Sisyphus Meets the Borg: Understanding the Diversity of Interest Communities

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Abstract

Recent interpretations of the changing diversity of state interest communities emphasize the distinctive ways that the numbers of organizations representing different kinds of substantive interests grow in response to economic growth. Some guilds readily add new lobbying organizations as economies become larger, while many others grow hardly at all. As economies become larger, then, the relative composition of interest communities can change in ways having little to do with the distribution of interests in society. We develop and test four explanations of the changing diversity of interest communities using the first derivatives of the GSP response functions of 17 guilds of state interest organizations in 1997 as a dependent variable. Our results suggest that some guilds – including several major traditional economic interests – have a demographic advantage over social and public organizations that will make it very difficult for the latter to keep pace with the former as state economies grow.

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Critics of the politics of interest representation have long argued that traditional business interests are heavily over-represented in both national and state interest systems relative to organizations claiming to represent the public interest (Schattschneider 1960; Schlozman and Tierney 1986). While the relationship between bias in interest representation and bias in policy is very uncertain (Gray and Lowery 2001a), there is little doubt that business interests are very heavily represented before both national and state governments.[1] Baumgartner and Leech's (2001) analysis of registration data generated by the Lobby Disclosure Act of 1995 found that individual business firms comprised 43 percent of all organizations registered to lobby Congress while trade associations contributed an additional 16 percent. In contrast, citizens' organizations accounted for only nine percent of the organizations lobbying Congress.[2] Lobby registrations in the states similarly indicate a high level of business dominance (Gray and Lowery 2001b); profit-oriented organizations constituted 73.81 percent of registrations in 1997.

A few scholars have argued, however, that nonprofits and citizens' interest organizations have grown recently in relative terms. Jack L. Walker (1991) and Jeffrey M. Berry (1999), especially, have argued that patrons and sponsors have been very creative in finding means of overcoming the collective action problem facing citizens' organizations. Thomas Gais (1996) has similarly argued that we would observe an explosion of liberal citizens' PACs if only legal contribution limits were lifted, thereby freeing up the resources of entrepreneurial patrons. Creative entrepreneurial activity certainly has spurred on growth in the numbers of citizens' organizations in the states. The number of good government groups registered to lobby grew from 188 in 1980 to 482 in 1997, with similar patterns of growth reported for civil rights (102 to 222), environmental (319 to 676), and women's interest organizations (220 to 360). But this increase in registrations by citizens' organizations has not changed their relative share of interest

[1] Those wishing a statement about the substantive import of this topic must wait until the last paragraph.
[2] Business dominance is also evident in PAC registrations. In 1999, 82.14 percent of all affiliated PACs represented trade associations or corporations (Rozell and Wilcox 1999, 77).

communities. Good government groups comprised 1.27 percent of registrations in 1980, a proportion that increased to only 1.39 percent by 1997. And the proportion of lobby registrations representing civil rights, environmental, and women's interests actually fell from 1980 to 1990: 0.69 to 0.64 percent, 2.15 to 1.96 percent, and 1.48 to 0.89 percent, respectively. Overall, the 73.81 percent of state registrations by profit-oriented organizations in 1997 has hardly changed from their relative levels in 1980 (73.61 percent) and 1990 (72.05 percent). So, while state lobby registrations by citizens' organizations have certainly grown in number, their pace has not exceeded the growth rates of for-profit organizations. While comparable federal data across time is not available, many observers similarly conclude that business is now more dominant than ever (Baumgartner and Leech 1998, 5; Schlozman and Tierney 1986, 87).

So, like Sisyphus, citizens' and not-for-profit oriented organizations seem to have labored ever so much harder only to find themselves in the same relative position. This paper explains why such efforts to alter the relative balance of different types of interest organizations lobbying government are unlikely to lead to more than short-term successes. Indeed, one implication of our analysis is that interest systems are likely to become even more dominated by organizations representing a few substantive interests – mostly powerful business interests – as the economy grows, irrespective of the creative mobilization efforts of entrepreneurs and patrons. The core of our argument is presented in the next section of the paper where we consider the nature and determinants of interest community diversity. The hypotheses generated there are then tested in the following section using highly, but appropriately, aggregated data on the composition of state interest communities in 1997. And in the conclusion, we consider both the mobilization and lobbying strategies that the relatively disadvantaged kinds of organizations should pursue in light of our account of the dynamics of interest community diversity.[3]

[3] This work is primarily motivated by interest in the politics of interest representation. But it also contributes to the larger organizational ecology literature. Most organization ecology work focuses on single guilds of organizations and variations in their environments, rather than the composition of communities of organizations (Hannan and Carroll 1992, 99: Carroll and Hannan 2000, 451). The justification for this imbalance in attention lies in informed assertions that most populations of organizations are effectively isolated from each other in terms of patterns of resource dependence. That is, they do not share fundamental, much less realized, niches (Gray and Lowery 1996c).

Explaining Variations in Interest Community Diversity

To understand how the composition of interest systems changes over time and space, we must first consider the nature of *diversity* of organizational lobby registrations. Simply put, interest system diversity is not a variable that can be readily placed on the left-had side of an equation and regressed on the usual suspects of social and economic variables.[4] The diversity of the registered lobbying community and the diversity of interests in society are only loosely and complexly related. We will explain why this is so, and then turn to three sorts of explanations of variations in diversity of lobbying communities.

The Nature of Interest System Diversity

Rather than a simple trait, Gray and Lowery (1996a; Lowery and Gray 1998a) argue that diversity is more appropriately viewed as an artifact resulting from the summation of the density functions of different kinds of interest organizations or guilds found in an interest community at a given time and place. We will illustrate this more fully below. But we must first understand that their energy-stability-area (ESA) model of interest system *density* suggests the growth path of numbers of organizations within each interest guild is a function of the number of potential members of the guild and the political energy provided for mobilization by the issue agenda considered by the government (Lowery and Gray 1995). Two characteristics of their analysis of interest system density are especially important for our analysis of interest community diversity. First, the size responsiveness of each guild to its potential number of members and its issue concerns is unique; each guild has its own economies of scale of representation given who its potential members are and the issues the guild addresses. In the face of a doubling of the number of potential members they might serve, for example, the number of interest organizations in one guild might increase fifty percent while another's increases only five percent. Second, the density functions of most guilds at most times is density dependent; the rate at which new lobbying organizations

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Another reason, however, lies in the lack of a clear context in which to define a community of otherwise dissimilar organizations. Lobbying communities provide just such an opportunity to explore diversity.

[4] For an example of this kind of inappropriate approach to assessing diversity, see Gray and Lowery (1993a). They employ Herfindahl indexes and measures of the proportions of profit- and not-for-profit organizations as dependent variables. While useful descriptive tools, these measures do not tap the causal processes governing diversity.

are added to the guild as its potential number of members increase slows as the interest community becomes crowded. As more specialized organizations are mobilized to represent ever more nuanced versions of the guild's basic interest, issue niche space is exhausted, both lowering the birth rate of new interest organizations and increasing the death rate of the existing members of the guild (Gray and Lowery 1996b; 1997a; Lowery and Gray 2001).

We illustrate the implications of this with a simple model presented in figure 1, which outlines the density dependent response paths of the size of two interest guilds in the 50 states.[5] Our model assumes that the 50 states are identical in all respects except economic size. That is, each state's economy is split evenly between two types of economic activity – a manufacturing sector and an agriculture sector. A state with a gross state product (GSP) of size four will have four times the number of manufacturing firms and four times the agricultural establishments of states with a GSP of size one. While they vary in size, however, the distribution of interests in society is the same in all states – half concerned about manufacturing and the other half attentive to agriculture issues. Accordingly, the interest organization community will have but two guilds representing manufacturing and agriculture interests. The solid and dashed lines in the figure chart the responsiveness of number of lobbying organizations in each guild to changes in GSP, a useful and commonly scaled surrogate for actually measuring each guild's number of potential members.[6] The points on the two lines indicate the number of interest organizations of each type a state is expected to support on its lobby registration rolls at a given economic size.

