

The Effective Constituency in Distributive Politics:  
Geographic and Partisan Bases of Representation

Robert J. Franzese, Jr.<sup>1</sup>

Assistant Professor of Political Science  
The University of Michigan, Ann Arbor  
franzese@umich.edu  
<http://www-personal.umich.edu/~franzese>

Irfan Nooruddin

Ph.D. Candidate in Political Science  
The University of Michigan, Ann Arbor  
irfann@umich.edu

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**Abstract:** Theorists have long argued that democratic policymakers respond to political pressures from their constituents. Although empirical work generally supports that broad contention, heterogeneity prevails both in theoretical work and empirically across country-times over exactly what comprises the *constituency* to which policymakers respond. We suggest conceiving the potential bases of representation as a continuum from the interests of the policymaker's geographic constituency, her electoral district,  $d$ , to those of her party's supporters, her partisan constituency,  $p$ . The *effective constituency*,  $c$ , to which democratic policymakers respond would then be some convex combination of these geographic and partisan extremes, with the partisan weight summarized by the degree to which parties act as units, i.e., of *party unity*,  $u$ . That is, heuristically, we conceptualize  $c = u \cdot p + (1 - u) \cdot d$ . Re-examination of the familiar Weingast-Shepsle-Johnsen (*WSJ*) model of distributive politics and pork-barrel spending (the *law of 1/n*) motivates the analysis and undergirds empirical evaluation of our conception of *effective constituencies*. The postwar history of public spending in developed democracies seems not to support a pure-electoral-district *WSJ* model. However, the postwar history of government spending in the United States, where data best suited to evaluate our argument exist, does support a *WSJ* model modified to reflect our conception of *effective constituency*. We conclude with some ideas for extending the notion of *effective constituencies* beyond partisan and geographic bases of representation and for incorporating more explicitly and directly into empirical specification of public-policy models certain theoretical propositions that purport to explain aspects of the political-economic institutional, structural, and strategic context, such as the degree of party unity, that shape how policymakers allocate their efforts across distributive, redistributive, public-good, and rent-seeking activities. We offer several such arguments relating political institutional and strategic conditions to policymakers' weight on each type of policy activity and show how to embed and test such arguments within estimable empirical models of public spending using the *effective constituency* concept.

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## The Effective Constituency in Distributive Politics: Geographic and Partisan Bases of Representation

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### I. INTRODUCTION:

Although we approach our central topic from a highly empirically motivated and somewhat narrowly focused theoretical reconsideration, the topic may be construed far more broadly. At the broadest level, we aim to provide some purchase on the question of whom democratically elected policymakers see themselves as, and, more critically, behave as if they are, representing. That is, we seek more precise theoretical and empirical understanding of the *constituency*, a concept, we argue, which manifests differently across representative democracies.

Discussion of the positively operative or normatively optimal bases of representation has long interested a wide variety of political scholars with a great diversity of views. Pitkin, for example, notes: “[W]riters disagree on the appropriate role or conduct for a representative: should he act on his own

judgment of what is in the national interest, or should he be a faithful servant of his constituency's will?" (1969: p. 7) Notice that Pitkin means *constituency* as the electoral district in contrast to a broader constituency of "the national interest." Edmund Burke's (1774) speech to the electors of Bristol as they sent him to Parliament showed similar awareness of this duality of representation:

[T]he happiness and glory of a representative is to live in the strictest union, the closest correspondence, and the most unreserved communication with his constituents. Their wishes ought to have great weight with him; their opinion, high respect; their business, unremitting attention. It is his duty to sacrifice his repose, his pleasures, his satisfactions, to theirs; and above all, ever, and in all cases, to prefer their interest to his own (p. 32).

Later in the same speech, however, Burke continues:

Parliament is not a *congress* of ambassadors from different and hostile interests; which interests each must maintain, as an agent and advocate, against other agents and advocates; but parliament is a *deliberative* assembly of *one* nation, with *one* interest, that of the whole; where, not local purposes, not local prejudices, ought to guide, but the general good, resulting from the general reason of the whole. You choose a member indeed; but when you have chosen him, he is not a member of Bristol, but he is a member of *parliament* (p. 33).

Our contribution at this philosophical level is decidedly modest. We merely suggest the utility of viewing the range of potential bases of representation as some sort of continuum extending from pure representation of interests defined by the electoral district, *d*, or *geographic representation*, to pure representation of the set of interests supporting the party, *p*, or *partisan representation*. In defining the latter extreme, notice, we have already made two implicit assumptions. First, we imply that the broadest interest a representative might serve would reflect a partisan (i.e., still partial) conception of the national interest. Second, we also assume (for now<sup>1</sup>) that partisan representation subsumes interest, ideology, and identity-group representation. Conceiving the possibilities thus, the question becomes what determines the relative weight of these polar modes of representation in any particular political system. On this point, we acknowledge and discuss the potential impact of several factors, including district- and national-level electoral competitiveness, partisan polarization, and various

other features of electoral and party systems, but focus for now on the degree to which parties act as

<sup>1</sup> In future work we hope to offer theoretically-informed empirical specifications (see below) that could model effective constituencies with four end-points reflecting national, party, social-identity group, or district interests.

units, i.e., of *party unity*,  $u$ , as a useful summary statistic. We develop this argument further below, but, granting it for introductory purposes, it implies that the *effective constituency*,  $c$ , to which a policymaker responds is some convex combination of her electoral district and her party with the relative weight on the latter increasing in party unity, *for example*:<sup>2</sup>  $c = u \cdot p + (1 - u) \cdot d$ .

This *effective-constituency* conceptualization arises from our attempts to explore the comparative empirical predictions of the Weingast-Shepsle-Johnsen (1981: *WSJ*) model of distributive politics and pork-barrel spending (i.e., *the law of 1/n*), and its implications are perhaps most clearly seen in that specific theoretical and substantive context. *WSJ* demonstrate that, under certain conditions reviewed below, overemphasis of distributive politics, in general, and pork-barrel overspending, in specific, increase with the number of constituencies. *WSJ* do not, however, distinguish *electoral districts* from *constituencies*, and they define *distributive politics* and *pork-barrel spending* very narrowly, creating two mutually reinforcing problems for the comparative empiricist. First, data matching the precision with which the theory distinguishes pork-barrel/distributive and other spending/politics do not exist. Indeed, all politics and spending likely reflect some (varying) degree of distribution, redistribution, public-good provision, and rent seeking. Second, policymakers will likely exhibit varying responsiveness to their *electoral districts* relative to myriad other potential *constituencies* across different democratic settings. Moreover, these issues are inseparable because the definition of distributive spending hinges on identification of the politically-relevant constituencies, and, conversely, the number of relevant constituencies depends on the policy at issue. To escape this dilemma, we suggest broader conceptions both of distributive spending and of the constituencies policy-relevant thereto. From there, extending *WSJ*'s logic is exceedingly straightforward yet offers

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<sup>2</sup>The *for example* is important: theory does not necessarily specify that the convex combination is a simple linear-weighted-average; the suggested empirical methods can easily incorporate other combinatorial forms.

considerable gains in empirical “testability” and theoretical insight.

We structure the paper to make these points thus. Part II briefly reviews the simplest *WSJ* model of distributive politics and pork-barrel spending. cursory consideration of comparative work on distributive politics and of postwar-average public-spending in developed democracies then suffices to suggest strongly that the narrow definitions of distributive pork-barrel politics and policies and of *constituencies* as *districts* produce empirically misleading and theoretically problematic predictions. Part III offers our proposed solution and discusses several additional, complementary or alternative, considerations. Part IV explains how to use the U.S. postwar history of public-spending and politics to evaluate our argument, conducts the analysis, and discusses results. Part V concludes by returning to the broader issues of representation mentioned above, considering extensions of the basic *effective-constituencies* concept beyond partisan and geographic bases of representation, and showing how to embed theoretical models of the political-economic institutional, structural, and strategic conditions that determine the geographic, partisan, and other effective bases of representation within estimable empirical models of public policies.

