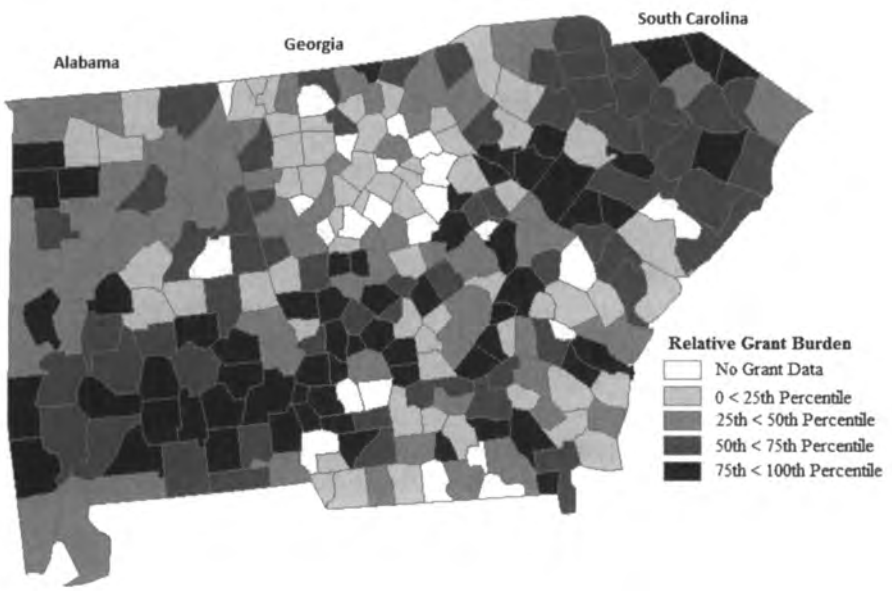


**Figure 1** County Match Relative to Own Source Revenues: Categorization by Percentile

**Table 2** Proportion of total counties by metropolitan status and relative grant burden

| | Total No. | No Data | <25th percentile | 25th<50th percentile | 50th<75th percentile | >75th percentile |
|---|---|---|---|---|---|---|
| Percentage of counties by relative grant burden category | | | | | | |
| Nonmetropolitan (%) | 34.9 | 3.3 | 5.1 | 5.5 | 9.2 | 11.8 |
| Micropolitan (%) | 21.7 | 0.0 | 5.5 | 6.3 | 5.5 | 4.4 |
| Outlying Metropolitan (%) | 21.0 | 2.9 | 4.0 | 4.0 | 4.0 | 5.9 |
| Central Metropolitan (%) | 22.4 | 2.6 | 8.1 | 7.0 | 4.0 | 0.7 |
| | | 8.8 | 22.8 | 22.8 | 22.8 | 22.8 |
| Categorical Score Range | | n/a | 0–0.00820 | 0.00825–0.03294 | 0.03295–0.087 | 0.090–0.89 |
| Percentage of counties by relative grant burden per capita | | | | | | |
| Nonmetropolitan (%) | 34.9 | 3.3 | 5.1 | 5.9 | 10.3 | 10.3 |
| Micropolitan (%) | 21.7 | 0.0 | 4.4 | 7.7 | 4.8 | 4.8 |
| Outlying Metropolitan (%) | 21.0 | 2.9 | 5.1 | 2.9 | 4.0 | 5.9 |
| Central Metropolitan (%) | 22.4 | 2.6 | 8.1 | 6.3 | 3.7 | 1.8 |
| | | 8.8 | 22.8 | 22.8 | 22.8 | 22.8 |
| Categorical Score Range | | n/a | $0–$11.21 | $12.63–$42.66 | $43.28–$89.12 | $90.69–$630.68 |

Table 2 presents the distribution of counties according to their metropolitan status and their *Relative Grant Burden [per capita]* categories. In general, as the level of development increases, counties appear in lower burden quartiles. The largest proportion of nonmetropolitan counties appear in the highest quartile for both burden and burden per capita (11.8 percent and 10.3 percent, respectively). The largest proportion of micropolitan counties appears in the second quartile for both measures (6.3 percent and 7.7 percent). Central metropolitan counties most commonly appear in the first quartile, reflecting the lowest burden (8.1 percent for each measure). Contrary to expectation, outlying metropolitan counties also fall predominantly into the fourth quartile with their nonmetropolitan counterparts (5.9 percent). This may reflect greater local stress associated with providing public services to expanding areas around the urban core. The descriptive statistics strongly suggest that nonmetropolitan counties carry heavier burden than their more developed counterparts. The next section will examine this relationship using multivariate regression analysis.