With a fixed distribution of interests in society, the figure suggests that the composition of state lobbying organizations will differ markedly as economies increase in size. At an economy of size one, agriculture organizations dominate the interest community with 23 (62.16 percent) lobby registrations. Manufacturing, by contrast, is represented by only 14 (37.84 percent) organizations. This pattern is

[5] Our example and data focuses on states given their many populations of interests needed to construct density dependent growth paths. Still, the processes operating across the states at a given time operate over time within each government. As new registration data comes on-line, similar analyses of federal lobbying will be viable.
[6] We consider the empirical validity of GSP as a surrogate for potential members across guilds more fully later.

reversed, however, when state economies grow to size four. Manufacturing interests are now the largest guild in the interest community with 36 (57.14) percent) organizations. And the agriculture sector is represented by only 27 (42.86 percent) organizations. The point of our simple model is that this relative change in interest system diversity does not arise from change in the distribution of interests in society. Our simple model has held this constant. Rather, the changing composition of interest communities results from the different levels of responsiveness and density dependence of the two guilds to numbers of potential members as economies increase in size. This is why the composition of interest communities is only loosely linked to the distribution of interests in society.

Our simple model is not the real world. But Lowery and Gray (1998a) report that the interest guilds in the states vary considerably in their responsiveness to economic growth and its associated increase in the number of potential members. Some guilds increase in size only slowly as the size of economies grows. But of those that grow more rapidly, several are highly density dependent since their growth rates flatten sharply as economies become larger. But a few guilds – manufacturing firms and banks, especially – continue generating new lobby registrations as economies grow, if at a slower pace. As the size of a state increases, therefore, its interest community will be composed, all other things equal, of a higher proportion of the latter kinds of organizations, with the former types of guilds becoming relatively less well represented. Now to the crucial part: *this interpretation of diversity as an artifact of variations in guild density functions suggests that to explain the diversity of interest communities, we must account for why the density dependent response curves of some guilds differ from those of others.* That is, we need to account for variations in both the steepness and the degree of density dependence of the several interest guilds' density responsiveness to changes in the size of state economies.[7] While not a

[7] So far, we have not considered the energy term of the ESA model, which addresses the political and policy resources associated with mobilization. As will see below, we do consider the heterogeneity of guilds' issue concerns in accounting for variations in density dependent growth paths. But previous analysis suggests that the energy and area (potential members in specific, or GSP when measured across guilds as a common surrogate) terms of the ESA model can be treated separately with little bias in their respective coefficients (Lowery and Gray 1995). This has one other implication for an analysis highly constrained by working with only 17 cases. That is, we could

simple trait, this is the most appropriate dependent variable in any analysis of interest system diversity given the "density artifact" interpretation of interest system diversity,

Four Explanations of Diversity

While no prior analyses of interest community diversity has examined this dependent variable, they suggest three sets of variables that might account for variations in the steepness and density dependence of guild responsiveness to economic size. Before we consider these, however, we must address an initial explanation rooted in a key underlying assumption of the model presented in figure 1. In that figure, we assume that the distribution of interests in states remains constant as they increase in size. Small states are like large states in all important respects, just smaller. But this assumption may be invalid for a variety of reasons. Economies of scale, history, and the geographic distribution of resources may lead to marked changes in the distributions of economic activities across the size range of state economies. Utilities and local governments, for example, have positive economies of scale such that they can grow larger without fragmenting into to many daughter organizations. Other industries may be especially prominent across the size range of the states as a result of economic specialization. Thus, agriculture may play a disproportionally large role in some small states while large states specialize in the provision of financial services. If so, then the shifting balance of interest organizations across the size range of state economies reported in figure 2 will not be especially interesting. Quite simply, the shifting balance of organized representation of the interests of the agriculture and manufacturing sectors may reflect nothing more than real changes in the distribution of interests in society as state economies become larger. While not especially interesting in itself, this **spatial concentration** explanation must be controlled for in tests of more substantively important hypotheses.

The second explanation focuses on **resources**. Quite simply, guilds with more resources are likely to be more efficient in translating numbers of potential members into numbers of interest

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use 1990 data to add more cases. But since the response curves are very stable, we would be adding cases without adding truly independent observations. So, the low n problem cannot be addressed in this simple manner.

organizations. Their greater slack resources will generate more organizational bang for the potential member buck. As a result, their density dependent GSP response curves are likely to be steeper and less density dependent than those of less well-endowed guilds. Two types of resources are commonly noted.

The first and most familiar is money. E. E. Schattschneider, of course, argued in The Semi-Sovereign People that interest representation is merely one facet of the political dominance of economic elites. Those with more resources and better-formed conceptions of self-interest are more likely to be represented irrespective of the political forum. This class-based account is captured by Schattschneider's (1960, 34-35) often cited notion that, "The flaw in the pluralist heaven is that the heavenly chorus sings with a strong upper-class accent." Such an explanation seems plausible. The typical firms in some guilds have far higher profit margins than others and certainly more resources than citizens' organizations. These profits represent slack resources that can support organized interests. Instead of merely joining a single professional association, for example, a wealthier firm may join several as well as deciding to invest in direct lobbying on its own behalf. Indeed, this explanation is so plausible that the mere fact of having financial resources constitutes a smoking gun for many popular works on bias in interest representation (e.g., Broder 2000; Renzulli 2002; Archer 1996; Drew 2000; Silverstein 1998).

A second resource concerns a guild's endowment in institutions (Salisbury 1984). Institutions – firms, hospitals, universities, and churches – have no members. Associations, whose members are institutions, and membership groups, whose members are individuals, are voluntary organizations. As such they are dependent on members for finances and survival. The revenue of fully 68 percent of federal and 63 percent of state voluntary organizations comes from dues or contributions (King and Walker 1992; Lowery and Gray 1996). And if a voluntary organization lacks members, it goes out of business. Guilds with more potential institutional members, thus, may have two resource advantages. The advantage lies again in access to financial resources. Institutions are not dependent on dues and contributions, but can instead mobilize their own resources for lobbying. Second, the costs of mobilization may be lower for institutions. That is, institutions enter and leave lobby registration rolls more frequently than do

associations and membership groups. But when voluntary groups leave, it usually represents the death of the organization. Institutions, in contrast, usually quit lobbying when there are few salient issues under consideration, but still retain the capacity to re-enter the political arena as new issues arise (Gray and Lowery 1995a).[8] The latter advantage, especially, may account for the growing dominance of institutions on state lobbying rolls; their proportion of all registrations has risen from 39.55 percent in 1980 through 49.02 percent in 1990, to 57.81 percent in 1997 (Gray and Lowery 2001b).[9]

A third explanation of the diversity of interest communities – or rather, of variations across interest guilds in their density dependent responsiveness to GSP – considers the role of **issues** in mobilizing and sustaining organized interests. Two aspects of issues may matter. The first arises from variations in government attention or potential attention to issues. To Truman (1951), interest system diversity was not puzzling. If organized interests form naturally from the joint activity of like-minded people in pursuit of a common goal, then all salient interests will be represented in the interest system. The key term here, of course, is "salient." If interests are not threatened by government policy or a proposed change in policy, individuals and institutions will not become politically active. But if a policy disturbance occurs or is threatened, then latent interests will become represented via organized political activity. Thus, the organized interest community will only selectively represent the full range of interests in society. As John P. Heinz and his colleagues (1993, 392) noted, "One of the salient characteristics of the policy-making system is that most of the potential participants are, at least at any given time, inactive and largely indifferent." If true, then the diversity of interest communities better reflects the pattern of ongoing policy disturbances than the unobserved distribution of salient and nonsalient interests in society. From this perspective, explaining variations in interest system diversity entails mapping how policy agendas change, with diversity changing as old issues fade and new issues are considered.

[8] But if the withdrawal of voluntary organizations from lobbying often signals organizational death, then they may go to severe lengths to continue lobbying, including searching for new issues, as did the March of Dimes following discovery of the polio vaccine. This suggests that while a large presence of institutions within a guild may have little impact on its density response curve, it may lead to higher turnover rates.

[9] Those expecting a collective action argument here will have to wait a bit more. Be patient.

While certainly a plausible and important part of the larger story of the politics of interest representation, there is good reason to believe that this aspect of issues cannot account for the variation we are trying to explain. That is, a heating up of the issue agenda is not likely to alter how productive a given increase in the number of potential members of the guild is in terms of mobilizing *new* lobbying organizations. However, it may have two other impacts on the results of ESA models of guild density. It may alter the intercept term. Heating up the issue agenda should, thus, raise the response curve across the board, sustaining more members overall across the range of potential members of the guild.[10] And second, variations in issue agendas across the states may increase variation around response curves as some states engage issues more or less fully than the average state.[11] So, while issue attention may be important to explaining other aspects of the diversity of interest communities, it is not likely to be important for explaining variations across guilds in the curvilinear slope of density responsiveness. We will, however, return to this issue in the conclusion of the paper.