## II. “THE POLITICAL ECONOMY OF COSTS AND BENEFITS” REVIEWED AND RECONSIDERED

*WSJ* ask why representative legislatures routinely pass budgets that manifestly over-emphasize distributive, or *pork-barrel* spending, projects. Their answer stresses the division of democratic polities into electoral districts, noting that democratic representation everywhere is based on “a districting mechanism that divides the economy into  $n$  disjoint political units called districts” (p. 643), and defining “*distributive policy* [as] a political decision that concentrates benefits in a specific geographic constituency and finances expenditures through generalized taxation” (p. 644). They thus isolate geographic location as the distinguishing characteristic of distributive policies and politics: “Programs

and projects are geographically targeted, geographically fashioned, and may be independently varied” (p. 644). Given these definitions, and assuming legislators follow some log-rolling or universalistic norm, *WSJ* demonstrate that overemphasis on distributive policies, i.e., overspending on pork-barrel projects, is an increasing function of the number of electoral districts.

To be precise, start by indexing the  $n$  electoral districts  $i \in [1..n]$ . Then assume benefits,  $B$ , of any particular pork-barrel project concentrate in district  $i$  (for analytic clarity: entirely so) and increase with the size or cost of the project,  $B_i = f(C)$ , which, with diminishing returns (at least beyond some point), gives  $f' > 0$  and  $f'' < 0$  as usual. By definition of a distributive policy, the costs accrue more uniformly across all  $n$  districts (for analytic clarity: entirely so):  $C_i = C/n$ . The individual district then faces a utility-maximization problem,  $\text{Max}_c f(C) - C/n$ , for which the solution is simply  $f'(C) = 1/n$ . The optimal project-size from the individual district’s view thus increases in the number of districts.

If legislatures decide democratically, without log-rolling, universalist norms, or side-payments, then all pork-barrel projects lose legislative votes ( $n-1$ ) to  $1$  because only receiving districts derive net benefits,  $f(C) - C/n$ , while others only pay costs,  $C/n$ . *WSJ* argue, contrarily, that legislators could adopt a universalistic norm where all legislators vote for distributive bills (“I’ll vote for yours; you vote for mine”), implying the legislature passes the district-by-district optimal, leaving pork-barrel spending proportional to the number of districts. Riker (1962) shows, however, that optimal coalition-building strategies in majority-rule legislatures involve side-payments sufficient to induce bare-majority support (*minimum-winning coalitions*) for distributive projects, meaning  $(n-1)/2$  other legislators must receive  $C/n + \varepsilon$ , which also implies overemphasis on pork proportional to the number of districts, but much more marginally so.<sup>3</sup> Later scholarship, though, deduced several reasons super-majoritarianism

<sup>3</sup> Specifically, under universalism, all projects with  $B > C/n$  pass, whereas under majority-rule with side-payments, only

may govern legislative decision-making. Shepsle and Weingast (1981), e.g., note that, given uncertainty over membership of minimum-winning coalitions, legislators prefer super-majorities to insure against omission. Luebbert (1986) and Strom (1990) argue similarly regarding government formation that, with uncertainty over legislative support, which, e.g., secret balloting or lack of party discipline may induce, coalition builders would seek super majorities. Others stress that legislative procedures affect optimal coalition-size. Carruba and Volden (2000) show that, in fact, all coalitions from minimum-winning to universal may form depending on openness to amendment and other procedural rules. Baron (1991) finds universalism on distributive bills unlikely yet over-provision still prevails to a degree mitigated by procedural openness. Similarly, McCarty (2000) and Bradbury and Cain (2001) argue that, respectively, presidents or second chambers dampen without eliminating the  $1/n$  effect by—we infer—adding a legislative step in which veto or amendment may occur.

To these considerations, we would add that, if voters are rationally ignorant,  $C/n$  may be too small for non-receiving-district voters to appreciate even while receiving-district voters readily notice their benefit,  $f(C)-C/n$ . Thus, with rationally ignorant voters, legislators could more easily forge universalist log-rolls or other super-majoritarian agreements to support each other's pork-barrel requests *via* some cooperative solution to their iterated-prisoners-dilemma game. Such cooperation is especially likely because legislators (i) number relatively few, (ii) have relatively homogenous interests, and (iii) interact repeatedly and indefinitely (Axelrod 1984). Similarly, voters' rational ignorance facilitates side-payment arrangements that forge super-majorities behind distributive policies because legislators will demand smaller payments to support others' distributive proposals the greater the voters' ignorance. In the limit, rational ignorance revives universalist scenarios wherein distributive projects maximize pork-barrel benefits district-by-district. Moreover, the aggregate size of distributive inefficiencies or projects with  $B > [(n+1)/2]*C/n$  pass.

side-payment excesses about which voters may rationally remain ignorant also rises with the number of districts over which such costs distribute. Thus, distributive politics generally and pork-barrel spending specifically increases with the number of districts, more strongly so as legislative behavior tends more universalistic and less minimum-winning, which tendency, in turn, heightens as rational ignorance, winning-coalition uncertainty, or legislative-rule closure to amendment or veto rises.

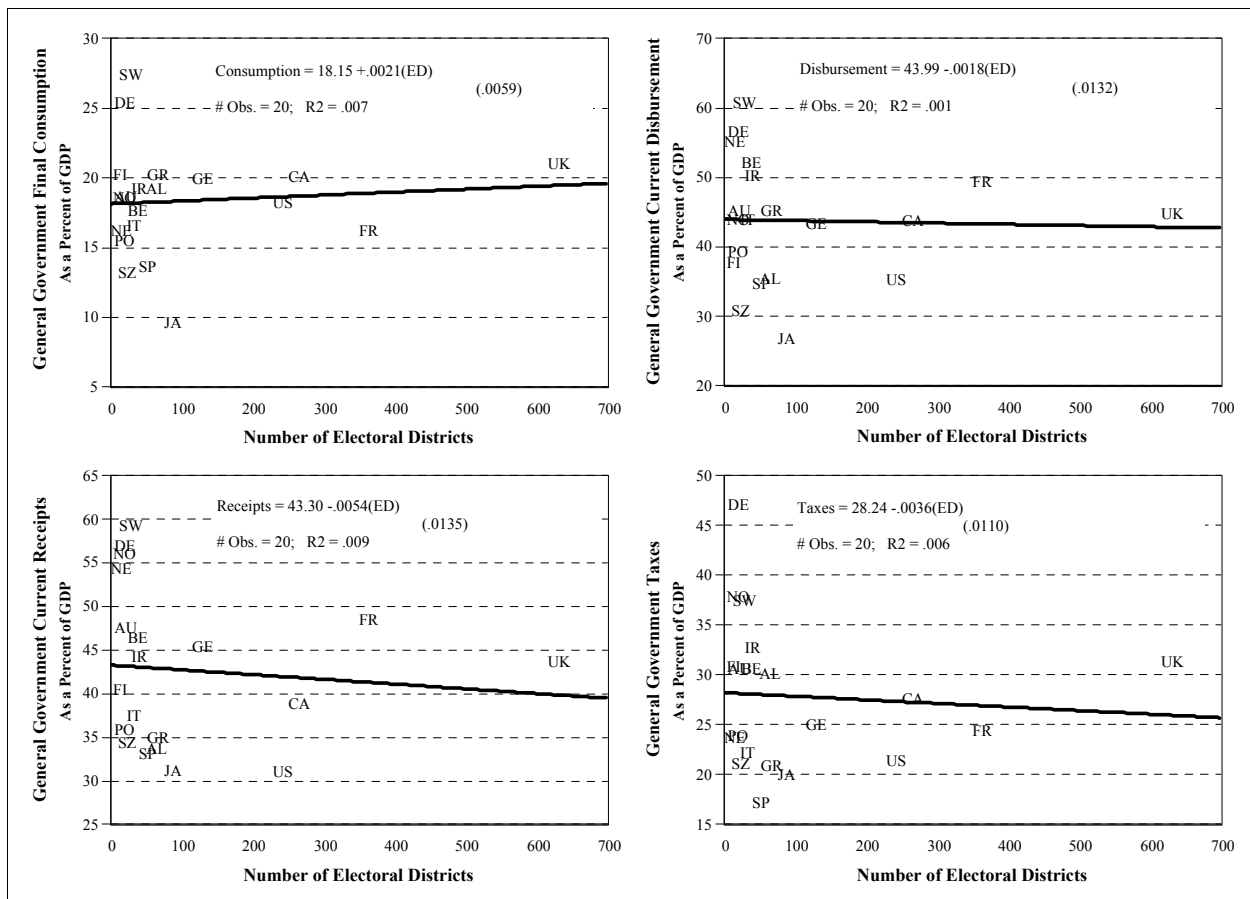


Figure 1: Bivariate Relationships between the Size of Government and the Number of Electoral Districts