## Methodology

### Dependent and Independent Variables

The second component of this research is to determine the extent to which there are differences among metropolitan and nonmetropolitan counties in terms of the burden they bear as a result of their federal grant seeking efforts. Relative grant burden and burden per capita—the new measures created—are used as dependent variables. The 2007 Census designations, central metropolitan, outlying metropolitan, micropolitan, and nonmetropolitan, are coded as dichotomous variables with nonmetropolitan omitted as the reference group. The coefficients for micropolitan, outlying metro and central metro counties can be used as a comparison to the nonmetropolitan reference group; each variable is expected to carry a negative coefficient, with the magnitude increasing with increasing levels of development. So, a negative coefficient for micropolitan counties indicates that that group experiences lower burden than the nonmetropolitan reference group. Larger negative coefficients are expected for outlying metropolitan counties and central metropolitan counties, respectively.

### Control Variables

It is necessary to consider various influences on grant receipts, and consequently the associated match burden, in order to isolate differences that are attributable to the county's metropolitan status. Most notable among them are eligibility requirements derived from geographic location. A significant number of counties in the selected states are included in the Appalachian Regional Commission (ARC)—a

federal agency tasked with supporting economic development in the Appalachian Mountain region that spans 420 counties and includes portions of thirteen states. Counties within this region are eligible for grant funding through ARC which other counties are not. In addition, the match requirements for the included ARC grants are higher on average than most other agencies. It is therefore expected that ARC counties will yield higher grant amounts and higher match burdens than other counties (independent of the county's metropolitan status). ARC designates many counties as distressed. Economically distressed counties have greater need, and are targeted for ARC funds; they are expected to generate greater grant funding and match burden than nondistressed counties.

A second source of influence comes with having state government seated in the county territory. Federal grants to the state, or to be distributed further by state government, are counted as accruing to the county in which the capitol is located. To prevent distributions to the capitol county from distorting the results, it is necessary to control for this variable. Naturally, it is expected that the capitol county will have higher grant receipts than other counties.

A county's population is relevant because federal programs may target funding to people rather than places. Translating grants into their associated burden, larger population provides a broader base over which to spread the burden, leading to expected decreases. Since population is the key determinant in metropolitan status, it is especially important to ensure that any observed differences in grant burden are not really population differences masquerading as metro status categories. I control for each county's population density for similar reasons. Density is calculated by dividing the 2000 Census population by the county's geographic land area (both queried at http://factfinder.census.gov). The more concentrated an area, the greater economy of scale can be achieved in providing public services. I expect, therefore, that greater density will reduce grant burden in an area. Similarly, a larger area implies more economic development effort is required to ensure that all residents are served, which will likely increase the pressure for receiving external funding assistance. This leads me to expect greater burden would be borne by locales with larger areas.

The final control variable of interest is per capita personal income. Areas with greater need have been shown to have greater difficulty obtaining federal grants in general (Hall 2008). This difficulty may translate into a willingness by those areas to accept greater burden in exchange for federal funds. As a result, I expect higher personal income levels, reflecting lower need, to correspond to lower grant burden.

Two more variables are included to control for state level effects. Georgia counties are the reference group, so dichotomous variables are included for Alabama and South Carolina, and these variables allow observation of state-level differences that exist across the counties evaluated. It is important to include state controls because political and institutional influences at the state government level

may affect the ability and incentive for local applicants to pursue certain project grants.