Still, a second guild-issue attribute may be very important in our account of interest community diversity. That is, guilds still vary in terms of issue heterogeneity even if we control for variations in government attention to each issue. Manufacturing firms are incredibly varied among themselves compared to hotel chains or insurance companies. Manufacturers differ in terms of their concerns about import and export policies, environmental and health and safety regulations overall and distinct to specific sectors, reliance on government contracts, and many other issues. Growth in the potential membership of guilds with more heterogeneous interests, like manufacturing, are, therefore, likely to be more productive in terms of mobilizing and sustaining interest organizations than is comparable growth of potential membership of guilds with more homogeneous issue agendas. In the former, varied interests are likely to

[10] The energy term of Lowery and Gray's (1995) ESA model of interest system density addresses the role of issues in this manner. Comparison of the overall responsiveness of the size of state interest systems to changes in the size of state economies over 1980, 1990, and 1996 finds that the overall shape of the response curves is largely constant (Lowery and Gray 1994; Gray and Lowery 1993b; 1994a; Wolak, Lowery, and Gray 2001). But the curve does shift upward over time as state issue agendas have become more crowded, which is consistent with the constant effect posited here

[11] See note 7.

produce many specialized organizations targeting each issue of concern to subsets of the guild.

A fourth set of explanations of variations in the slope and density dependence of guild response curves to changes in the size of their potential membership focuses on **demographic** factors. Two demographic effects, each of which overlaps somewhat with our earlier accounts, might be important. The first again concerns the proportion of institutions within the potential membership of interest guilds. We had earlier noted two special advantages of guilds with institutions among their potential membership base – their enhanced capacity to devote slack resources to supporting lobbying and their greater ability to mobilize and demobilize as issue agendas change. Institutions have one more advantage, however, given the multiple ways in which they seek political influence. That is, most institutions rely on more than one venue to represent their interests. Only 28.57 percent of the institutions engaged in direct lobbying in six states surveyed by Lowery and Gray (1998b) were not also members of one or more associations registered to lobby. Indeed, the modal number of memberships in associations was three. Thus, when institutions mobilize for political activity, it is likely to entail both direct lobbying and membership in general and specialized associations, not to mention sponsoring PACs. Thus, density responsiveness to a given increase in the size of potential memberships is likely to be larger in guilds when institutions comprise a larger proportion of the potential member base.

A second demographic effect concerns the size of a guild's potential member base. Guilds vary dramatically in the number of potential members they might call upon. In 1997, for example, there were fewer than 27,000 natural resource establishments, but more than 490,000 health establishments, in the country. Variations in number of potential members of guilds may influence their responsiveness to changes in potential membership in a manner equivalent to the operation of the area term of the ESA model. The ESA model (Lowery and Gray 1995) predicts that the number of lobbying organizations representing a guild grows, if in a density dependent manner, as states grow. So, while larger states have the same kinds of interest organizations as smaller states, they have sufficient guild members with specialized concerns to also support more specialized interest organizations. In a very small state, for

example, a wing-nut manufacturer may belong to only a chamber of commerce. But in a very large state, the same firm may have enough fellow manufacturers to found an manufacturers' association, a wing-nut trust, and even an left-handed wing-nut combine. The same logic explaining cross-state variation in the size of an interest guild is equally applicable, all other things equal, to explaining the relative size of guilds. Guilds with many potential members will have enhanced capacities to support more specialized modes of interest representation compared to guilds with few potential members. The former's density dependent response curve should, therefore, be steeper than the latter's.

The two demographic factors likely interact in such a way that they heighten each other's influence. Although we cannot test this interaction directly given limited degrees of freedom, the logic of this interaction is simple. Again, institutions can lobby on their own and as members of associations, and guilds with many institutions are likely to have more specialized associations. But the basic or core professional and trade associations found in both large and small guilds are likely to have more members in guilds with many potential members. If the rate of joint association and direct lobbying is the same in both types of guilds, the larger will generate many more lobbying organizations. Consider for example, two trade associations, one with only a hundred potential members and the other with a thousand. If two percent of their member institutions also choose to lobby on their own behalf, the first guild with three lobbying organizations (the association and two member institutions) while the other will generate twenty-one lobby registrations (the association and twenty member institutions). Importantly, this logic applies when comparing across guilds with differently sized potential memberships or across states within one guild. It is the latter application of this logic that accounts for the higher response curves in response to economic growth. And this should, in turn, generate differences across guilds.

There are, however, two caveats with this version of the demographic explanation of variations in guild response functions. The first is more of an empirical than a theoretical problem. We have assumed to this point that the latent interests of different guilds are equally varied or heterogeneous. Of two guilds with equally varied potential interests, the one with more potential members will generate more organized

interests simply because more specialized concerns are more likely to garner sufficient supporters to pass the threshold required for initial organization. Under the issues explanations, though, we suggested that issue heterogeneity might vary by guild. And more to the point, the issue heterogeneity of guilds is likely to vary with the size of their potential membership base. Big guilds tend to have a more varied membership base and, thus, a wider range of interests. This means that inclusion of the size of the potential memberships of guilds in the models tested later may pickup both a demographic and an issue heterogeneity influence on diversity, however distinct they are conceptually.

The second caveat concerns a directly rival account for our hypothesis on the number of potential members of interest guilds.[12] Olson's (1965) collective action hypothesis suggests that having a large potential membership should actually reduce the rate of mobilization of interest organizations as potential members enjoy enhanced opportunities to free ride. Schlozman and Tierney (1986, 130) and Baumgartner and Leech (1998, 115-118), for example, explain the dominance of traditional economic organizations by their advantages in mobilization in the face of incentives to free ride. We do not find this explanation compelling because it assumes the traditional economic interests have few collective action problems. But examination of mobilization rates among seven guilds of interest organizations registered to lobby in the states indicates that traditional economic guilds are powerfully influenced by free riding (Lowery, Gray, Anderson, and Newmark 2002). Lobby participation rates – the percent of establishments in a guild that are registered to lobby – drop fourfold from states in which there a few such establishments to those with many. Still, we do not expect the collective action hypothesis to have much bearing on our results. While free riding certainly influences lobby participation rates, it is overwhelmed by a countervailing demographic opportunity effect (Gray, Lowery, and Wolak 2001). A manufacturing

[12] Another rival account is also viable. A sufficiently large potential membership base may allow any number of very specialized interest organizations to pass threshold barriers to organization. But while this may increase the initial steepness of the response function, it also means that a guild may more quickly exhaust viable issue niche space, thereby confronting very severe density dependence very quickly. We will settle this issue empirically by examining the degree of density dependence of guild response functions when potential membership is large.

firm in California, for example, may be only one-fifth as likely to lobby as a similar firm in Wyoming. But because California had more than 49,00 such firms in 1997, while Wyoming had just over a 600, California still produces many more manufacturing lobbying organizations – even at a lower participation rate – than does Wyoming. So, we expect the impact of the size of the potential membership to be positively related to the steepness of guild response curves to changes in their membership base. We will use, however, two tailed tests for this hypothesis.

Testing the Explanations

While our ultimate units of analysis are the several interest guilds representing differing substantive interests before government, the core data used in this analysis are lobby registrations with state legislatures in 1997. While the data have been described more fully elsewhere (Gray and Lowery 2001b), lobby registration lists were gathered by mail or web page from state agencies responsible for their maintenance.[13] After purging the lists of state agencies in states requiring their registrations, organizations registered to lobby – rather than individual lobbyists – were coded on two dimensions, organizational type or form (institution, membership group, or association) and interest content (27 guilds of substantive interests), using directories of organizations, associations, and groups and the web pages of individual organizations. A second coder then examined the coding assignments with discrepancies resolved via discussion between the two coders. The 35,928 organizational lobby registrations could not be coded by type or substantive interest in 1.58 percent of cases.

The initial 27 categories of interest guilds were further manipulated in the following ways. First, excluding two guilds reduced the remaining the registrations included in the analysis by a further 6.72 percent. The 101 organizations in the military/veterans guild were excluded because this guild could not be readily linked to data on institutions or GSP. And the small business guild's 2,276 organizations were excluded because of its extreme substantive heterogeneity and the difficulties of linking it to data on GSP.