The logic is elegant, intuitive, and profound; unfortunately, the comparative evidence, which Figure 1 illustrates summarily, does not correspond. The top row plots two measures of public spending, general-government final-consumption and current-disbursement as shares of GDP in 1985, against 1945-85 average numbers of electoral districts in 20 OECD countries.<sup>4</sup> The bottom

<sup>4</sup> Lane et al. (1991) provides the data. General government includes all levels of government and public agencies with separate accounting (e.g., social security); using central-government data makes no substantive difference. For effectively bicameral countries, we average numbers of districts (total, all tiers) in each house. For unicameral countries, we use



row does likewise with two revenue measures, general-government current-receipts and total-taxes. The *WSJ* law of  $1/n$  predicts a positive relationship between spending (taxes) and numbers of districts clearly not revealed in **Figure 1**.<sup>5</sup> Adding basic economic controls of unemployment, trade openness, aggregate wealth or growth, to these bivariate regressions makes no substantive difference, and more sophisticated empirical research elsewhere likewise finds little support. Franzese (2002: ch. 2-3), e.g., finds little or no significant relationship between numbers of districts and transfers or debt in postwar samples of developed democracies, and he controls for many other economic and political variables and pays some attention to the complications for counting electoral districts of multiple-tier systems, bicameralism, varying district-size, etc. In sum, evidence from comparative public fiscal-activity does not support a simplistic application of *WSJ*'s model of electoral-district-based distributive politics.

Consider, furthermore, the model's implications for the relative prominence of distributive politics in different democracies. For example, the UK House of Commons has 651 electoral districts, the U.S. House of Representatives has 435, and Italy's *Camera dei Deputati* had (until recent electoral-law changes) 32 in its first tier. The  $1/n$  logic suggests that the UK should exhibit distributive, i.e., district-focused, politics most prominently, followed closely by the U.S., and more distantly by Italy. Students of comparative developed democratic politics would generally agree to the contrary that the actual ranking is probably the U.S., followed closely or possibly preceded by Italy, with the UK a distant last. Regarding the UK, Rose (1986) states unequivocally:

...the role of constituency [i.e., district] representation...is of little importance to government. MPs can devote time to looking after the concerns of individual constituents[...], and] this relationship can flatter an MP who is a small fish in a big pond at Westminster[...], but an MP cannot gain government favors for his constituency

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numbers of districts in the primary house (total, all tiers). We consider the U.S., Japan, Germany, Italy, Belgium, Netherlands, Switzerland, and Australia effectively bicameral for these purposes. The substance of these results, however, seemed independent of how we treated second chambers and of minor permutations in the set of countries considered bicameral. Alternative approaches to multiple-tier systems also altered little.

<sup>5</sup> Omitting the UK or otherwise transforming the highly skewed ED (e.g.,  $\ln(ED)$ ), does not help. In fact, as one can discern visually, as one trims countries from the large-ED end of the sample, these relationships become more *negative*.

by trading his vote in return for local benefits; *the whip* [i.e., the party], *not constituency interest, determines an MP's vote* (pp. 100-1; emphasis added).

Contrarily, party-organized and -directed *patronage* and *clientelism*, complicated theoretical concepts that include strong distributive-politics and pork-barrel aspects *inter alia*, were long-acknowledged central features of Italian democracy (see, e.g., Banfield 1958; and Powell, Silverman, Graziano, and Schneider *et al.* in Schmidt *et al.* 1977). Spotts and Wieser (1986), speaking of parliament's legislative role in Italy, clarify the extent to which MP's local-service pervades the legislative agenda (recall that local civil-service jobs are the preferred currency of clientelistic payments in Italy):

...the Chamber and Senate have produced a flood of legislation that generally well surpasses the output of other Western European parliaments and the U.S. Congress[, b]ut the product tends to be narrow in scope, clientelistic in nature, and fragmented in its treatment of national problems. The great majority of these...*leggine*, "little laws" [were] devoted to bettering the condition of government employees. Fully 37% of the legislative proposals between 1963 and 1972, for example, concerned [various] civil service [...compensation and job conditions] (p. 110-1).

In the U.S., meanwhile, district-oriented politics certainly plays a much larger role than in the UK and perhaps even than in Italy, though also perhaps less "clientelistically" so.<sup>6</sup>

Thus, discrepancy between theory and comparative evidence is wide and seems not to derive from lacking methodology or controls.<sup>7</sup> Contrarily, Gilligan and Matsusaka (1995, 2001) find support in comparing U.S. states; Levitt and Snyder (1995) find indirect support in the pattern by spending category of partisan effects on the district distribution of U.S. spending; Lee (1998, 2000) finds Senate malapportionment to affect distributive politics consistently with the *law of 1/n*; Alvarez and Saving (1997) find that Representatives do derive electoral benefits from spending in their districts; and Bickers and Stein (1996) find district spending associated with lower quality challengers. In our view, these conflicting results do not suggest that the *1/n* logic only applies in the U.S.; rather, they

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<sup>6</sup> The contributions to Bogdanor (1985) contain more case-studies that may be relevant. In future work, we hope to use these for a broader comparative-empirical study of the nature of representation and distributive politics.

<sup>7</sup> Recently, however, Bradbury and Crain (2001) report some cross-sectional evidence for a bicameralism-dampened *law of 1/n* as per their hypothesis (see above).

highlight an important substantive problematic that *WSJ* and many others (e.g., Burke) ignore: namely, conflation of the theoretical *constituency* with the empirical *electoral district*.

### III. THE CONCEPT OF “THE EFFECTIVE NUMBER OF CONSTITUENCIES”

*WSJ*'s *law of 1/n* equates the physical boundaries of electoral districts with the conceptual borders of constituencies. We suggest that one instead conceive the number of constituencies in a political system as lying on a continuum with only one of its endpoints, that corresponding to pure geographic representation, at the number of electoral districts. Representative policymakers certainly may see themselves as representing and so act legislatively in the interests of their electoral districts, implying identity of *constituencies* and *districts*; but, at the other extreme, they may view themselves and act legislatively as representatives of the entire nation—as, e.g., presidents often claim—implying that only one *constituency*, the nation, exists. More realistically, executives or legislators may be pure partisan actors, representing the interests and ideologies of their party's supporters, which equates *effective constituencies* and governing parties in number. Thus, the U.S. example could have any number of *effective constituencies* from 1, if presidents fully control policy and solely represent the entire nation or, more realistically, if partisan presidents and legislators of one party share policy-control, or 2, if president and legislators act as purely partisan representatives with divided government, to 435, if Congress completely controlled policy and each congressperson solely represented her own district.<sup>8</sup>

Another example: the UK has 651 electoral districts and 2 parties, Tories and Labour (ignoring smaller parties). Assuming each party represents some particular group of people and that each group is somewhat distinct, the UK has minimally 2 constituencies, Tory- and Labour-supporters, of which government usually reflects only 1. Conversely, if the voters in each individual MP's district define

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<sup>8</sup> To complete the example, if the Senate completely controlled policy and each Senator acted solely as a representative of her district, there would be 50 *effective constituencies*.

the constituency, the UK has maximally 651 constituencies. Where along this range lies the *effective number of constituencies* is a function, we assert, of the degree of party unity in the UK

To clarify the intuition behind this assertion, imagine varying the degree of party unity in the UK. The more apt is a unitary-actor characterization of the parties, the more an individual MP's legislative behavior is given by her party label.<sup>9</sup> This being so, voters will also choose party-labels more than individual MPs. Therefore, individual MPs neither act as independent legislative actors nor have much to gain by abandoning party unity to make some localistic appeal in their electoral districts. Partisan constituencies come to the fore. Conversely, the party label becomes less meaningful as the independence of MPs as legislative actors increases. Absent meaningful policy-labels, both as electoral draws and as prescriptions for legislative behavior, individual MPs' electoral districts become more relevant to them and constituency service (including distributive projects) becomes more important to them and their supporters. Thus, the 651 electoral-district constituencies become dominant.