### Regression

To determine whether there are differences in counties according to their metropolitan status, a series of regression analyses were conducted using simple linear regression. Again, the data are collapsed into 272 county-level observations in a cross-sectional design. First, I regress the measures of county metro status on relative burden and burden per capita to determine if there are any obvious effects. Next I repeat the analysis for each burden measure using the control variables identified above to determine if the effects persist.

## Findings

I first consider only the geographic independent variables—metropolitan status and state—to determine if there are important differences, and then repeat the regression analysis using a controlled model. While I utilize both variants of the burden measures as dependent variables—first the actual score, and then the corresponding categorical measure—only the score results are presented as they were similar. Regression results are presented in table 3.

Models one and two reflect the measures of burden relative to own source revenues; models three and four present burden relative to county population. (Results are not reported here, but regression was also performed on categorical measures of the dependent variables with similar results.) The explanatory power of the models was weak to moderate, with $R^2$ values ranging up to .06 in the models examining only metro status (models one and three), but up to .14 in the controlled models (models two and four). $R^2$ values in the corresponding categorical models (not shown) were .16 and .25, respectively.

There is a statistically significant difference between central metropolitan counties and nonmetropolitan counties when there are no control variables in the model (one and three) and the coefficients' signs are negative as expected (as table 2 suggests). However, there are no statistically significant differences between nonmetropolitan counties and the other categories in this parsimonious model. Does a county's metropolitan status alone determine its burden, or is metropolitan status disguising more important explanatory factors?

When the control variables included (models two and four), the coefficient for central metropolitan counties is no longer statistically significant. However, state-to-state differences are observed in model two with Alabama and South Carolina counties demonstrating greater burden than those in Georgia. Georgia has a more progressive economy, and it is entirely possible that there is less pressure to pursue such economic development projects in Georgia counties. State-to-state

**Table 3** Regression Results

| | Model 1 Relative Grant Burden Index | Model 2 Relative Grant Burden Index | Model 3 Relative GBI/person | Model 4 Relative GBI/person |
|---|---|---|---|---|
| Adj. $R^2$ | 0.0559 | 0.1441 | 0.0334 | 0.1113 |
| ARC Distressed | | −0.0127 (−0.26) | | −1.355 (−0.03) |
| ARC County | | −0.0560** (−3.27) | | −44.04** (−3.22) |
| Capitol | | −0.00564 (−0.08) | | 3.932 (0.07) |
| Population | | 0.000000232 (1.47) | | 0.000229 (1.81) |
| Density | | −0.0000743 (−1.38) | | −0.0853* (−1.98) |
| Area | | −0.000128** (−3.02) | | −0.0816* (−2.41) |
| 1999 PCPI | | −0.00000928** (−2.92) | | −0.00685** (−2.69) |
| Central Metro | −0.0681*** (-3.66) | −0.0181 (−0.76) | −51.20*** (−3.46) | −12.34 (−0.65) |
| Outlying Metro | 0.00872 (0.46) | 0.0275 (1.43) | −7.544 (−0.50) | 7.075 (0.46) |
| Micropolitan | −0.0175 (−0.96) | −0.000688 (−0.04) | −10.44 (−0.72) | 2.054 (0.15) |
| AL County | 0.0235 (1.47) | 0.0770*** (3.37) | −7.085 (−0.56) | 24.36 (1.33) |
| SC County | 0.0232 (1.25) | 0.0411* (2.02) | 6.989 (0.48) | 12.83 (0.79) |
| Constant | 0.0788*** (6.18) | 0.274*** (5.35) | 84.08*** (8.32) | 225.0*** (5.5) |
| $N$ | 248 | 248 | 248 | 248 |

$t$-statistics in parentheses; $^{*}p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$.

differences indicate that there are likely cross-state structural and political issues that affect the role of local government and their receipt of federal funds. Of the control variables included, only three have a significant impact: Appalachian Regional Commission county status, county area, and 1999 per capita personal income. Across the models, ARC counties demonstrate lower burden than their non-ARC counterparts, contrary to expectation. This may imply that ARC counties simply lack the capacity to pursue federal grants and have fewer grants to generate burden. Larger county area is also associated with lower levels of burden demonstrated by statistically significant results in models two and four, also contrary to expectation.

