1. Veto-Actor, Common-Pool, and Bargaining Effects of Multiple Policymakers: A Synthetic Theoretical Discussion

This paper discusses the multifarious effects of multiple policymakers – veto-actor, common-pool, and bargaining-compromise effects – seeking to distinguish as sharply as possible from the respective theories the specific aspects of multiple policymakers that are to affect outcomes and the specific manner in which those aspects are to affect outcomes so that, empirically, we can operationalize measures and specify models of policymaking that reflect these theorized aspects and manners precisely enough to afford accurate estimation of these multiple effects distinctly.

1.1. Veto Actors: Deadlock, Delayed Stabilization, and Policy-Adjustment Retardation

In a tour de force of modern political-science theory, George Tsebelis introduced and elaborated (see, especially, 1995b; 1999; 2000; 2002) the powerful veto-actor approach to the study of comparative politics and policymaking. He and coauthors have extensively explored and substantiated this approach empirically, especially in the contexts of bicameral and European Union policymaking. Later work adds conditional agenda-setters, the theoretical complement of veto actors. Agenda-setting power depends on (1) the size of the winset of the status quo, \( W(SQ) \), which is inversely related to the number and/or polarization of veto actors, (2)
argument of veto-actor theory is that the number and/or interest-ideological polarization of policymaking actors whose approval is required to alter the policy status quo – i.e., of veto actors – reduces the probability of (agreement upon enacting) policy change and/or the (maximum possible) magnitude of policy change. That is, as the size of the winset of the status quo, \( W(SQ) \), shrinks, which it generally does as the number and/or polarization of veto actors increases (see below, and, for fuller elaboration, Tsebelis 2002), the range of possible policy-movements from the status quo shrinks. This yields an empirical prediction of a form illustrated in Figure 1 (Tsebelis 2002, 33, Figure 1.7). As the winset of the status quo expands (i.e., the number and/or polarization of veto actors declines), veto-actor theory predicts a greater range of possible policy-changes, suggesting that the mean or expected policy-change increases and, perhaps, that the variance of policy and policy-change grows. Conversely, as the winset shrinks (i.e., the number and/or polarization of veto actors expands), the theory offers an increasingly deterministic prediction of smaller and smaller policy-change.

The dispersion of policymaking authority across multiple actors, especially insofar as those actors preferences are polarized, thus: privileges the status quo, thereby retarding policy-adjustment rates, and reduces the range of possible policy-changes (first- and second-moment implications, respectively, as Figure 1 illustrates). The reduced range of possible policy-changes may also imply smaller expected policy-change and/or variance of policy change (see note 2). Regarding deficits and debts, e.g., Roubini and Sachs (1989a; 1989b) argue and find evidence that more fractionalized and polarized governments respond less and/or less rapidly to macroeconomic shocks requiring fiscal adjustment. Alesina and Drazen (1991) and Drazen and Grilli (1993) formalize and generalize this intuition to delayed stabili-

the centrality of the agenda-setter’s ideal point within those of the veto actors, and (3) the institutional provisions that permit some to make proposals and prevents others from amending them (Tsebelis and Aleman 2005).

2 Only suggesting greater mean and, possibly, variance of policy because, in its base form, the theory does not predict where within the winset policy will actually end, only that it will lie somewhere within the winset. Deriving mean and variance predictions requires knowledge of the identity and location of agenda setter(s) and those with amendment power and of the status quo relative to all these veto actors’ ideals. Without such information, predictions regarding the mean and variance of policy-change only emerge if one assumes that each case analyzed amounts to a random draw from those possible conditions (i.e., possible locations and allocations of proposal and amendment powers and status quos) so a large sample of cases will average across possible values of these conditions. If one assumes further that the distributions from which these conditions are drawn are symmetric, then the expected policy-change is the mean of the bounds of \( W(SQ) \) as Figure 1 seems to suggest. Variance predictions likewise require further, more-restrictive assumptions about the distribution of these other conditions, although symmetry specifically is not required.
The Multiple Effects of Multiple Policymakers

Spolaore (1993, 2004) offers fuller theoretical consideration, evaluating the relative policy-responsiveness of single-party governments against multiparty-coalition governments or systems of institutionally divided policymakers with checks and balances, which latter require consensus among the multiple policymakers. Spolaore’s model finds that single-party governments tend to respond too much, too quickly, and too often, whereas multiple-policymaker governments tend to respond too little, too late, and too rarely.