Therefore, the UK's *effective number of constituencies* lies between 651 and 1, with the extremes reflecting perfect party-disunity (i.e., legislative and electoral irrelevance of party label) and perfect party-unity. More fully, (i) *effective constituencies* lie on a continuum from pure partisan- to pure geographic-representation, (ii) therefore a convex combination of the numbers of governing parties,  $p$ , and electoral districts,  $d$ , gives the *effective number of constituencies*,  $c$ , in a political system, and (iii) the relative weight of  $p$  increases with the degree of party unity,  $u$ , characterizing that system. We adopt the simplest possible convex-combination, a linear weighted-average:  $c = u \cdot p + (1 - u) \cdot d$  with  $u \in [0..1]$ .

Thus, given any two countries with nearly equal numbers of parties and electoral districts, more (fewer) effective constituencies exist in the system with lesser (greater) party-unity. So, distributive

<sup>9</sup> We use party unity as an empirical summary statistic here, so we need not assume it or endogenize it theoretically.

politics may be much more prominent in the U.S. than UK, despite their roughly equal numbers of governing parties (1-2) and electoral districts (435-651), because the UK has far greater party unity, making its *effective number of constituencies* radically lower.

Applying our conceptualization to the  $1/n$  logic to distributive politics and pork-barrel spending is exceedingly straightforward. First, redefine distributive policies as those that concentrate benefits within a single *effective constituency* but spread costs more evenly across all constituencies. Then, “distributive overemphasis and pork-barrel overspending” so defined increase with the number of *effective constituencies* rather than *districts*. A trivial corollary is important to the empirics evaluating this re-conceptualization below: holding constant the numbers of parties and of electoral districts, distributive politics and spending decrease with party unity. Before proceeding, however, we conduct several further thought-experiments to illustrate how *effective numbers of constituencies* depend on considerations beyond numbers of electoral districts and governing parties and degrees of party unity.

Consider, for instance, two hypothetical UK's, each with 2 parties, 651 electoral districts, *and* the same degree of party unity. These two UKs, however, differ in the ideological distance between their 2 parties. For concreteness, think of party ideologies on a single left-right dimension; in one of these UKs, the left and right parties are closer together than in the other. We expect the UK with the more-distinct party-ideologies to appeal less to the pork-barrel precisely because electoral competition in that UK will be more ideological. In the polarized UK, representatives and candidates compete, to considerable degree on ideological-partisan bases, as members of two opposing teams. Conversely, in the UK with little ideological distance between parties, electoral competition has less ideological content. There being no broader “team” on which to base competition, distributive politics comes forward in the UK with less partisan-polarization. Thus, it should exhibit relatively more

distributive spending. The Irish party system may exemplify a case of such relative absence of ideological conflict between the parties (on economic dimensions) fostering greater emphasis on distributive politics.<sup>10</sup>

Electoral competitiveness of the districts may also enter. Imagine two other hypothetical UK's, each with 2 parties, 651 districts, and the same degrees of party unity *and* of partisan ideological polarization. One UK, however, has 651 *competitive* electoral districts while the other has 651 *uncompetitive* districts. I.e., all districts in the competitive UK have either Labour or Tory expecting a 51% to 49% victory; in the uncompetitive UK's districts, either Tory or Labour expects a 100% to 0% victory. If voters reward pork-barrel district projects with votes, both parties will have greater incentives to allow their candidates to promise, and their MP's to deliver, district projects and services in the more competitive UK. Moreover, in the district-competitive UK, distributive overemphasis increases with national-level competitiveness also because winning a marginal district is more critical. Thus, distributive politics and pork-barrel spending increase with electoral competitiveness.<sup>11</sup>

Notice the similarity of how partisan polarization and electoral non-competitiveness dampen distributive-policy incentives to the role of party unity,  $u$ , in *effective constituencies*:  $c = u \cdot p + (1 - u) \cdot d$ . As party unity, partisan ideological-proximity, and/or electoral competitiveness decline, districts weigh more in *effective constituencies*. One could, therefore, replace the constant  $u$  in this heuristic model with a function reflecting the factors that push democratically elected policymaking represent more their partisan than their geographic constituencies, which would include party unity (or, alternatively, some set of factors that induce it) but also partisan polarization,  $D$ , and electoral competitiveness,  $e$ . The new heuristic would be  $c = f(u, \rho, e) \cdot p + \{1 - f(u, \rho, e)\} \cdot d$ , with

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<sup>10</sup> We thank Anne Wren for describing the Irish case to us in these terms.

<sup>11</sup> We thank Andrea Bassanini and Carles Boix for emphasizing this case to us.

$0 \leq f(\cdot) \leq 1$ ,<sup>12</sup>  $\partial f / \partial u > 0$ ,  $\partial f / \partial \rho > 0$ , and  $\partial f / \partial e < 0$ . We return to this extension of the conceptualization in the conclusion and future research.

Notice that incentives for distributive overemphasis deriving from electoral competitiveness in these hypothetical UK's, all of which conducted pure single-member-simple-plurality elections, are geographical. In systems with larger district-magnitudes, electoral competitiveness would also foster distributive overemphasis, but *constituencies* would likely have less geographic than partisan base. Thus, using the extended heuristic above,  $\partial f / \partial e$  should be conditional on the electoral system,  $s$ , with  $\partial^2 f / \partial e \partial s < 0$  and with  $\partial f / \partial e > 0$  in larger-magnitude systems and  $\partial f / \partial e < 0$  in smaller (see also Long 2002).<sup>13</sup> The discussion above suggests national-level electoral-competitiveness enters  $f(\cdot)$  similarly.

We do not dispute the validity of these latter considerations—indeed we will suggest still others in the conclusion—but reserve them for future research. In this paper, we concentrate on the effect of different levels of party unity on representation and spending.

#### IV. EMPIRICAL EVALUATION: U.S. FISCAL HISTORY AND PARTY UNITY SINCE 1955

To evaluate our base concept, we need data on amounts of distributive activity, degrees of party unity, and numbers of electoral districts and governing parties. Two difficulties emerge immediately.

First, unavailability of comparable measures of party unity across many countries makes cross-sectional or pooled cross-sectional-time-series analysis difficult. (Future work may utilize cross-U.S.-state data effectively or apply nonlinear techniques discussed below.) Few countries appear to have the necessary legislative-vote records to produce direct measures of legislative voting-unity. For fewer

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<sup>12</sup> To ensure  $0 \leq f(\cdot) \leq 1$ ,  $f(\cdot)$  could be the logit (i.e.,  $[1 + e^{-XB}]^{-1}$ ) or probit (i.e., cumulative normal:  $\Phi(XB)$ ) function.

<sup>13</sup> Long (2002) derives a similar conclusion focusing on representative incentives to distribute benefits more or less broadly within their electoral district.

still have scholars compiled such measures, almost exclusively in the U.S.<sup>14</sup> However, whereas numbers of U.S. electoral districts barely changed postwar, providing almost no leverage to test the pure-electoral-district *WSJ* model directly with aggregate U.S. data, and whereas governing-party numbers also held relatively constant, party unity varied sufficiently *and measurably* across time (see, e.g., Cox and McCubbins 1993) to yield empirical leverage on our *effective-constituency* concept.<sup>15</sup> Thus, our conceptualization offers a practical “testability” benefit at least. Even so, using just one country severely limits empirical leverage (*degrees of freedom*) because dependent variables (public taxation and expenditure) are annual, and they and certain controls are unavailable until 1956.

Second, we must decide whether and how to distinguish distributive from other categories of spending and whether to measure such activity as a share of GDP or of total public activity. Having defined distributive policies more broadly as spreading costs evenly while concentrating benefits in particular *constituencies*, not necessarily in particular *electoral districts*, all but the most universal of public goods may apply. Accordingly, one measure of distributive spending is simply government final consumption expenditure. However, some spending-types are harder to target to as specifically as others, so we still want to retain some emphasis on distributive as opposed to redistributive spending or, in Persson and Tabellini’s (2000) useful terminology, *special-interest* from *general-interest politics*. Thus, our other spending measure of spending is non-transfers spending.

The model’s emphasis on overspending might as easily suggest a focus on the share of the budget or of GDP spent on distributive projects. Rather than decide, we use final consumption *and* non-transfers spending as shares of GDP *and* of total spending,<sup>16</sup> simultaneous thus partially addressing

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<sup>14</sup> We have since heard and intend to pursue in the future, rumors of comparable data elsewhere in Anglo-America.

