Rent Seeking and Economic Growth: Evidence from a Panel of U.S. States

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> Rent-seeking behavior would include all of the various ways by which individuals or groups lobby government for taxing, spending and regulatory policies that confer financial benefits or other specific advantages upon them at the expense of the taxpayers or of consumers or other groups or individuals with which the beneficiaries may be in economic competition.
>
> —Leon Felkins

A copious body of theoretical literature has developed that maintains that rent-seeking activity (RSA) inhibits economic growth by diverting resources from productive uses (Buchanan 1980; Tollison 1982; Olson 1982; Murphy, Shleifer, and Vishny 1991). Direct empirical investigation to substantiate this traditional view, however, has been neglected by many researchers. A recent exception is Harold Brumm's use of cross-sectional data from the 48 contiguous United States to indicate that RSA activity is indeed harmful to economic growth (Brumm 1999). His single-equation growth model assumes that RSA is exogenous to the growth process, yet there are plausible theoretical arguments suggesting that RSA and economic growth may be mutually causal (Murphy et al. 1991). Ignoring that possibility may lead to biased estimates of the growth effects. Also, RSA may influence some of the determinants of growth such as physical and human capital investment, implying that RSA affects economic growth through multiple channels. Those indirect effects are not captured by

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a single-equation approach. Furthermore, the effects of changes in the variables under study may occur with a time lag, while the approach based on cross-sectional data cannot consider the lag structure of the variables. As a result, important questions about certain intertemporal issues are left unanswered. For example, is RSA self-perpetuating over time as suggested by Garfield (1996)? Finally, the single-equation, cross-sectional approach is unable to effectively remove unobserved state-specific factors that explain differences in RSA across states and time periods (for example, differences in the strictness of enforcement of lobbying regulations). The omission of those factors may lead to an omitted-variable bias.

The purpose of our study is to extend Brumm's analysis by using an approach that avoids all of the deficiencies cited above. We accomplish this through the use of panel data vector autoregressive (VAR) analysis which, unlike a correlation-based single-equation growth model, permits inferences to be made about causality.[1] We find that RSA does indeed impair economic growth and that RSA is exogenous—that is, there is no significant feedback from economic growth to RSA. Moreover, we find that RSA can indirectly impair economic growth by affecting public physical investment and public services. We conclude that past empirical studies, by ignoring the indirect effects, may have underestimated the impact of RSA on economic growth.

The Empirical Literature: A Brief Review

Besides Brumm (1999), a number of other studies have offered supporting evidence for the traditional view alluded to above, while a few studies have offered evidence for a dissenting view. Murphy et al. (1991) examined the effect of the allocation of human talent between entrepreneurship and rent seeking on economic growth using data from 91 countries. Data on college enrollment in engineering were used as a measure of talent allocated to entrepreneurship, and those

[1]The vector autoregressive (VAR) approach is well suited to the task. The VAR was initially proposed by Sims (1980) for time-series analysis and extended to the panel data context by Holtz-Eakin, Newey, and Rosen (1988). It is a simultaneous system of reduced-form equations in which each variable is expressed as a linear function of its own lags and the lags of all the other variables. As such, the VAR eliminates the need to develop an explicit economic model. Also, it does not limit the potential interactions among the variables and, furthermore, permits the patterns of Granger causality among the variables to be examined. These and other virtues of the VAR, however, are somewhat tempered by its limitations, for example, the number of variables and the length of their lags must be restricted to avoid the exponential loss of the degree of freedom.

on lawyers as a measure of talent allocated to rent seeking. Their results indicate that when talented people become entrepreneurs, it is good for economic growth; but when the same resources are allocated to RSA, it is harmful for economic growth. Similarly, Laband and Sophocleus (1988), using U.S. time series data (1947–83) on the number of lawyers as a proxy of RSA and cross-sectional data on the number of state law firms per capita, found such activity to have a negative impact on both the growth in GNP and state per capita income.

Rama (1993) tested the relationship between RSA and growth by introducing distributional activities in an endogenous growth model. In this model, firms incur investment and lobbying expenditure that affect the capital stock and the number of restrictive regulations in force, respectively. It is presumed that capital accumulation is likely to increase the output in the same year, but the effect of restrictive regulations may take a long time to decrease competition and to slow down economic growth. Rama's results on Uruguay for the 1925–83 period show a positive immediate impact of restrictive regulations on sectoral output, but the long-run impact on aggregate output is negative.