[13] Previous work indicates that the stringency of state lobbying registration requirements has little impact on the density (Lowery and Gray 1997; 1994b) and diversity (Gray and Lowery 1998a) of state interest communities.

Second, the very small police/fire interest guild was combined with the local government interest guild. And third, the many small interest guilds representing citizens' and social welfare interests were aggregated into a single "social" guild. These included all of the 3,421 organization lobby registrations initially coded in guilds representing good government (457), tax (251), environment (672), religion (226), welfare (1,277), women's (309), and civil rights (229) issues. While each of the several small guilds in this combined count have many members nationally, they have, in several cases, insufficient numbers in each state to generate reliable density dependent response functions with respect to the size of state economies (Lowery and Gray 1998a). Thus, the single social guild will be analyzed along with 16 other interest guilds representing the following substantive interests: health (4,835 registrations), banking (2,370), business services (2,216), construction (1,142), manufacturing (4,192), communications (1,327), hotels (596), legal (809), transportation (1,076), insurance (1,986), natural resources (1,344), utilities (1,240), agriculture (809), education (2,147), local government (2,303), and sports (1,170).

Dependent Variable

All of the measures used in the final set of analyses are presented in appendix 1. We have interpreted the diversity of interest communities as an artifact of how the several interest guilds' density functions with respect to the size of states (a surrogate for their number of potential members) intersect with a given state size. This suggests that we need to explain why different guilds have differently shaped density functions in order to understand how the composition of interest communities change as states become larger. Accordingly, our dependent variable is the shape of the size density functions of the 17 guilds. These were constructed using an abridged and modified form of Gray and Lowery's ESA model of the density of lobby registrations. The model is abridged by including only the area term of the model, representing the size of the potential members of the guild in a state.[14] But because we are comparing

[14] The ESA model includes as well several variables measuring the political and policy "energy" generating the mobilization of interest organizations. But as discussed in note 7, exclusion of the ESA's energy variables in this abridged model has little impact on the coefficients of the polynomial GSP variables. Thus, the impact of the energy variables are largely lost in the constant terms of the simpler specifications used here.

density functions across guilds, number of potential members in each guild must be measured on a common scale. We employ the size of state economies as measured by 1997 GSP as a common scaled surrogate for size of potential memberships of all of the guilds.[15]

This measure raises two issues. First, its underlying assumption is that the potential membership of all guilds increases with GSP. This is plausible assumption for guilds comprised of many membership organizations – whose members are individuals – since state population and GSP are correlated at the 0.99 level. The assumption may be less valid, however, for guilds heavily laden with institutions if the composition of states' economies changes in systematic ways as they become larger. Indeed, this is the point of our first explanation tapping the role of spatial concentration in influencing the diversity of interest systems. We will, therefore, test this assumption in our final specification. Second, the variables in the GSP response functions were further modified because we later employ number of establishments in each guild as an independent variable. To avoid building in a relationship between this size-based independent variable and the size-sensitive density functions, the number of lobby registrations dependent variable and the GSP independent variables in the ESA models were standardized. Thus, the 17 guild ESA models include only standardized GSP and GSP-squared as independent variables in a polynomial specification to tap the curvilinear density dependent nature of guild size functions. And the dependent variables in the 17 guild ESA models are the standardized number of lobby registrations in each state.

The results for the 17 ESA density models are presented on the left hand side of appendix 2. The coefficients of the first 10 guilds listed in the appendix are indicative of a classic density dependent growth pattern. Numbers of registrations grow rapidly as state economies increase in size. But growth

[15] Some might wonder why we use GSP as a surrogate for the potential membership of guilds when later in the analysis we introduce number of establishments as an independent variable. That is, why not use the establishments as a more direct measure of the potential membership of guilds in society instead of the surrogate indicator of GSP? While we view the degree to which guilds are rooted on institutions, as measured by number of establishments, as a crucial element in accounting for variation in the GSP response functions, number of institutions do not capture the full range of organizations engaged in lobbying. Indeed, more than 40 percent of the organizations registered to lobby in the states in 1997 were associations or membership organizations. The response functions would not capture these organizations if they were built on number of establishments rather than GSP. This distinction is especially important for comparing the growth path of the social guild – which is comprised of many membership organizations – with those of some fast growing interest guilds with few membership groups.

tapers off as states become very large. The remaining seven guilds are far less density dependent. The growth paths of several of these guilds are essentially linear. And in two cases (education and local government), the estimates suggest that organized representation of interests increases at a faster rate than economies grow in size, albeit very weakly so. Number of lobby registrations increase steadily with state economic size.[16] Examples of these patterns are presented in figure 2, which traces the estimated growth path over the size of state economies for three illustrative guilds. The GSP response curves for five of the guilds are similar to that of business services reported in the figure. The others are the manufacturing, banking, health, and construction guilds. Their GSP response functions are very steep, indicating that number of registrations increases rapidly as economies grow in size. They vary, however, in their degree of density dependence, although all five fast growing guilds are discernibly density dependent. Growth slows as economies become vary large especially for business services, with the others being somewhat less density dependent. Utilities represent another typical pattern. Number of lobby registrations in this guild – along with natural resources, agriculture, education, and local government – increase more slowly as economies increase and size. And none shows evidence of density dependence. Finally, the social guild illustrates a middle category of GSP response functions typical of that guild and the transportation, communication, insurance, sport, hotel, and legal guilds. Numbers of registrations in these guilds grow somewhat slower as economies increase in size. There is, however, considerable variation in the density dependence of these guilds. But on average, they are less density dependent than the fast growers.

Before finally considering our dependent variables, one more item in figure 2 deserves note. The 50 states are listed at the top of the figure in their approximate location of their GSP. Most of the states fall in their left-hand one third of the GSP distribution. This has two potentially important implications. First, since there are very few large states where density dependence becomes telling in influencing lobby

[16] As seen in appendix 2, one guild – agriculture – was estimated with a simple linear model. The growth path of this guild is very linear. But estimation with the polynomial from of the ESA models generated highly collinear estimates that interacted with the formula for the first derivative in a manner that generated negative derivatives at some sizes of state economies. Thus, in this case, the simple linear form of the ESA model better represents the true linear relationship between lobby registrations and GSP.

registrations, it might be thought that density dependence is founded on only a limited number of extreme cases. But analysis of truncated samples finds equally strong evidence of a decline response to GSP as states become larger. Indeed, excluding California actually increases the degree of density dependence in estimates of the growth of total number of lobby registrations (Wolak, Lowery, and Gray 2001). So, while the effects of density dependence become severe only for a few large states, evidence of it does not depend on their few observations. Second, however, the linear term of the ESA model dominates the estimates of lobby registrations for most states. For most states, then, the changing composition of their interest communities will be determined by the differences across the guilds in the initial steepness of their GSP response curves. In figure 2, for example, the growth paths of the social and business service guilds cross roughly at the GSP size of the smallest third of all of the states to the disadvantage of the former, and the gap between these two guilds widens thereafter for all states but California.

Our ultimate dependent variable is based on these GSP response curves. They are the first derivatives of 17 GSP response curves generated by the ESA models reported in appendix 2. They measure the instantaneous rate of change in standardized number of lobby registrations in each guild in response to a standardized change in GSP. We examined a number of first derivatives. The first derivatives reported here are those for the fifth smallest (South Dakota), the 25th smallest (Kentucky), and the fifth largest (Pennsylvania) GSP. As seen in figure 2, these states all fall within the first half of the GSP range of the states where the linear term of ESA model GSP response functions is dominant.[17]

Independent Variables

The four explanations examined earlier suggest a specification including five independent variables. The first is designed to tap the spatial concentration explanation that changing relative patterns of interest representation merely reflect real changes in the composition of state economies as they

[17] We will see that all three derivatives generate similar empirical results, which is not surprising since the linear term of the ESA model is dominant across this GSP size range. Indeed, this is true even for a state the size of New York. The coefficients reported in table 2 are very similar, albeit somewhat smaller and statistically weaker, even when New York's GSP is used to calculate the first derivative. Only for a state the size of California do the signs of the significant coefficients reverse reflecting the full effects of density dependence.

increase in size. As discussed earlier, using GSP and its squared values as surrogate indicators of the size of the potential memberships of guilds rests on an assumption that the membership of each grows in a similar manner as state economies expand. While we have argued that this is a reasonable assumption for guilds heavily laden with membership organizations with individuals as members, it is less plausible for institutions if the composition of state economies change in systematic ways as they become larger. To assess the degree of spatial concentration of institutions within each guild, its standardized number of establishments in each state in 1997 was regressed on standardized GSP.[18] These results are reported on the right hand side of appendix 2. Since standardized measures were employed, the coefficients in the appendix can be interpreted in a straightforward manner.[19] The GSP coefficients for most of the guilds are just under one, indicating that, for most guilds, number of establishments increase at virtually the same rate as state economies grow. For most guilds, then, the assumption underlying figure 1 that the distribution of interests in society is similar across large and small states is tenable. For most guilds, large states are a lot like small states, only larger.