<sup>15</sup> We thank John Ferejohn for thus suggesting U.S. historical data as a test-bed for our ideas.

<sup>16</sup> In future work, we hope to leverage Levitt and Snyder’s (1995) idea of using cross-district variation in disbursement to identify “porkier” budgetary categories and Hird’s (1991) approach to estimating the *over-* (i.e., inefficient) spending.



the limited-degrees-of-freedom problem. By *jointly* estimating a set of four equations, each regressing a spending measure on several controls and a variable capturing our conception of the *effective number of constituencies*, we gain leverage. Even if we apply no cross-equation restrictions on estimated coefficients, residual correlation across regressions offers information that can increase the efficiency of estimation. Accordingly, we propose to estimate a system of four seemingly unrelated regression-equations (SURE)<sup>17</sup> in which the dependent variables are federal-government final-consumption-expenditure as shares of (i) GDP and of (ii) federal-government expenditures, and federal-government non-transfers spending as shares (iii) of GDP and of (iv) federal-government expenditures. All data are annual and taken from the University of Michigan's *Research Seminar in Quantitative Economics*.

Next we consider the strong serial correlation of these dependent variables and the possibility of unit roots. For each variable, first-order correlation far exceeds 0.9, so, given the sample size, none rejects unit-root tests. An error-correction format (Beck 1992) therefore seems appropriate, and, in our models, the format accommodates serial correlation and eases unit-root concerns adequately. Error-correction models regress changes in the dependent variable on (i) its lagged level plus any lagged changes the data suggest are necessary to model serial correlation, (ii) lagged levels of each independent variable theory suggests as a potential cointegrating factor, and (iii) any changes in the independent variable theory suggests. In this format, coefficients on *changes* represent *momentum-like* relationships between independent-variable *changes* and dependent-variable *changes*; coefficients on lagged *levels* represent *equilibrium-like* relationships between *levels* of the independent and dependent variables. In the usual dynamic-equation fashion, both propagate through the dependent variable over

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<sup>17</sup> The Beck-Katz (1995, 1998) criticism of the Parks procedure for estimating equations from pooled time-series-cross-section data applies here also; we will effectively have 4 time-series equations estimated in parallel. However, with 4 equations and 39 observations each, T here is almost 10 times the equivalent to N. Thus, feasible generalized least squares, in this case SURE, should provide *bona fide*, not misleading, smaller standard-errors.

time as the estimated coefficients on lagged dependent-variable levels and changes dictate. Having no strong priors on the momentum or equilibrium nature of the spending effects of our theoretical and control variables, we enter all variables in contemporaneous differences and in lagged levels.

Finally, we need an appropriate set of controls. Obviously, public spending will respond to economic conditions regardless of constituency conditions fostering distributive politics. Thus, we control for real-GDP-*per-capita* growth and levels ( $Y$ : from *Penn World Tables v. 5.0*), unemployment rates ( $UE$ : from *OECD sources*<sup>18</sup>), and CPI inflation rates ( $CPI$ : from *IMF sources*<sup>19</sup>). Similarly, spending may respond to government ideology (Hibbs 1977) and/or to the incentive to manipulate the economy for pre-electoral purposes (Tufte 1978), so we also include a pre-electoral indicator ( $ELE$ )<sup>20</sup> and a control for the left-right partisan “center-of-gravity” of the U.S. government ( $CoG$ ).<sup>21</sup>

In error-correction form, then, each seemingly-unrelated-regression equation (SURE) reads:

$$\begin{aligned} \Delta(GS_{i,t}) = & \beta_0 + \beta_1\Delta(GS_{i,t-1}) + \beta_2GS_{i,t-1} + \beta_3\Delta(\Delta(Y_t)) + \beta_4\Delta(Y_{t-1}) + \beta_5Y_{t-2} \\ & + \beta_6\Delta(CPI_t) + \beta_7CPI_{t-1} + \beta_8\Delta(UE_t) + \beta_9UE_{t-1} + \beta_{10}\Delta(CoG_t) + \beta_{11}CoG_{t-1} \\ & + \beta_{12}\Delta(ELE_t) + \beta_{13}ELE_{t-1} + \beta_{14}\Delta(ENoC_t) + \beta_{15}ENoC_{t-1} + \varepsilon_{t-1} \end{aligned} \quad (1)$$

where the subscript  $t$  indicates year and  $i$  indicates equation.  $GS_i$  is the measure of spending used in

<sup>18</sup> “OECD sources” means *OECD National Accounts, Volume II: Detailed Tables*, diskette version (1996), *OECD Economic Outlook and Reference Supplement #62*, diskette version (1998), and the hardcopy versions thereof and of *OECD Labor Force Statistics* (various issues).

<sup>19</sup> “IMF sources” means *IMF International Financial Statistics*, CD-ROM version (June 1996), supplemented by hardcopy where necessary and possible.

<sup>20</sup> For simplicity, we consider the president and each house 1/3 the government, and only 1/3 of the Senate faces election each congressional election-year. Thus, house and presidential elections value 1/3, and senate elections value  $(1/3)*(1/3)=(1/9)$ . Finally, all elections are assumed to occur November 7, so the indicator in the election year is  $ELE=[(1/3)*P+(1/3)*H+(1/9)*S]*[311/365]$  where  $P(H, S) = 1$  if there is a presidential (House, Senate) election that year, and 311/365 is the proportion of the year gone by election-time. The year prior to an election is equal to  $[(1/3)*P+(1/3)*H+(1/9)*S]*[1-M/12+(d/D)/12]$ . This produces a pre-electoral indicator that cycles [.0491, .2843, .1145, .6633], the last being the presidential-election year.

<sup>21</sup> The partisanship data use “expert” codings of the left-right positioning of parties available from Appendix B to Laver and Schofield (1990) to measure the partisan position of the average government member. A left-right code for each party is obtained by rescaling the several source indices for all countries from 0/ extreme-left to 10/ extreme-right and then averaging available indices for each party. The Democrats are 4.8213 and Republicans 7.61 in this scale. These party scores are then used to calculate the government’s partisan position as the average of the party positions of the government’s members. The U.S. government’s position is assumed to be 1/3 the President’s, 1/3 the average Senator’s, and 1/3 the average Representative’s. Years in which more than one government held office are coded as the weighted average of those governments’ partisan position, each government weighted by the proportion of the year it holds office.

equation  $i$  and  $ENoC$  is our measure of the *effective number of constituencies* in the U.S. that year. That measure is the core of our empirical exercise, and we expect, following the augmented *WSJ* model suggested here, that its coefficients should be positive in each equation.

As argued, the *effective constituency* to which a particular representative responds is some convex combination of her legislatively exhibited allegiance to her party and to residents of her electoral district. Thus, for an individual representative, the effective constituency is given by  $c = u \cdot p + (1 - u) \cdot d$ , where  $u$  measures her party loyalty,  $p$  represents her partisan and  $d$  her electoral-district constituency. Generalizing from here to the *effective number of constituencies* represented by many legislators, i.e., summing over all representatives, the formula remains unchanged, except that  $p$  becomes the number of parties and  $d$  that of electoral districts in the political system. Specifically for the U.S. case, our measure of the *effective number of constituencies*,  $ENoC$ , is therefore given by:

$$ENoC = 0.5 \cdot [U_{HD} \cdot 1 + (1 - U_{HD}) \cdot N_d^h + U_{HR} \cdot 1 + (1 - U_{HR}) \cdot N_r^h] + 0.5 \cdot [U_{SD} \cdot 1 + (1 - U_{SD}) \cdot \frac{N_d^s}{2} + U_{SR} \cdot 1 + (1 - U_{SR}) \cdot \frac{N_d^s}{2}] \quad (2)$$

where  $U_{JK}$  = party unity amongst House or Senate ( $J=H,S$ ) Democrats or Republicans ( $K=D,R$ )<sup>22</sup> and  $N_k^j$  is the number of House or Senate Democrats or Republicans. The formula assumes the House and Senate equally important in policymaking and that the president's effective number of constituencies is fixed and so may be ignored.<sup>23</sup> Thus, the numbers of constituencies in the House and Senate average to produce the effective number in the U.S. political system. We can modify

<sup>22</sup> We use the party unity scores calculated and published by *The CQ Almanac*. Accordingly, *party unity* is measured as "the percentage of Party Unity Votes on which a representative voted 'yea' or 'nay' in *agreement* with a majority of her party," where a Party Unity Vote is a vote in the Senate or House that splits the parties, a majority of voting Democrats opposing a majority of voting Republicans.