A couple of studies assuming that rent seeking is proportional to the size of government in a given area have also provided evidence supportive of the traditional view. Grossman (1988) found that the growth in national output over the 1929–82 period is affected negatively by the relative size of government, and attributes this to rent seeking and other inefficiencies of the government sector. Durden (1990), using 1980 census data, examined the impact of the proportion of workers employed in federal and state government (rent seeking) on the level of family income across congressional districts. His results suggest that a relatively large federal workforce has a negative impact on family income in districts outside the South, while state employment has a negative impact on such income in both South and non-South districts.

Finally, a few empirical studies have begun to present results that are supportive of a dissenting view. These studies take advantage of an endogenous growth framework that emphasizes the differences in human capital, technology, and public policy as determinants of long-term growth across countries, to highlight the role of political economy. One such study, Mork (1993), shows that rent seeking, as proxied by lobbying activity, may increase economic growth. Another study, Mohtadi and Toe (1998: 453), suggests that rent seeking in the form of lobbying activity by self-interested individuals produces "significant spillovers to other citizens that exceed the social cost of lob-

bying," and that an increase in such activities may improve economic growth and welfare. Also, Gray and Lowery (1996) have shown that rent seeking, as proxied by lobbying activity (the number of interest organizations), has a strong positive effect on state economic growth.

Empirical Model Specification and Description of the Data

The Model

To investigate the relationship between state economic growth and RSA, we selected a wide set of control and rent-seeking variables for the VAR model, guided by previous literature and mindful of state-level data availability problems. The general form of the model can be expressed as the following unrestricted reduced-form system of equations:

$$\mathbf{M_t = b(L)M_t + a + n + e_t},$$

where **a**, **n**, and $\mathbf{e_t}$ are 11 x 1 vectors of constants, state-specific effects, and white noise error terms, respectively; **b(L)** is an 11 x 11 matrix of lagged polynomial coefficients; and $\mathbf{M_t}$ = [RGSPOP, PRICAP, PUBCAP, HUMCAP, SLTAX, POFIRE, ENERGY, INDMIX, NLOBBY, DLOBBY, GOVJOB], where RGSPOP is the state's real per capita output, PRICAP is the private physical investment rate, PUBCAP is the public physical investment rate, HUMCAP is human capital investment, SLTAX is the burden of the state's tax structure, POFIRE is a measure of public services, ENERGY is the energy price in the state's industrial sector, INDMIX is a measure of the state's industrial mix, and NLOBBY, DLOBBY, and GOVJOB are measures of RSA in the state. All variables (except dummy variables) are measured in their logarithmic first difference form (annual growth rates).

The Justification, Measurement, and Sources of Proxy Variables

To estimate the VAR model, data and proxy variables are required for each of the factors defined above. We briefly discuss each in turn, in the context of the growth equation.

Economic Growth. The economic growth equation (RGSPOP) will include lagged values of RGSPOP, suggesting that growth in one period can influence growth in subsequent periods. The sign of this effect, however, is ambiguous, a priori.

We define RGSPOP as the nominal gross state product (NGSP) deflated by the GDP price index (GDPPI) (chain-type, 1992 = 100),

and divided by the state population (SPOP). Data on NGSP, GDPPI, and SPOP were drawn from the Web sites of the Bureau of Economic Analysis, the *Economic Report of the President*, and the Bureau of the Census, respectively.

Investment Rate. Both private and public physical investment are expected to have a positive impact on growth, ceteris paribus. This stems from the neoclassical growth theory prediction that such investment will increase the rate of output (Romer 1990, Barro 1991).

Actual data on state-level private investment series are not readily available for the years under study (1980–90). Thus, we followed Durden and Elledge (1993) and Domazlicky (1996) and use state-specific capital charges, obtained from Beemiller and Dunbar (1993), as a proxy of the level of private investment. Our measure of the private investment rate is the ratio of the state's real dollar capital charges to real gross state product (PRICAP).