There were, however, three major exceptions to this general finding. The coefficients in the local government (0.553), utilities (0.789), and natural resources (0.382) guilds suggests that growth in their numbers of establishments within an economy does not keep pace with change in the overall level of economic activity. All three are understandable, if for somewhat different reasons. With declining

[18] The measurement of the number of establishments variable in these models will be explained more fully below when discussing the variables representing the demographic explanations of diversity. For now, though, the establishment data are from: 1997 Economic Census, at http://www.census.gov/epcd/www/econ97.html.

[19] Well, perhaps in not that straightforward a manner. This measure introduces two complications that merit consideration. First, since the constants in the regressions on the right side of appendix 2 are near zero and we are using standardized measures of GSP and number of establishments, the slope coefficients are equivalent to the ratio of the mean number of establishments and the mean of GSP. While we think that the slope coefficients are more appropriate indicators theoretically, this equivalence introduces some collinearity into the analysis because we later include in the model a separate measure of the number of establishments in the 17 guilds. As seen in table 1, the spatial concentration and number of establishments variables are correlated at the 0.414 level. Fortunately, discernible estimates of both variables were generated for both variables in the final models. Second, because the final models treat the the spatial concentration estimates as fixed and both they and the first derivative dependent variables were generated from models with GSP as independent variables, the error term of the model is exceedingly complex and certainly violate standard OLS assumptions. Unfortunately, with only 17 cases in the final analyses, we are not able to readily address this complication.

marginal costs, utilities can grow without limit, rather than fragment into many daughter utilities. And many of the smaller economies are found in the west. Local governments in the west tend to be geographically more encompassing since many were founded after transportation innovations made more expansive local polities more viable. And many natural resources are concentrated in the same western states with smaller economies. So, while the assumption of a constant distribution of interests in society across the size range of the 50 states is generally plausible, it is not valid for all guilds. Therefore, we include in the models a **spatial concentration** variable, which is measured by the GSP slope coefficients in the models reported on the right hand side of appendix 2. Since this is an inverse measure, it is expected to generate a positive coefficient. That is, the number of registered lobbying organizations in a guild should increase faster in response to a change in GSP when its number of establishments also increase in pace with the size of economies.

The second explanation focused on two types of resources – wealth and reliance on institutions. The first is tapped with **average guild resources**, which is the total national GSP generated by a guild divided by its total number of establishments.[20] In short, this is the average proportion of guild GSP generated by each establishment in the guild. Guild GSP values were readily identifiable in categories matching those on which the lobby registration data were coded in all but one case. The social guild is comprised of social welfare organizations and a number of citizens' groups. While GSP values for social welfare organizations were readily available from the Bureau of Economic Statistics, there was no comparable measure for the citizens' organizations. For these, we combine the total 1997 value of receipts and payrolls reported by Religious, Grant-making, Civic, and Professional organizations in the 1997 Economic Census. As seen in appendix 2, average guild resources range from 9.223 for the utilities guild to a low of 0.584 for the social guild. Higher levels of average guild resources are expected to be positively related to the steepness of the density response functions.

The second component of the resources explanation concerns the institutional roots of the several

[20] The guild GSP data is from the Bureau of Economic Analysis at: http://www.bea.doc.gov/bea/regional/data.htm.

guilds. We have no independent measure of the institutional foundations of the several guilds in society. We have, however, measures of the proportion of organizations registered to lobby in each guild that are institutions (in contrast to associations and membership groups). We constructed, therefore, a surrogate indicator of institutional proportion of each guild in the former sphere from our data on the latter. That is, the proportion of institution members in the lobbying communities of the 50 states was arrayed from high to low separately for each interest guild. The average of the institutional proportion of each guild's representatives in the four median states is our indicator of the base rate of reliance on institutions as an organization form of conducting guild business. The values of **institutions proportion** ranges from a high of 75.31 percent for the manufacturing guild to a low of 21.66 for the construction guild. As seen in table 1, and as suggested earlier, the proportion of institutions in a guild is strongly and positively related (r=0.534) to its wealth, as measured by average guild resources.

The third explanation of diversity emphasizes the heterogeneity of the issues of concern to guilds. Generalist organizations representing highly heterogeneous guilds are expected to fragment into more specialized organized interests as economies increase in size because of the difficulty of reconciling subsets of interests within the guild that may be in conflict or highly specialized. We measure the heterogeneity of the guild by the number of 1997 NAICS codes for each four digit SIC code.[21] As seen in appendix one, the values of **guild heterogeneity** ranges from a high of 103 for the manufacturing guild to a low of one for the local government and legal guilds. Very diverse guilds, with many separate subgroups, should generate steeper density response functions than more homogeneous guilds.

Finally, the demography explanation highlights the importance of the **number of institutions** guilds have in society as a vital resource for generating organized interests. Institutions are defined as establishments. And as reported earlier, the establishment data are for the most part from the 1997 Economic Census and include both taxable and exempt organizations. Most of the establishment values

[21] SIC codes were used since both the guild GSP and establishment data is published with SIC code titles. To obtain 1997 guild heterogeneity from the SIC codes, corresponding 1997 NAICS codes were found for each four digit SIC code. Data is available on line from the Census Bureau at http://www.census.gov/epcd/naics/nsic2ndx.htm#S2.

are straightforward in being readily matched to our coding of registered interest organizations.[22] But two deserve special mention. First, securing establishment data on citizens' organizations, which are combined with social welfare establishments in the social guild, required some judgment, since the 1997 Economic Census does not distinguish citizens' groups. As an alternative, the population of citizen groups was approximated by the number of groups in what the Census defines as "group establishments that organize and promote religious activities; support various causes through grantmaking; advocate various social and political causes; and promote and defend the interests of their members."[23] However, we excluded business associations, professional organizations, labor unions, and political campaign and election organizations. Second, the local government guild establishment value is drawn from a separate source. Data on the number of local governments in 1997 were obtained from the U.S. Census Bureau's Statistical Abstract of the United States (2000, 299). In this source, local governments include counties, municipalities, townships, schools districts, and special districts. We excluded school districts from this list in tallying a count of local governments; number of schools – both public and private – are included in the count of education establishments. As seen in appendix 1, number of establishments (divided by 10,000) range from 63.921 for the construction guild to a low of 2.228 for the utilities guild. Also as expected, and as seen in table 1, number of establishments is positively related to guild heterogeneity (r = 0.445), which may make it difficult to secure separate estimates of their impacts on the density functions.

Results

Four sets of OLS regression results are presented in table 2. The first three sets include all five independent variables for first derivatives of the17 ESA model response functions at GSP values corresponding to the 5th, 25th, and 45th largest states. The last model, with the first derivative for GSP corresponding to the 25th largest state, excludes the two variables generating incorrectly signed and insignificant estimates in the previous models. Given limited degrees of freedom with just 17 cases and

[22] For those who might wonder, numbers of firms and establishments in the states are correlated at greater than 0.99.
[23] Thus, establishments in this guild are those falling under NAICS code 813, minus 8139 organizations, which are included in the other substantive categories of interest organizations.

five explanatory variables, we employ somewhat relaxed criterion values. The first item of note about the results is their consistency. The estimates are similar in size, magnitude, and statistical significance across the models. Thus, the same factors that matter at the early stages of the response curve matter at the middle and later stages across the range of GSP in which all but one or two states reside.[24]

Two variables generated incorrectly signed estimates, although they do not unambiguously rule out the explanations they are associated with. First, the **average guild resources** estimates are uniformly negative, indicating that guilds with wealthier establishments generate fewer new interest organizations per unit of GSP than poorer guilds. While not significant at the usual criterion levels, the magnitudes of the estimates are close to size of their standard errors. Nor is this unexpected result due to inclusion of the other variables. Average guild resources generates negative coefficients when included on its own or with any combination of the variables in the model.[25] Thus, contrary to the many arguments that wealth per se is the root of the dominance of certain kinds of interests within communities of organized interests, it does not seem that wealth matters much at all. And if it does matter, it matters in nearly the opposite manner than commonly expected. There are, however, two important caveats to consider. First, while wealth may not matter across guilds, it almost certainly matters within guilds. There are good reasons to expect that a larger and wealthier manufacturing firm is more likely to lobby than a smaller and less wealthy manufacturing firm. Second, as reported earlier, average guild resources is related to our second resource indicator – the institutional foundations of representation ($r = 0.534$).