<sup>23</sup> Although senators number two *per* state, each delegation represents only one constituency (i.e., the state), so the number of senators for each party divided by two is the number of constituencies represented.

In future work, presidents may enter  $ENoC$  by weighted-averaging (2) with another term representing the number of presidential constituencies (to be determined) and a weight given by the policy efficacy of the president.

these simplifying assumptions if that proves theoretically or empirically necessary.

We thus divide U.S. *effective constituencies* into four sets: the sets of effective House Democratic and Republican constituencies and of effective Senate Democratic and Republican constituencies. For each legislator, the level of party unity serves to weigh the degree to which her district- or her partisan-constituents' interests govern her behavior. Therefore, the higher the party unity, the fewer the constituencies because legislators appeal more to broadly-based ideological constituencies along party lines than to localistic interests of their electoral district. Conversely, leaders that use pork-barrel projects for their own individual district are, *ipso facto*, less responsive to their partisan and more responsive to their geographic constituency.

**Figure 2** plots the resulting series, *ENoC*, revealing a notable upward-then-downward trend. The numbers of parties and electoral districts barely change in this period, so the pattern belies a decline then rise in legislative party-unity. Peak party disunity and so peak effective-constituency numbers occur in the mid-to-late 1960s, and both return to 1950 levels by 1990. If our re-conceptualized *WSJ* model is correct, distributive politics and spending should similarly rise then decline.

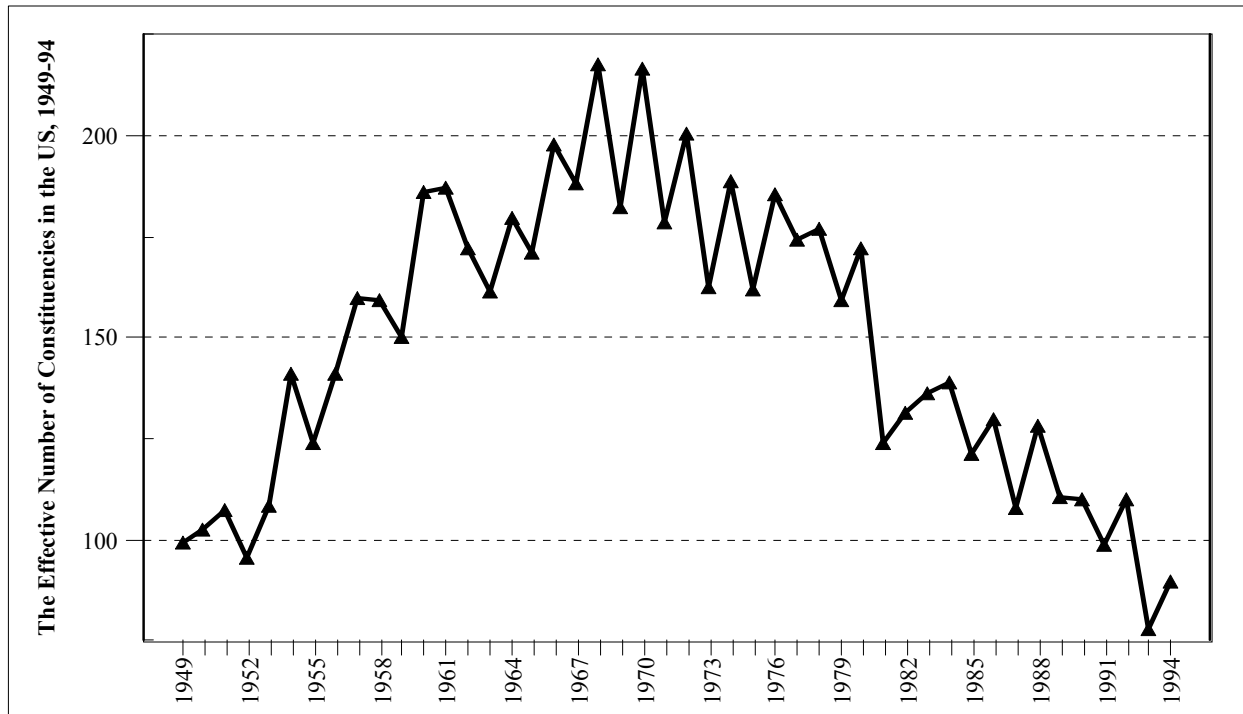


Figure 2: The Effective Number of Constituencies in the United States from 1949-1994.

Table 1 summarizes the estimation results. In all equations, the coefficients on changes and levels of  $ENoC$  are positive, as hypothesized, and the level/equilibrium relationship is significant at minimally the  $p < 0.06$  level. The change/momentum and level/equilibrium effects both obtain high significance in the final-consumption-as-a-share-of-GDP equation. Table 2 presents Wald joint-hypothesis tests of the significance of both variables in each equation and across pairs of and across all equations. These joint significances are somewhat less impressive, but the effects are still nearly significant in each equation; they are strongly significant in equation 2, in equations 1 and 2 as a pair, and in all equations as a set. However, the pair of coefficients are not significant in equations 3 and 4 as a pair. Thus, the effective number of constituencies clearly relates positively to U.S. federal-government final-consumption-spending as a share of GDP (FC-GDP); some, but less robust, evidence of positive relationships with final consumption as a share of total expenditures and with non-transfers spending as a share of either GDP or total expenditures also emerge.