Perhaps the most telling result, per capita personal income increases have the effect of lowering county grant burden across the four models, as expected. In other words, wealthier counties bear lower burden from the federal grants they receive. It is not clear whether these differences result from selectivity in grants pursued, or in the absence of need for external funding in the first place. In either event, the finding is important for understanding the differences federal grants may bring to bear on their recipient jurisdictions. It is not metro status, but state, personal income, area, and ARC status that determine an area's relative grant burden.

## Discussion and Conclusion

This article introduces a novel methodology for examining the impact intergovernmental grants have on individual jurisdictions and the differences they bring to bear across jurisdictions. By cross referencing data from several sources and aggregating individual observations, it is possible to obtain a cumulative perspective of the impacts the U.S. fiscal federalism system generates at the local level. This article specifically examined programs with an economic development focus—an area where counties are thought to be highly competitive. By first mapping burden's distribution, differences in the effects federal grants have on the counties that receive them were observed. Counties seem to cluster geographically according to their burden categories, suggestive of local competition through diffusion of practices to neighbors. Those counties with high burden typically neighbor other high burden counties, indicating that both have received federal grants with associated burden high in proportion to their local resources.

The findings demonstrate that counties differ substantially in the burden they agree to bear in required financial match for federal programs. Moreover, there are differences in metropolitan and nonmetropolitan counties in terms of cumulative burden levels, and nonmetropolitan counties bear greater burdens relative to population and their own-source revenue than do more developed central metropolitan counties. As I already observed, the difference can be traced to other causes, but it is manifested in metropolitan status on the map, and provides fodder to fuel further research and federal program refinement.

Some important questions remain. Having shown that nonmetropolitan counties generally experience greater burden, it is not because they are nonmetropolitan per se, but because they have other needs, such as geographic isolation (Appalachian counties), low per capita personal income, and large areas over which resources are distributed. Nonetheless, there is a disproportionate allocation of relative burden to less metropolitan places, and we should ask: is this a healthy relationship? Is this allocation fulfilling the federal government's desire to target and assist places with greater demonstrated need? Certainly it seems that this is not the case, and these findings suggest a need for further analysis in hopes that it may inform federal grant policy, particularly as regards the use of local match requirements. It also highlights a need to develop local capacity to make better decisions to avoid accumulating burden through federal grants.

This article examines three neighboring southern states using a set of economic development-oriented competitive federal grant awards. The results should not be generalized beyond that scope, and the model presents significant limitations. But it does provide a sound theoretical framework to guide future research and analysis that may further refine these relationships and inform federal fiscal policy. Future inquiry should consider whether there may be regional differences by considering

additional states, or differences by substantive focus of the grants by expanding and comparing the list of programs. And finally, this article has provided a brief look at some basic influences on grant burden—it has not examined the local budgetary ramifications of grant burden on local areas or their economies. Research in this area will be of greater practical interest and applied use in the long run.

## Supplementary Material

Supplementary material is available at http://publius.oxfordjournals.org/

## Notes

1. The term local county is used throughout this article to indicate that the area is the unit of analysis, not the county unit of government itself. Data are aggregated across units of government and grant receipts accruing to entities within each county's boundaries.
2. The list required further vetting to remove programs for which match could not be imputed. Programs 84.128, 94.007 were dropped because their match rates vary by program. Programs 10.672, 84.133, 84.160, 84.246, 84.264, 93.224 were dropped because match is required, but negotiable. Program 90.100 was dropped because it funds exclusively Alaskan projects; 93.217 was dropped because its match rate is not fixed. 93.631 was dropped because match rates are not specified in the CFDA; 94.002 was dropped because match is specified as a guideline rather than a requirement. Program 84.203 is included, but its match requirements vary by program year, so I averaged across the five years to determine an adjusted rate; likewise, program 94.004 is included but averaged across four years to estimate adjusted rates.

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