The second variable generating unexpected signed estimates is **guild heterogeneity** as measured by a guild's number of NAICS four digit codes. As seen in table 2, the uniformly negative estimates suggest that heterogenous guilds generate fewer new lobbying organizations as an economy grows than more homogeneous guilds. The estimates, however, are tiny with respect to their standard errors. Again, however, these weak results do not fully rule out this explanation of interest community diversity. The

[24] See note 17.
[25] The correlation of guild resources and the median first derivative is -0.230.

simple correlation between guild heterogeneity and the first derivative for the value of GSP corresponding to the 25th largest state is positive (r = 0.120), albeit modest. More important, we have seen that guild heterogeneity is modestly and positively related to the number of its establishments (r = 0.445).

Stronger results were obtained for the remaining three variables. The **spatial concentration** of the guild is positively related to the first derivative of the GSP response functions. As noted earlier, the variable is largely accounting for three unusual guilds – natural resources, local government, and utilities. Their numbers of establishments tend to grow in number at a slower pace than the economy as a whole. The proportion of the organizations in a guild that are institutions is also positively related to the first derivative of GSP response curve. Guilds with higher values of **institutions proportion** generate more lobbying registrations for a given change in GSP than do guilds with a weaker institutional basis of organization. And perhaps most importantly, the **number of establishments** a guild has in society is strongly and positively related to the first derivative of the GSP response function. Guilds well endowed in institutions are more productive in generating registrations than are guilds with fewer establishments. The institutions proportion and number of establishments results, while surely reflecting some elements of the resources and issue heterogeneity explanations, lend strong support to the demographic account of interest community diversity. While the numbers and kinds of organizations found in society do not determine the distribution of interests before government in a simple manner, they ultimately determine how diverse an interest community can be given the size of its economy.

Discussion

Overall, the model accounts for a substantial portion of the variance in first derivatives of the GSP response functions. This is evident in figure 3, which presents the actual and predicted values for the first derivative for GSP equivalent to the 25th largest state. The figure suggests that the 17 guilds can be grouped into three larger super-guilds. The first set includes three spatially restricted guilds – utilities, local government, and natural resources. Education and agriculture are also included. All are slow growing guilds; their number of lobbying registrations grows more slowly in response to GSP than the

other guilds. Given that agriculture and education are spatially defined in the same manner as natural resources and local government, respectively, this super-guild is perhaps best labeled spatial prisoners. Their spatially bound economic activity and/or strong economies of scale in the production process insure that these guilds will become smaller portions of the interest system as state economies increase in size across the range of GSP including most states. But they may have the last laugh after all. That is, the spatial prisoner guilds are all very weakly density dependent. As economies get very large, and other guilds stabilize in numbers in a density dependent manner, the number of interest organizations representing spatial prisoner guilds will keep growing in a steady manner. But since Vermont's economy is not likely to grow to the size of California's any time soon, this is at best a long-term solution.

The five advantage guilds – representing manufacturing, health, construction, banking, and business services interests – at the top of figure 3 comprise the fastest growing super-guild. As seen in figure 4, they are advantaged on all three of the significant variables in our regression results. Figure 4 reports the mean of all three super-guilds on each of the three variables with the means represented as a proportion of the mean of the highest scoring super-guild. The five fast growing guilds are the borg of interest communities. They are least limited in terms of spatial constraints on their growth in society as economies increase in size. They tend to have more institutions among their potential members. And perhaps most importantly of all, they have many, many more establishments in society than the other guilds. These advantages ensure that as economies grow over most of the plausible range of expansion for most states, these organizations will inevitably become a larger proportion of interest communities. Demography may not be destiny, but, in this case, resistance may be futile.

The moderately growing guilds – hotel, communication, transportation, sport, insurance, legal, and social interests – are a more heterogeneous collection. They may have a large number of institutions among their members, but relatively few members (e.g., communications). Or, they may have many members, but few institutions (e.g., transportation). The social guild is especially interesting. It has a moderate number of institutions among its members, but only a moderate number of establishments.

While not strictly disadvantaged on any of the three explanatory variables, its mediocre values suggest that social organized interests should have only mediocre growth in number of lobbying organizations as economies expand. Still, its actual performance is among the highest in this middle super-guild. And it has a positive residual in figure 3, suggesting that it is something of an over-achiever in having a higher than predicted response to economic growth. Earlier, we identified the social guild as the Sisyphus of the world of interest politics. The creative efforts of patrons and entrepreneurs have increased the number of citizens' and social welfare lobby registrations over recent decades. But these growing numbers have not altered the relative representation of these interests within interest systems. Our analysis explains why these efforts have had so little impact on the relative representation of social interests. As seen in figure 2, the gap between the social guild and the business services guild – one of the fast growers – expands throughout the GSP range of most states. This growing gap is the problem. And the gap arises because of the demographic advantages of the borgs of the interest world.

Two questions remain. First, how might citizens' group secure a stronger relative presence within interest communities? Our results suggest that such efforts may not be successful. Indeed, success in most states might be better understood as maintaining their current relative level of representation via lobbying organizations. Still, our results point to two important levers citizens' organizations might employ to better their prospects. The first is implicit in our finding on the strong role of institutions in society as a major foundation for lobbying representation. Scholars have long recognized this importance in terms of mobilizing individuals. As Verba, Schlozman, and Brady (1995) note, most individuals are introduced to political activity through their experiences within work and social organizations. But institutions play an even more direct role. Indeed, the majority of lobbying organizations are institutions, not voluntary groups.[26] This suggests that the energy of patrons and entrepreneurs should be devoted to

[26] Indeed, leaders of foundations, charitable organizations, and nonprofits have realized that 501(c)(3) organizations can legally engage in lobbying and advocacy (though not electioneering), and are increasingly encouraging such efforts (for a good example see Avner, 2002).

creating institutional legacies capable of sustained political activity over a long period of time. Second, our results have largely ignored the role of the energy term of the ESA model in promoting and sustaining the mobilization of lobbying activities. We have argued that political and policy energy is more important for explaining variations in the constant of the ESA model, or the baseline number of organizations within a guild. But the constant term is not unimportant. Increased salience of the issues of concern to a guild should lead to a secular upward shift of the GSP response curve, even if it does not change its fundamental shape. This suggests that citizens' organizations might pursue Schattschneider's (1960) strategy of conflict expansion as a means of escaping the unbalanced constraints imposed by the density response functions on different kinds of interest guilds.

Finally, does it matter? We have good theoretical (Denzau and Munger 1986) and empirical (Smith 2000) reasons to believe that interest organizations matter little when issues are highly salient to the public. The diversity of the interest community should not matter in such situations. But not all or even most issues are salient. In such situations, interest system density and diversity can matter in several ways. First, the structure of the interest community influences the political process. Legislatures are less productive in terms of passing legislation in crowded interest systems (Gray and Lowery 1995b). And the structure of interest communities influences the kinds of tactics organizations employ (Hojnacki 1997; Gray and Lowery 1997b; 1998b). Second, the density and diversity of interests has been shown to influence at least some specific policy choices by political institutions. Numbers have been found to matter in the granting of certiorari by courts (Caldeira and Wright 1988), the effectiveness of coalitions in legislative settings (Baumgartner and Mahoney 2002), and revisions in proposed federal regulations (Golden 1998). And third, the balance of profit- and not-for-profit-oriented interests influences how effectively public preferences are translated into policy outputs by elites. Gray, Lowery, Fellowes, and McAtee (2002), for example, have found that the opinion-policy link between citizens and legislators so central to Erikson, Wright, and McIver's (1993) model of state politics is attenuated when not-for-profit organizations comprise a smaller share of interest communities. In sum, diversity can matter.