State-level public physical investment data are taken from *Governmental Finances* and are measured as capital outlay (Munnell 1990). Our measure of the public investment rate is the ratio of real dollar capital outlay to real gross state product (PUBCAB).

Educational Attainment. The importance of human capital (education and training) in promoting growth has been emphasized in the literature. Recent studies have shown that such capital not only causes growth but is also affected by it (Mincer 1995, Bradley and Taylor 1996).

Following some studies, we define the human capital variable as the percentage of the state's population with 16 years or more of education (HUMCAP).[2] For our purposes, data for HUMCAP, the source of which is the County and City Data Book, are available for only the census years 1980 and 1990. The values for the intercensal years had to be generated. For that, we followed Domazlicky (1996) and assume that the said percentage increased in constant absolute increments in each of the years 1981 to 1989.

Taxes and Public Services. A number of studies (e.g., Fox and Murray 1990, Mofidi and Stone 1990, and Cole 2000) have shown that state and local taxes impede subnational economic growth. However, some researchers, starting with Due (1961) and more recently Wasylenko (1997), have observed that firms consider the benefits of the public services made possible by such taxes when making location decisions. Thus, higher taxes may actually stimulate economic growth.

[2]For some of the practical difficulties that the measurement of human capital presents, see Mankiw, Romer, and Weil (1992).

We, therefore, control for both the state's tax structure and its level of public services. The former is measured as real dollar state and local tax revenues per capita (SLTAX) and the latter as the state government real dollar expenditures on police and fire protection per capita (POFIRE). These data are from, respectively, the Web site of the Census Bureau and *State Government Finances*, published by the same bureau.

Production Costs. These costs are represented here by energy prices.[3] Generally, these prices are expected to have a negative effect on state economic growth (Papke 1991, Krol and Svorny 1996). Our measure of the variable is the energy price for the state's industrial sector in dollars per million BTUs (ENERGY). These data are taken from the 1997 State Energy Price and Expenditure Report of the Department of Energy.

Industry Mix. The industry mix variable (INDMIX) is measured as the ratio of state manufacturing output (SMANU) to gross state product. The sign of this variable should be positive if states with relatively larger manufacturing shares are more productive (Garcia-Mila and McGuire 1992, 1993). Data on SMANU are from the Web site of the Bureau of Economic Analysis.

Rent Seeking. We recognize the multidimensional character of rent seeking and include several measures in the empirical analysis. The variables selected to capture the nature of the activity in a state are based on Buchanan's (1980) suggestion involving government bureaucracy and lobbying activity.[4] For the size of state government bureaucracy (GOVJOB), we follow Brumm (1999) and use state government employment (GOVEMP) as a percentage of employment in the state's wholesale and retail trade sector (TRADE). The data for GOVEMP and TRADE are from electronic files provided by the Census Bureau.

For the state lobbying activity variable, we adopt two commonly used measures from the political science literature. These measures are motivated by Olson's (1982) contention that a rise in the number of interest groups in a representative democracy is accompanied with more rent-seeking activities that act to impede growth. These mea-

[3]Avoiding the exponential loss of the degrees of freedom using the VAR model causes some variables that one would like to study to be omitted. One such variable is wages, another production cost that has received much emphasis as a key factor in determining firm location and, hence, economic growth. However, an increasing number of studies are showing that wages now have little impact on firm location at the state and other subnational levels (Reynolds 1994, Krol and Svorny 1996, and Cole 2000).

[4]Buchanan (1980) also suggests a measure of rent seeking based on the size of legal services. Complete state-level data on these services, however, are not readily available.

sures are not alternatives, but rather are included in the equations to capture diverse aspects of RSA (Gray and Lowery 1996).

One of the lobbying activity measures is the raw numbers of interest organizations registered to lobby in a state's legislature (NLOBBY). The data for this variable are provided by Gray and Lowery (1996), for the years 1980 and 1990. We generated the numbers for the years 1981 to 1989 by assuming that they increased in a simple linear manner from 1980 to 1990.