**Table 2: Government Spending in the U.S. 1956-94**

| DEP. VAR. —><br>INDEP. VAR. 9                        | Eqtn. 1<br>$\Delta$ (FC/TS)                           | Eqtn. 2<br>$\Delta$ (FC/GDP)                          | Eqtn. 3<br>$\Delta$ (NT/TS)                           | Eqtn. 4<br>$\Delta$ (NT/GDP)                          |
|--|---|---|---|---|
| Constant   | <b>-0.322</b><br>(.129) <sup>.014</sup>               | <b>+0.472</b><br>(.188) <sup>.014</sup>               | <b>+1.484</b><br>(.810) <sup>.070</sup>               | <b>+1.925</b><br>(.434) <sup>.000</sup>               |
| $\Delta$ DepVar <sub>t-1</sub>                       | <b>+0.039</b><br>(.115) <sup>.733</sup>               | <b>+0.248</b><br>(.090) <sup>.007</sup>               | <b>+0.196</b><br>(.076) <sup>.012</sup>               | <b>+0.157</b><br>(.061) <sup>.011</sup>               |
| DepVar <sub>t-1</sub>                                | <b>-0.207</b><br>(.076) <sup>.733</sup>               | <b>-0.382</b><br>(.091) <sup>.0001</sup>              | <b>-0.133</b><br>(.080) <sup>.101</sup>               | <b>-0.371</b><br>(.076) <sup>.000</sup>               |
| $\Delta$ GDPpc Growth                                | <b>-0.089</b><br>(.183) <sup>.631</sup>               | <b>-0.758</b><br>(.200) <sup>.0003</sup>              | <b>-1.962</b><br>(.667) <sup>.004</sup>               | <b>-1.091</b><br>(.317) <sup>.0000</sup>              |
| GDPpc Growth <sub>t-1</sub>                          | <b>-0.067</b><br>(.215) <sup>.756</sup>               | <b>-0.804</b><br>(.236) <sup>.001</sup>               | <b>-1.800</b><br>(.780) <sup>.025</sup>               | <b>-1.280</b><br>(.377) <sup>.001</sup>               |
| GDPpc <sub>t-2</sub>                                 | <b>+0.054</b><br>(.014) <sup>.0005</sup>              | <b>-0.036</b><br>(.017) <sup>.047</sup>               | <b>-0.160</b><br>(.082) <sup>.053</sup>               | <b>-0.189</b><br>(.043) <sup>.0000</sup>              |
| $\Delta$ CPI Inflation                               | <b>-8.53e<sup>-4</sup></b><br>(.001) <sup>.463</sup>  | <b>-0.003</b><br>(.001) <sup>.023</sup>               | <b>-0.011</b><br>(.004) <sup>.000</sup>               | <b>-0.006</b><br>(.002) <sup>.003</sup>               |
| CPI Inflation <sub>t-1</sub>                         | <b>-6.93e<sup>-4</sup></b><br>(.001) <sup>.545</sup>  | <b>-0.003</b><br>(.001) <sup>.010</sup>               | <b>-0.004</b><br>(.004) <sup>.323</sup>               | <b>-0.005</b><br>(.002) <sup>.011</sup>               |
| $\Delta$ Unemployment                                | <b>-1.84e<sup>-3</sup></b><br>(.004) <sup>.664</sup>  | <b>-0.009</b><br>(.004) <sup>.046</sup>               | <b>-0.059</b><br>(.016) <sup>.0003</sup>              | <b>-0.029</b><br>(.007) <sup>.0001</sup>              |
| Unemployment <sub>t-1</sub>                          | <b>-2.67e<sup>-3</sup></b><br>(.002) <sup>.158</sup>  | <b>-1.23e<sup>-4</sup></b><br>(.002) <sup>.955</sup>  | <b>+0.004</b><br>(.008) <sup>.639</sup>               | <b>-0.006</b><br>(.004) <sup>.142</sup>               |
| $\Delta$ Partisan CoG                                | <b>+1.10e<sup>-3</sup></b><br>(.005) <sup>.823</sup>  | <b>+0.009</b><br>(.006) <sup>.105</sup>               | <b>+0.022</b><br>(.019) <sup>.268</sup>               | <b>+0.011</b><br>(.009) <sup>.220</sup>               |
| Partisan CoG <sub>t-1</sub>                          | <b>-4.73e<sup>-3</sup></b><br>(.004) <sup>.214</sup>  | <b>-0.004</b><br>(.004) <sup>.400</sup>               | <b>-0.004</b><br>(.012) <sup>.736</sup>               | <b>-0.007</b><br>(.006) <sup>.263</sup>               |
| $\Delta$ Pre-Election-Year Indicator                 | <b>+0.014</b><br>(.009) <sup>.124</sup>               | <b>-0.008</b><br>(.010) <sup>.402</sup>               | <b>-0.042</b><br>(.034) <sup>.220</sup>               | <b>-0.018</b><br>(.016) <sup>.272</sup>               |
| Pre-Election-Year Indicator <sub>t-1</sub>           | <b>+0.025</b><br>(.015) <sup>.103</sup>               | <b>-0.006</b><br>(.016) <sup>.719</sup>               | <b>-0.051</b><br>(.054) <sup>.348</sup>               | <b>-0.025</b><br>(.026) <sup>.330</sup>               |
| $\Delta$ Effective Number of<br>Constituencies       | <b>+6.55e<sup>-5</sup></b><br>(.0001) <sup>.544</sup> | <b>+2.80e<sup>-4</sup></b><br>(.0001) <sup>.020</sup> | <b>+4.86e<sup>-4</sup></b><br>(.0004) <sup>.224</sup> | <b>+1.85e<sup>-4</sup></b><br>(.0002) <sup>.330</sup> |
| Effective Number of<br>Constituencies <sub>t-1</sub> | <b>+1.91e<sup>-4</sup></b><br>(.0001) <sup>.068</sup> | <b>+3.54e<sup>-4</sup></b><br>(.0001) <sup>.003</sup> | <b>+7.73e<sup>-4</sup></b><br>(.0004) <sup>.048</sup> | <b>+3.21e<sup>-4</sup></b><br>(.0002) <sup>.069</sup> |
| Adj. R <sup>2</sup> (Std. Err.)                      | .0527 (.0103)   | .3299 (.0115)   | .3789 (.0383)   | .2736 (.0183)   |
| Durbin-Watson  | 2.2586  | 1.3577  | 1.722   | 1.4041  |

NOTES: Equations estimated by seemingly unrelated regressions (SURE) in E-Views ©QMS version 2.0. Each has 39 observations and 16 independent variables. Coefficients in **bold**, and standard errors in *italics* with p-levels from 2-sided t-tests <sup>superscripted</sup>.

**Table 2: Joint Hypothesis Tests of the Significance of ENoC**

| Null Hypothesis         | Equation  |           |           |           |           |           |           |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                         | 1         | 2         | 3         | 4         | 1 & 2     | 3 & 4     | All       |
| $\$_{14} = \$_{15} = 0$ | p ≈ .1818 | p ≈ .0037 | p ≈ .1155 | p ≈ .1726 | p ≈ .0031 | p ≈ .3534 | p ≈ .0003 |

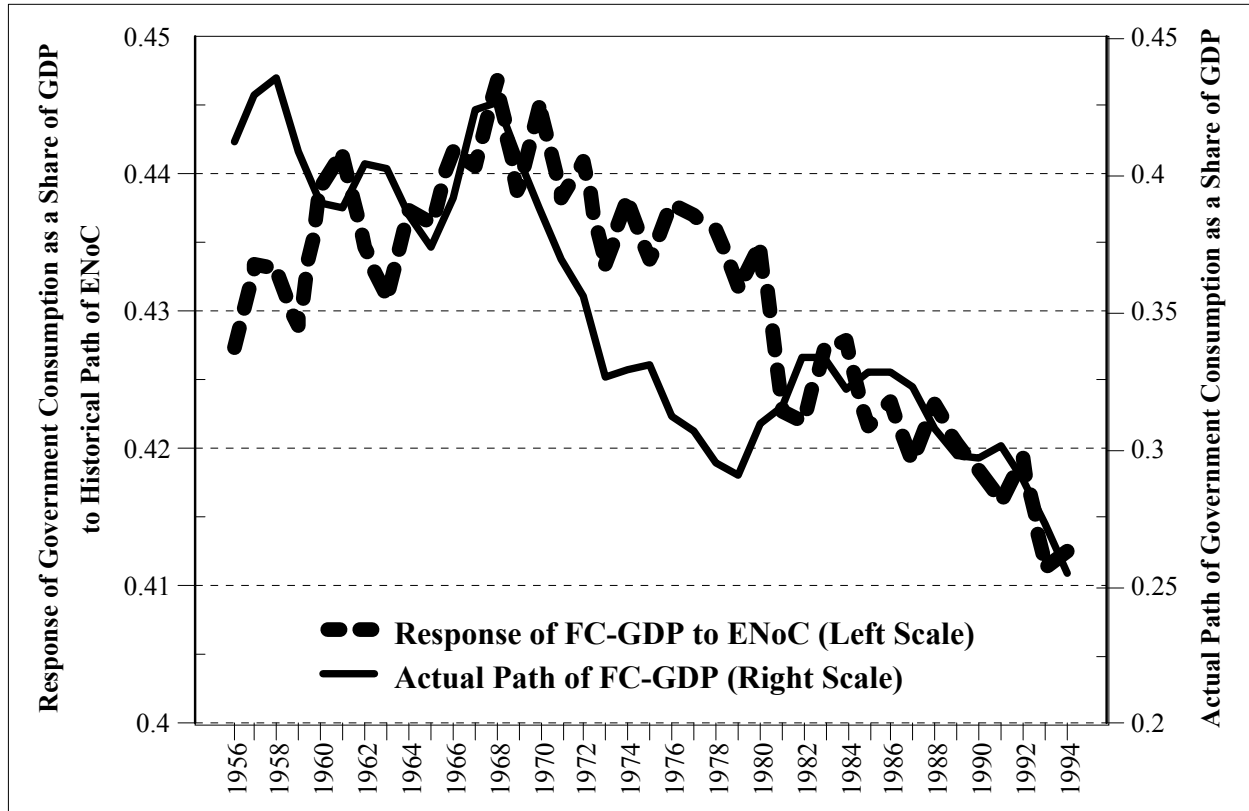


Figure 3: Estimated Response of FC-GDP to the Actual Path of ENoC in the U.S. from 1956-94.