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Figure 1: Composition of Hypothetical Interest Community Across Economic Size Range

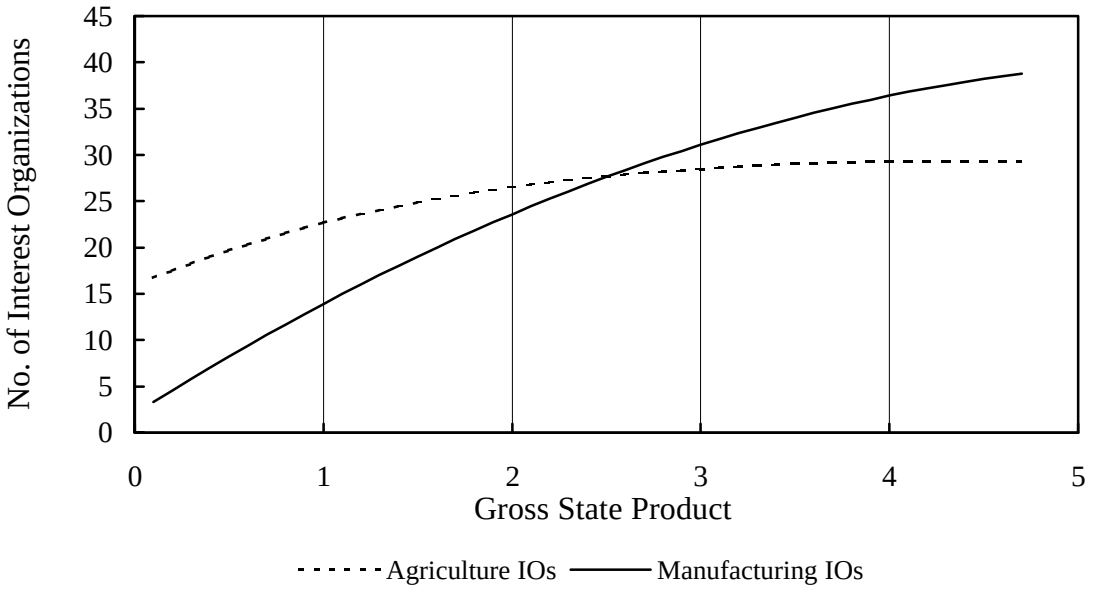

Figure 2: Standardized Density Dependent GSP Response Function -- Three Illustrative Guilds

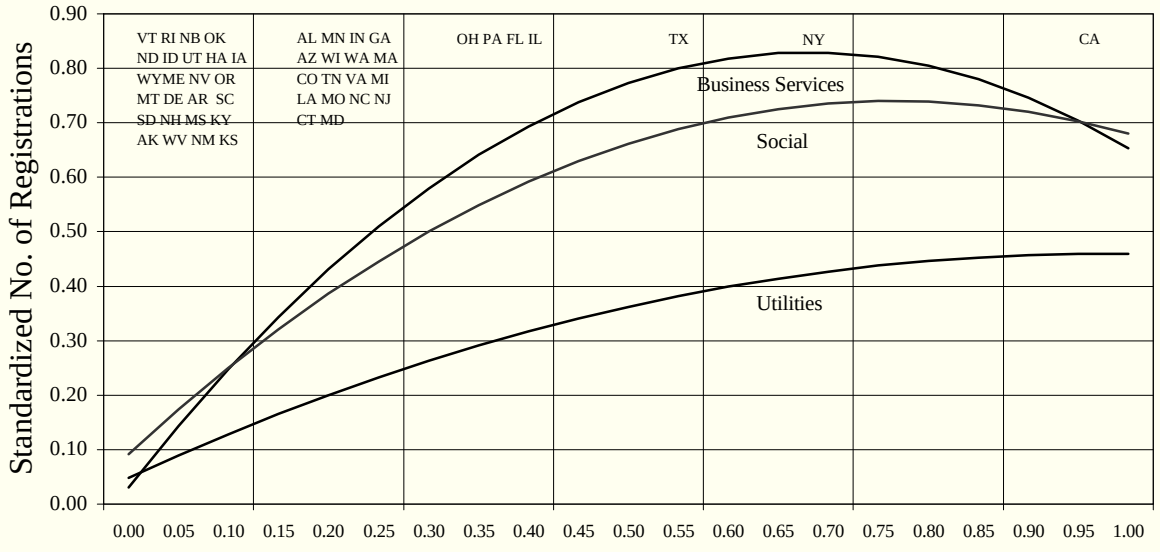

Figure 3: Predicted and Actual Median Derivative of GSP Density Dependent Curve

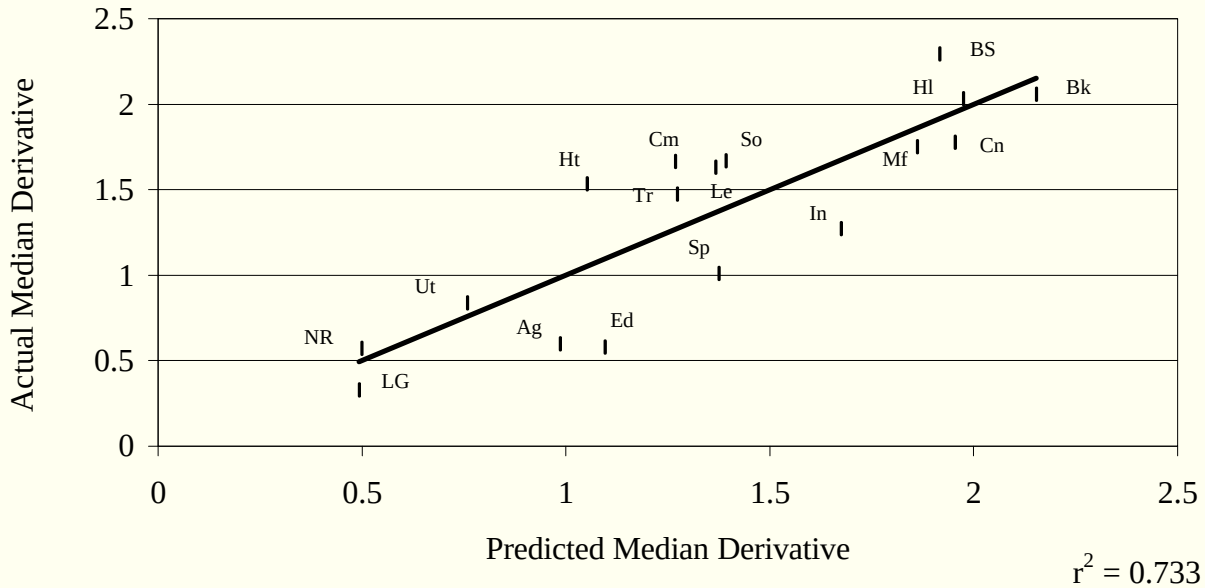

Figure 4: Standardized Differences in Means of Three Super Guilds on Three Key Variables