The other state lobbying activity variable is the interest organization density (DLOBBY), which takes account of the numbers of organizations in relation to the size of a state's economy (real gross state product [RGSP]). Specifically, it measures the average number of RGSP dollars behind each organization in the state (RGSP/NLOBBY). It is an inverse measure of density because, "States with high ratio values have few organizations relative to the size of the state's economy (low density), while low ratio values indicate many organizations relative to economic size (high density)" (Gray and Lowery 1996: 89). Thus, support for the view that RSA impairs growth means that the sign of DLOBBY must be positive in the growth equation.[5]

Finally, in addition to the above variables, two (an exogenous and a dummy) variables (INIGSPOP and LOBBYINTER) were included to control for other potentially important factors. Specifically, INIGSPOP is the state's initial-period real per capita gross state product, which, according to neoclassical growth theory, will have a negative impact on growth because states with a lower INIGSPOP are, for various reasons (for example, the diffusion of technology), generally expected to grow faster (the conditional convergence hypothesis). The observations for INIGSPOP are repeated each year. Thus, they are specific to the state but unvarying with time.

Some empirical studies from the political science literature have suggested that a positive relationship exists between lobbying regulations and the rigor of their enforcement (LOBBYRIGOR) and the number of interest organizations registered to lobby (NLOBBY) (Hamm, Weber, and Anderson 1994). Others have suggested that the relationship is negative (e.g., Brinig, Holcombe, and Schwartzstein 1993). Still others have suggested that the two are independent of each other (e.g., Gray and Lowery 1998). To control for a possible link

[5]Including various measures of RSA in the equations simultaneously is justified if they capture different aspects of the activity. This seems to be the case given that they are weakly correlated. For instance, the correlations between NLOBBY and GOVJOB, NLOBBY and DLOBBY, and DLOBBY and GOVJOB are -0.001, -0.31, and -0.01, respectively.

between LOBBYRIGOR and NLOBBY, the two variables are interacted by multiplying one by the other and then referred to as LOBBYINTER. To measure LOBBYRIGOR, we made use of the ratings for the restrictions of state lobbying laws found in Brinig, Holcombe, and Schwartzstein (1993). For states with highly restrictive statutes, LOBBYRIGOR takes a value of one, and zero otherwise.

Empirical Results

To estimate the VAR model, we pooled time-series and cross-section data from 43 contiguous states for the 1980–90 period (473 observations, which, because of the use of first differences and lagged variables, are reduced to 344 usable observations).[6] All estimations were performed using the RATS econometric package.[7]

Before presenting the main findings of the study, certain estimation issues and tests that were applied to the data must be noted. To begin with, and as already stated, each variable (except the dummy variable) is entered in its logarithmic, first-difference form. This form is important here for several reasons. First, it allows the variables to be interpreted in terms of growth rates without changing any of the predictions made above about the expected signs of the coefficients. Second, first differences eliminate the "state-specific effects" that would have been present had the data been in level form and, thereby, would have biased the estimates (Holtz-Eakin, Newey, and Rosen 1988). Finally, first differences eliminate unit roots and common trends in the data and, thus, avoid the spurious regression problem (Granger and Newbold 1974).

A lag length of one was chosen for each variable in our VAR model on the basis of standard F-tests that considered up to a maximum lag of three years. Note that the parameter estimates of the VAR model may be difficult to interpret due to its reduced-form nature (Sims 1980). Fortunately, they are not directly needed for the causality tests analysis to follow, but they are, nonetheless, reported in Table 1.

Heteroskedasticity was tested for since it is likely to be a problem in the panel data context. For this we used White's (1980) test. Specifically, the residuals estimated from each of the 11 equations are squared and regressed on all the variables, their squared values, and

[6]The data on lobbying activity limits our study to 43 contiguous states. The excluded states are Alabama, Alaska, Hawaii, Nevada, Rhode Island, Utah, and West Virginia.

[7]The 1990 registration data on lobbying activity for Florida are considered much larger than they should have been (Brasher, Lowery, and Gray 1999), and are thus regarded as an outlier. However, excluding Florida from our sample did not change any of our conclusions.

their cross-products. The values of the test statistics obtained (sample size times R^2) are then compared to the critical chi-squared value (88.3) with 64 degrees of freedom for the 1 percent level of significance. It turns out that the former is greater than the latter for the RGSPOP, PRICAP, SLTAX, NLOBBY, DLOBBY, and INDMIX equations, for which, therefore, the null hypothesis of homoskedasticity is rejected. For these equations, heteroskedasticity was corrected for using White's method.