Let us analyze substantively the magnitude of the estimated relationship from Model 2, which relates *ENoC* to *FC-GDP*. Figure 3 plots the estimated response of *FC-GDP* (federal-government final-consumption as a share of GDP) to the actual path of the U.S. *effective number of constituencies* 1956-94. The simulation assumes *FC-GDP* was in long-run equilibrium at its 1955 level of 42.4% of GDP and that all other variables remain constant. The actual path of *FC-GDP* is plotted on the same graph against the right axis for comparison. Generally, the estimated response tracks the peaks and troughs of government consumption quite well, and the downward trend since about 1966 seems to have coincided with a rise in legislative party-unity over that time and the corresponding rise in the number of effective constituencies. However, the right and left scales differ considerably, so the magnitude of the estimated effects are only about 25% those of the actual government-consumption path. That is, very crudely, changes in the effective number of constituencies over that period may

account for about 1/4 of the developments since 1955 in federal-government final-consumption.

## V. CONCLUSIONS: EXTENDING THE “EFFECTIVE NUMBER OF CONSTITUENCIES” NOTION

While we consider the evidence presented above far more suggestive than conclusive, our conceptualization of the *effective number of constituencies* seems, at very least, to have provided a means to test the *WSJ* model for the U.S. case. The evidence from the postwar history of U.S. fiscal policy seems to support the argument and suggests that as much as a quarter of the rising then falling path of U.S. federal-government final-consumption-expenditure might be attributable to a parallel path in the effective number of constituencies, which, in turn, stemmed from a mirror-image decline then rise in legislative party-unity. However, the argument and evidence above also suggest that the *effective-constituencies* concept in general and, more narrowly, the argument relating it to distributive politics and pork-barrel spending might be usefully extended in a number of theoretically important ways. The following considerations are additional to the extensions already mentioned in Section III.

First, we conceptualized the effective constituency to which policymakers respond as a simple continuum from electoral districts at most disaggregated to the sets of interests supporting political parties at most aggregated. One may alternatively conceive the endeavor as our attempt to describe the dimensions covered by possible bases of representation. From that broader view, we have spanned partisan and geographic bases but may have omitted others such as, perhaps, interest-group or social-cleavage-group representation. We suspect our partisan endpoint subsumes these possibilities; i.e., we conceive of “partisan” representatives as representing the set of interests that support the party, which likely includes interest and social groups. The sufficiency of a unidimensional continuum, though, is an empirical matter. Representatives may, e.g., come to represent particular industrial interests in a way that cross-sects rather than comprises their partisan affiliations. Much comparative-



politics research has suggested the existence of such *corporatist* bases of representation in many developed democracies (e.g., Berger 1984; Lijphart 1974, 1975, 1977, 1984; see Gallagher *et al.* 1995: ch. 14 and Lane and Ersson 1994: ch. 7 for textbook treatments).

Our convex-combination approach remains useful in testing such propositions—e.g., that industrial sectors act as bases of representation distinct from partisanship and geography. In that case, we would advise first estimating the effective number of industries (I) in the political economy using some standard approach: e.g.,  $i = \sum_j z_j^2^{-1}$  where  $z_j$  is the  $j^{\text{th}}$  industry's share of employment or output. Then, the effective number of constituencies,  $c$ , would be given, as before, by some convex combination of the numbers of parties,  $p$ , of electoral districts,  $d$ , and, now, also of industrial sectors,  $i$ . Again, a linear weighted-average would be simplest, but party unity,  $u$ , no longer suffices to give the weight. Substantively, one possibility would be to adopt some measure of the degree of corporatist representation,  $cr$ , in a society from that literature; our concept of the effective constituency,  $c$ , then extends naturally:  $c = cr \cdot i + (1 - cr) \cdot [u \cdot p + (1 - u) \cdot d]$ . Another possibility would be to estimate a country-by-country constrained nonlinear least-squares regression of some distributive-activity measure on the effective number of constituencies entered thus:  $Y = \dots + \beta \cdot [a \cdot i + b \cdot p + (1 - a - b) \cdot d] + \dots$ . Then,  $\beta$  is the estimated impact of the effective number of constituencies on  $Y$  and  $a$ ,  $b$ , and  $1 - a - b$  are the estimated degrees of corporatist, partisan, and geographic representation, respectively, in that country. Also,  $b/(1 - a)$  is the estimated degree of party unity in the country assuming the causal role attributed to party unity here is correct. This approach effectively assumes the degrees to which representation operates in various forms and of party unity (i.e.,  $a$ ,  $b$ , and  $1 - a - b$ ) are some country-specific constants to be estimated. Alternatively, one could model  $a$  and  $b$  theoretically as suggested above. Such a project remains for future research, but the discussion hopefully amply illustrates the

potential for usefully extending the *effective constituency* concept.

The argument and evidence presented here suggest still further considerations related to the *effective number of constituencies* in general and/or to the political economy of distributive politics and pork-barrel spending in particular. In section three, we argued that lesser partisan polarization and greater district-level electoral-competitiveness likely increase the relative prominence of distributive politics and spending. We suggested there how one might model such propositions empirically. We would now add that aggregate-level electoral-competitiveness, characteristics of the electoral system (see, e.g., Carey and Shugart 1995), and the number and relative importance of various levels of government (national, regional, local, etc.) may play roles as well.

Holding constant the number of parties and of electoral districts, and the degrees of party unity, polarization, and district-level electoral-competitiveness; national-level competitiveness likely increases distributive spending as well. Consider, again, two hypothetical UK's, alike in all the above respects; assume specifically that each electoral district is expected to produce a 55-45 split in the next election. In one UK, though, all the 55-45 splits favor Labour, and, in the other UK, half favor Labour and half favor Tories. The marginal value to the incumbent of district projects is much greater in the second UK, and so we should expect greater distributive politics and spending there. The logic is a simple extension of Tufte (1978) and follows directly from Schultz's demonstration of a similar effect—namely that pre-electoral manipulation of transfer payments occurs only to the degree the coming election is expected to be close—in the actual UK (1995). Empirical exploration of this hypothesis, relating it specifically to distributive politics and spending, awaits future research.

Furthermore, Carey and Shugart (1995) summarize the incentives deriving from the electoral system for representatives to cultivate a personal vote, which here would imply greater emphasis on

district-oriented distributive overemphasis, by four aspects of the system: (i) party-leader control over the ballot, (ii) vote pooling, (iii) type and number of multiple votes, and (iv) district magnitude.<sup>24</sup> Once again, one can model  $u$  in our *effective-constituency* concept to reflect these arguments directly (see above), and we intend to do so in the future as we extend this project comparatively.

The number and relative importance of various levels of government clearly enter also. In a federal system, e.g., two considerations suggest that decentralization of fiscal decision-making to local governments might mitigate the tendency toward pork-barrel overspending that *WSJ* hypothesized. First, especially if federalism includes transferal of some fiscal authority to sub-national governments, decentralized decision-making may reduce the effective fiscal authorities' ability to externalize the costs of their locally desired spending to larger, aggregate decision-making units (see, e.g., Del Rossi and Inman 1999, Jones and Sanguinetti 2000). At the regional level, the ability to concentrate benefits relative to costs diminishes simply because regions are both smaller geographically and less diverse in the interests they encompass. Second, decentralized fiscal-decision-making may induce a "race to the bottom" as localities compete for investment by lowering taxes (Peterson 1990).<sup>25</sup> I.e., whatever the impact of decentralized fiscal-decision-making on the  $1/n$  problem, it also introduces a coordination problem among regions that operates toward reducing distributive overspending. However, by reifying region and geography politically, federalism might also raise the salience of local relative to national concerns among the electorate and so among policymakers, which suggests larger pork barrels. Finally, even in unitary systems, one can distinguish between stronger unitary-states where few political decisions occur at the local level and weaker ones where much political activity is local, including some cases considerable revenue-generation. One might well expect the relative weight

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<sup>24</sup> On the last, see also Long (2002) and the above.

<sup>25</sup> Cf. Sharpe (1988), who argues to the contrary that spending increases with decentralization because resistance to tax increases is lower at the sub-national than the national level.

of distributive politics and, thereby, distributive spending to rise the weaker the central state in this respect. These considerations, and the question of how they interact, remain open issues, but ones again that may be addressed using our theoretical and (proposed) empirical strategy.

The advantages of our concept of the effective number of constituencies lie in how it adds theoretical and empirical scope to the *WSJ* logic of  $1/n$  in distributive politics and spending. The theoretical and empirical potential of the *effective-constituency* concept, we believe, extends beyond this preliminary exposition and evidence to set an interesting, and what we hope is a fruitful, agenda for future research.

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