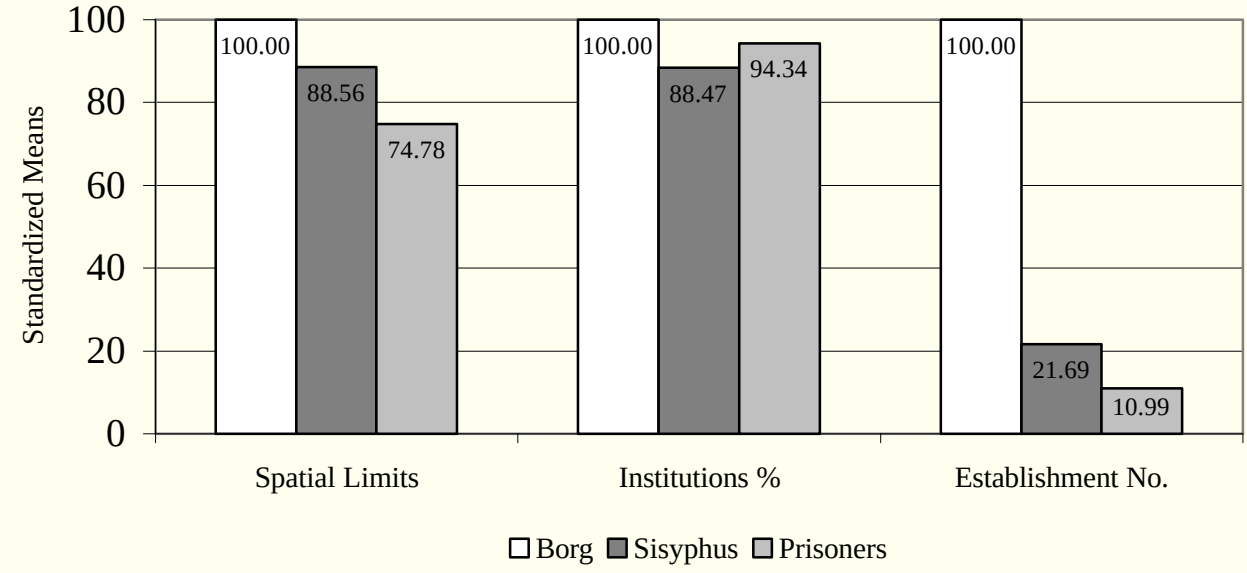

Table 1: Correlation Matrix of Independent Variables, 17 Interest Guilds, 1997

	Spatial Concentration	Average Resources	Guild Heterogeneity	Institutions Proportion
Average Resources	-0.658			
Guild Heterogeneity	0.227	-0.175		
Institutions Proportion	-0.269	0.534	0.191	
Number of Estabs.	0.414	-0.408	0.445	-0.109

Table 2: Regression of GSP Three Response Derivatives on Five Explanatory Variables, 17 Interest Guilds, 1997

	Dependent Variables: Derivative			
Independent Variables	5th Largest GSP State	25th Largest GSP State	45th Largest GSP State	25th Largest GSP State
Spatial Concentration	1.162* 1.566	1.138* 1.536	0.950* 1.666	1.530** 2.562
Average Guild Resources	-0.058 -1.132	-0.053 -1.048	-0.037 -0.947	--
Guild Institutions Proportion	0.013** 1.870	0.013** 1.792	0.010* 1.735	0.008* 1.437
Guild Heterogeneity	-0.002 -0.623	-0.002 -0.551	-0.001 -0.445	--
No. of Establishments	0.018# 3.033	0.018# 3.021	0.014## 3.159	0.019## 3.456
Constant	-0.475	-0.462	-0.274	-0.800
R-Square	0.740	0.733	0.749	0.702

Notes: Figures under coefficients are t-values; * = $p < 0.10$, ** = $p < 0.05$, one tailed tests; # = $p <$ ‘0.05, ## = $p < 0.01$, two tailed tests.

Appendix 1: Data in Final Regression Models								
Interest Guild	GSP Spatial Concentration	Avg. Guild Economic Resources	Guild Issue Heterogeneity	Proportion of Guild Institutions	No. of Establish. in Guild	Derivative 5th Largest GSP State	Derivative 25th Largest GSP State	Derivative 45th Largest GSP State
Business Services (BS)	0.983	0.996	82	61.99	39.595	2.325	2.293	1.944
Banking (Bk)	0.980	2.806	49	70.69	48.713	2.085	2.059	1.764
Health (Hl)	0.988	0.945	29	43.05	49.816	2.060	2.033	1.731
Construction (Cn)	0.964	0.529	28	21.66	63.921	1.795	1.777	1.574
Manufacturing (Mf)	0.978	3.652	103	75.31	37.743	1.770	1.753	1.571
Communications (Cm)	0.957	4.981	12	68.15	4.414	1.682	1.665	1.478
Legal (Le)	0.979	0.628	1	36.32	16.663	1.653	1.632	1.403
Hotels (Ht)	0.925	1.199	7	34.80	5.805	1.556	1.535	1.305
Transportation (Tr)	0.979	1.132	65	32.89	22.558	1.485	1.474	1.357
Insurance (In)	0.958	1.146	15	66.57	17.210	1.288	1.273	1.097
Utilities (Ut)	0.789	9.223	20	65.03	2.228	0.846	0.838	0.750
Agriculture (Ag)	0.951	1.117	69	28.57	11.549	0.598	0.598	0.598
Education (Ed)	0.982	2.252	17	43.65	2.694	0.575	0.579	0.627
Sport (Sp)	0.976	0.655	5	47.60	9.886	1.013	1.009	0.965
Social (So)	0.980	0.584	23	35.45	21.022	1.691	1.670	1.447
Natural Resources (NR)	0.382	4.709	30	63.38	2.520	0.573	0.572	0.558
Local Gov't (LG)	0.553	9.605	1	56.63	7.373	0.320	0.329	0.434

Note: *GSP Spatial Concentration* is an estimate of the rate of growth of establishments in a guild in response to GSP, and is measured as the parameter of GSP generated from regressing the number of establishments in each guild on GSP. *Average Economic Resources* is the average GSP generated by an establishment in each guild, and is the quotient of GSP and interest guild size, summed over all of the states. *Guild Issue Heterogeneity* is an estimate of the number of interests represented by a guild, and is measured by its number of 1997 NAICS codes that correspond with four digit SIC codes. *Proportion of Guild Institutions* is the proportion of organizations in each guild that are institutions, and is measured as the average proportion of institutions in the four middle states in terms of number of organizations in each guild. *Number of establishments in guild* is its number of establishments divided by 10,000. The *Derivative for the 5th (South Dakota, $19,697 million), 25th (Kentucky, $101,535 million), and 45th (Pennsylvania, $347,306) largest states in GSP are* the first derivatives of an abridged version of the ESA model in Gray and Lowery (1998), including the the linear and nonlinear term of the model as predictors of number of registered organizations in each guild.

Appendix 2: Abridged ESA Model and Spatial Concentration Model Results							
	Abridged ESA Models				Spatial Concentration Models		
	Dep. Var.: Lobby Registrations				Dep. Var.: No. of Establishments		
Interest Guild	GSP	GSP^2	Constant	R^2	GSP	Constant	R^2
Business Services (BS)	2.325 ***	-1.727 ***	0.030	0.795	0.983 ***	-0.002	0.966
Bank (Bk)	2.086 ***	-1.458 ***	0.019	0.706	0.980 ***	-0.002	0.960
Health (Hl)	2.060 ***	-1.489 ***	0.041	0.783	0.987 ***	-0.001	0.976
Construction (Cn)	1.795 ***	-1.003 ***	0.094	0.615	0.964 ***	-0.001	0.928
Manufacturing (Mf)	1.770 ***	-0.900 ***	0.056	0.866	0.978 ***	0.000	0.956
Communications (Cm)	1.682 ***	-0.924 ***	0.132	0.624	0.957 ***	0.000	0.915
Legal (Le)	1.653 ***	-1.130 ***	0.030	0.866	0.979 ***	-0.001	0.959
Hotels (Ht)	1.556 ***	-1.140 ***	0.104	0.375	0.925 ***	0.000	0.856
Transportation (Tr)	1.485 ***	-0.578 **	0.040	0.791	0.978 ***	0.000	0.958
Insurance (In)	1.289 ***	-0.869 ***	0.004	0.576	0.958 ***	0.000	0.918
Utilities (Ut)	0.846 ***	-0.434	0.048	0.403	0.789 ***	0.000	0.623
Agriculture (Ag)	0.598 ***	--	0.104	0.402	0.952 ***	-0.045	0.905
Education (Ed)	0.575 ***	0.238	0.072	0.642	0.982 ***	0.000	0.965
Natural Resources (NR)	0.573 **	-0.067	0.131	0.335	0.382 ***	0.000	0.146
Social (So)	1.691 ***	-1.103 ***	0.092	0.576	0.980 ***	-0.001	0.960
Local Govt (LG)	0.320	0.517 *	0.063	0.607	0.553 ***	0.000	0.306
Sport (Sp)	1.013 ***	-0.218	0.097	0.586	0.975 ***	-0.032	0.952

Note: * = $p < 0.10$, ** = $p < 0.05$, *** = $p < 0.01$, two-tailed tests. The dependent variable in the left hand models is the standardized number of lobby registrations by each guild. The independent variables are standardized GSP and its squared value for 1997. The dependent variable in right hand models is the standardized number of establishments in a a guild. The indendent variables is standardized 1997GSP.