In testing for the Granger causal relationships among the variables, we focused upon three issues: (1) the direction of the causality, if any, (2) the strength (significance level) of the causal relationship, and (3) the sign of the regression coefficient underlying any causal relationship that is revealed.

All three issues are addressed by the Granger causality tests results obtained using an F-test (a simple t-test is also usable given that the variables are lagged one period) and reported in Table 2. In that table, the dependent variables are placed at the head of the column and the marginal significance levels of the F-tests for the explanatory variables are observed by reading down the column. A plus or a negative sign beside the marginal significance level indicates the sign of the relevant regression coefficients, and it is shown only for those variables that are significant at the 10 percent level or higher.

Now we discuss the main findings, focusing on the economic growth equation (RGSPOP) (Table 2). Starting with the control variables, it can be seen that four of these variables—private capital investment (PRICAP), human capital investment (HUMCAP), state and local tax revenue per capita (SLTAX), and industry mix effects (INDMIX)—are not statistically significant. However, the remaining four control variables are consistent with expectations and are significant. Specifically, public physical investment (PUBCAP) and public services (POFIRE) display a strongly and positively significant (at the 8 percent and better than 1 percent levels, respectively) sign as they enhance economic growth. The initial period real per capita gross state product (INIGSPOP) is negatively signed (significant at the better than 1 percent level), providing support for the conditional convergence hypothesis, while the negative sign for the energy price variable (ENERGY) (2 percent level of significance) indicates that higher energy prices have a negative impact on state economic performance.

Next, we turn to the variables of primary interest, that is, those proxying for RSA. All of these variables have the expected signs and are statistically significant. Specifically, the number of interest organizations registered to lobby in a state's legislature (NLOBBY) has a

TABLE 1

Estimates of the VAR Model

	RGSPOP	PRICAP	PUBCAP	HUMCAP	POFIRE	SLTAX
RGSPOP{1}	−0.149	−0.15	−0.591	−0.002	−0.275	−0.26
PRICAP{1}	−0.013	0.003	0.001	−0.003	0.013	−0.063
PUBCAP{1}	0.022	0.008	−0.388	−0.001	0.029	0.004
HUMCAP{1}	0.015	0.002	0.003	−0.504	−0.035	−0.012
POFIRE{1}	0.19	0.10	0.131	−0.002	−0.145	0.233
SLTAX{1}	−0.077	0.005	0.418	0.002	0.354	−0.037
ENERGY{1}	−0.067	0.0002	−0.005	0.0003	0.078	0.027
INDMIX{1}	−0.08	−0.009	−0.007	−0.001	−0.227	−0.121
NLOBBY{1}	−1.328	0.005	−0.799	0.165	−1.862	−1.133
DLOBBY{1}	0.579	−0.16	0.784	0.105	0.085	0.835
GOVJOB{1}	−0.008	−0.009	0.005	0.0004	0.009	−0.008
R^2	0.89	0.16	0.17	0.25	0.77	0.89

	ENERGY	INDMIX	NLOBBY	DLOBBY	GOVJOB
RGSPOP{1}	0.135	0.144	0.002	–0.001	0.001
PRICAP{1}	0.008	0.002	0.001	0.008	0.004
PUBCAP{1}	–0.002	0.001	–0.0004	0.001	0.002
HUMCAP{1}	–0.163	0.003	0.002	0.002	0.003
POFIRE{1}	0.008	–0.0004	–0.0002	0.145	–0.146
SLTAX{1}	–0.151	–0.132	–0.0007	–0.123	0.139
ENERGY{1}	0.005	–0.007	–0.0002	–0.008	0.234
INDMIX{1}	–0.008	0.004	0.0008	–0.005	0.258
NLOBBY{1}	0.127	–0.725	0.859	–0.393	–0.348
DLOBBY{1}	–0.009	–0.575	0.0004	0.342	–0.003
GOVJOB{1}	0.001	–0.009	–0.0002	–0.006	–0.59
R^2	0.06	0.15	0.95	0.45	0.29

Notes: RGSPOP = state real per capita output; PRICAP = private physical investment rate; PUBCAP = public physical investment rate; HUMCAP = human capital investment; SLTAX = state tax structure; POFIRE = public services; SLTAX = state tax structure; ENERGY = energy price in state's industrial sector; INDMIX = industrial mix; NLOBBY, DLOBBY, and GOVJOB are measures of RSA; INIGSPOP = initial-period real per capita output.

TABLE 2

Significance of Levels of Granger Causality Tests

	Dependent Variables					
	RGSPOP	PRICAP	PUBCAP	HUMCAP	POFIRE	SLTAX
RGSPOP	**0.06–**	**0.06–**	**0.03–**	0.78	**0.02+**	**0.01–**
PRICAP	*0.67*	0.26	0.89	0.92	0.78	**0.05–**
PUBCAP	**0.08+**	0.52	**0.00–**	0.94	0.14	0.72
HUMCAP	0.71	0.56	0.78	**0.00–**	0.57	0.76
POFIRE	**0.00+**	**0.01+**	0.32	0.95	**0.10–**	**0.00+**
SLTAX	0.25	0.41	**0.07+**	0.68	**0.00+**	0.58
ENERGY	**0.02–**	0.93	0.63	0.99	**0.09+**	0.39
INDMIX	0.19	0.08–	0.96	0.72	**0.00–**	**0.02–**
NLOBBY	0.00–	0.69	**0.09–**	0.25	**0.00–**	**0.00–**
DLOBBY	**0.00+**	**0.07+**	**0.01–**	**0.01+**	0.52	**0.00+**
GOVJOB	**0.10–**	0.51	0.26	0.97	0.67	0.58
INIGSPOP	**–0.001**	0.11	0.5	0.45	**0.00–**	**0.00–**
LOBBYINTER	**–0.001**	0.52	0.59	0.78	**0.00–**	**0.00–**

	Dependent Variables				
	ENERGY	INDMIX	NLOBBY	DLOBBY	GOVJOB
RGSPOP	0.24	**0.07+**	0.78	0.78	0.95
PRICAP	**0.07+**	0.50	0.59	0.68	0.65
PUBCAP	0.16	0.35	0.64	**0.03+**	0.58
HUMCAP	**0.01–**	0.42	0.64	0.35	0.78
POFIRE	0.87	0.91	0.95	**0.00+**	0.25
SLTAX	0.12	**0.05–**	0.99	**0.01–**	0.54
ENERGY	0.19	**0.02–**	0.41	**0.00–**	**0.02+**
INDMIX	0.91	0.42	0.88	0.14	0.14
NLOBBY	0.51	**0.00–**	**0.00+**	**0.00+**	0.44
DLOBBY	0.48	**0.00+**	0.6	**0.00+**	0.90
GOVJOB	0.51	0.53	0.87	0.54	0.00–
INIGSPOP	0.64	0.83	0.04	0	0.3
LOBBYINTER	0.89	0.84	0.05	0.47	0.71

Notes: The highlighted values are for the variables that are significant at the 10 percent level or higher. A plus or a negative sign beside those values indicates the sign of the relevant coefficents. All variables are as defined in Table 1, and are in their logged difference, lagged once. LOBBYINTER = interacted rent-seeking variable.

strong (at better than 1 percent level of significance) negative effect on state economic growth. This finding is reinforced by the strong (better than 1 percent level) positive sign of the interest organization density variable (DLOBBY) (recall that this variable is inversely coded), as well as the relatively strong (10 percent level of significance) negative effect of the size of state government bureaucracy (GOVJOB). Further corroboration of these findings is provided by the very strong (better than 1 percent level) negative effect of the dummy variable (LOBBYINTER), which allows for interaction between lobbying regulations and the rigor of their enforcement and total lobbying registrations.[8] Collectively, those results provide quite strong support for the view that RSA impairs state economic performance. Thus, they accord well with the state-level results reported by Laband and Sophocleus (1988) and Brumm (1999) but are in contrast with those reported by Gray and Lowery (1996).

In addition to the direct negative impact of RSA on state economic growth, the results reveal a number of indirect channels of influence as well. This influence is not transmitted through private physical investment (as in Murphy et al. 1991) or through human capital investment (as in Pecorino 1992), both of which were found to be insignificant in the growth equation, but rather through public physical investment and public services. Specifically, rent seeking, as measured by NLOBBY and DLOBBY, impacts strongly (9 percent and 1 percent levels, respectively) and negatively on public physical investment, which, as already noted, exerts a strong positive impact on economic growth. Also, rent seeking, as measured by NLOBBY, strongly (at better than 1 percent level) depresses public services (POFIRE), which, in turn, affects growth. Thus, public physical investment and public services appear to be key links between RSA and economic growth. Their role as such may reflect the possibility that some of the benefits accruing to rent seekers are financed by reducing government revenue (for example, rent seeking may lead to some groups paying less taxes) and, thereby, cutting spending on both public physical investment and public services, and thus lowering economic growth. In any case, the indirect effects suggest that previous empirical studies, by not considering the specific channels through which RSA operates, may have underestimated its effect on economic growth.

The findings in Table 2 indicate that the economic growth variable (RGSPOP) is not statistically significant in the NLOBBY, DLOBBY,

[8]Reestimating the model without the LOBBYINTER variable did not affect the results appreciably.

and GOVJOB equations. Thus, we find no evidence to support a feedback effect from economic growth to RSA, as suggested by Murphy et al. (1991). Rather, our results accord well with Brumm's contention that "it seems unlikely that causality would run from GYP [economic growth] to RSA or would occur simultaneously between the two" (Brumm 1999: 8).

The results in Table 2 also show that rent-seeking activities, as measured by NLOBBY and GOVJOB, are explained primarily by their own previous changes and may be considered truly exogenous since there is little evidence of a significant direct effect from the other variables. Note, however, that this conclusion does not apply to the DLOBBY variable, which is affected by factors such as public physical investment, taxes, and other forms of rent-seeking activities. These results suggest that RSA may have both exogenous and induced components, depending on how it is defined.

Finally, the own previous changes of two of the RSA proxies (NLOBBY and DLOBBY) are positive and significant (at better than the 1 percent level), suggesting that rent seeking is persistent or self-perpetuating. This finding is consistent with Garfield's (1996) observation that rent seekers are emboldened by past successes, and so they pressure for additional special privileges and protections. Note, however, that the own previous changes of the RSA proxy (GOVJOB) are negative and significant at the better than 1 percent level. This suggests that some form of RSA (as represented by the size of state government bureaucracy) may impede future RSA.

Conclusion

This paper uses data from 43 contiguous U.S. states for the 1980–90 period to test the proposition that rent-seeking activity (RSA) is harmful to economic growth. Our model, unlike those of previous studies, takes into account the issues of endogeneity, causality, and the lag structure of the variables and, thereby, gives credence to the results. The results, while instructive, must be taken with caution, given the limitations of the VAR method.

Taken as a whole, the results reported in Table 2 yield the following key findings:

- RSA—as measured by the raw numbers of interest organizations (NLOBBY), the number of these organizations compared to the size of the state's economy (DLOBBY), the size of state government bureaucracy (GOVJOB), and the interaction between lob-

bying regulations and the rigor of their enforcement and the number of interest organizations (LOBBYINTER)—has a strong (negative) causal effect on economic growth.
- In addition to its direct negative impact on growth, rent seeking further impedes growth because it exerts adverse effects on both public physical investment and public services. Not considering these indirect effects of RSA suggests that previous studies may have underestimated the effects of the activity on economic growth.
- There is no evidence of significant feedback from economic growth to RSA; thus, the latter can be considered exogenous.
- RSA can be self-perpetuating or self-hindering depending on how it is defined.

Some obvious and important policy implications emerge from our findings. For example, state government policies designed to stimulate economic growth will be misguided if they increase the relative size of state government. However, state government policies that curtail RSA will increase public capital investment and public services and, therefore, enhance economic growth. The latter informs the vast literature on the well-known debate on the U.S. productivity slowdown, a cause of which has been attributed to the decline in public capital investment (Aschauer 1989, Munnell 1990). Our findings suggest that RSA may shed some light on the role of such investment in the slowdown. Unfortunately, there are few, if any, studies in that literature that have given this issue serious consideration.

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