Initially, empirical support for these propositions regarding fiscal policy, specifically public deficits and debts, was mixed (for: Roubini and Sachs 1989a; 1989b; Grilli et al. 1991; Alesina and Perotti 1995; Heller 1997; 2001; mixed: Edin and Ohlsson 1991; against: DeHaan and Sturm 1994; 1997; Borelli and Royed 1995; DeHaan, Sturm, and Beekhuis 1999). However, most of these studies failed to model well empirically the core theoretical insight of the veto-actor argument. Typically, these models merely included government fragmentation and/or polarization measures as one in a set of linear-additive determinants of policy rather than as measures of political conditions that modify (specifically: that dampen) policy adjustment-rates and, perhaps, reduce the magnitude of policy-responses to other factors and/or reduce policy variance. Franzese (2002b), also analyzing deficits and debt, found that specifications properly reflecting these delayed-stabilization/adjustment-retardation implications yield strong empirical support that government fragmentation/polarization retards policy-adjustment rates and, specifically, that empirical measures of fragmentation/polarization that follow Tsebelis’ veto-actor framework to count raw numbers of policymakers, rather than effective (i.e., size-weighted)
numbers, and to measure the range of those veto actors’ preferences, rather than using (size-weighted) variance or standard deviation measures, statistically dominated. I.e., measures based on veto-actor conceptions of unanimity among multiple, polarized policymakers being required to change policy outperformed measures based on weighted-influence conceptions of policy-adjustment processes. In other fiscal- or monetary-policy contexts, Alt and Lowry (1994; 2000; 2003), Lowry, Alt and Ferree (1998), Treisman (2000), Lowry and Alt (2001), Hallerberg (2002), Basinger and Hallerberg (2004), Tsebelis and Chang (2004), and others also find strong support for the core veto-actor propositions – that greater numbers and/or polarization of veto actors retard policy-adjustment, delay stabilization, reduce the magnitude and/or frequency of policy change – in empirical models properly specified to reflect one or more of those propositions.

In sum, veto-actor theory makes no prediction about levels of policies (much less of outcomes); such predictions require information about the identity, powers, and preferences of agenda setters (i.e., proposers) and amenders and about the location of status quos in specific instances, across which conditions veto-actor theory aims to generalize. Rather, veto-actor theory regards the probability, pace, or magnitude of policy change: greater numbers and/or polarization of veto actors retard policy adjustment, delay stabilization, and reduce the frequency and/or magnitude of policy change. Empirical models specified correctly to reflect these propositions, rather than relating policymaker fractionalization and/or polarization to policy levels, generally find strong support in fiscal-policy and other policymaking contexts. Moreover, the veto-actor view of policymaking with multiple policymakers rests explicitly and emphatically on unanimity and so rejects weighted-influence notions of policymaking. By definition, veto actors are actors whose agreement is essential to change policy, so all veto actors must agree for adjustment from the status quo to occur. Accordingly, the appropriate empirical measures of policymaker fractionalization from this view are raw, and not effective (i.e., size-weighted), numbers of veto actors; and the appropriate measures of policymaker polarization are absolute maximum ranges between the extremes, and not variances or standard deviations (being size-weighted measures), of those veto actors’ preferences. Finally, veto-actor theory generally emphasizes polarization over fragmentation as crucially affecting the net resistance to policy change, although both matter in multidimensional policymaking³.

³ In unidimensional contexts, in fact, only polarization, and not fractionalization (numbers), of veto actors matters.
1.2. Collective Action and Common Pools in Fiscal Policy with Multiple Policymakers

Other scholars, however, have stressed various collective-action and common-pool issues that arise when multiple actors share policymaking authority. Weingast, Shepsle, Johnsen (1981, WSJ from now on), e.g., ask why representative legislatures commonly pass budgets that manifestly overemphasize distributive or pork-barrel projects. Their answer stresses the division of democratic polities into electoral districts, noting that all democratic representation involves some «districting mechanism that divides the economy into $n$ disjoint political units called districts» (ibidem, 643), and defining distributive policy as «a political decision concentrating benefits in a specific geographic constituency and finances expenditures through generalized taxation» (ibidem, 644). They assume further that each district elects one representative to the collective policymaker, the legislature. By these definitions, and assuming these legislators/policymakers follow some universalist log-rolling norm, WSJ show that overemphasis on distributive policies, i.e., on pork-barrel projects, is increasing in the number of electoral districts, i.e., of policymakers (being the same things under these model assumptions).

To elaborate the logic more specifically, first define pork-barrel/distributive projects as those with benefits concentrating in district $i$ (for analytic clarity, entirely so); then stipulate, plausibly, that benefits increase with project size or cost, but with diminishing returns. Finally, let the costs of each project accrue more uniformly across all $n$ districts (again, for analytic clarity: entirely so). Then, the optimal project-size from the individual representative’s view maximizes the net benefit by equating the marginal benefit to that one district, which decreases in total benefit, i.e., in project size (cost), with the marginal cost to that one district, which is $1/n$. Thus, legislators’ incentives to overspend on distributive projects increase proportionately with the number of districts.

Individual legislators do not pass policies, though; the collective legislature does. WSJ argue that legislators adopt universalistic log-rolling norms where all legislators vote for all distributive bills («I’ll vote for yours; you vote for mine»), so legislatures pass the district-by-district optimal, yielding pork-barrel overspending proportional to (log) the number of districts. In other words, under universalism, total public revenue is a common pool for all $n$ representatives (policymakers), which they overexploit proportionally to $n$ in distributing benefits. In majority-rule legislatures, though, absent log-rolling, universalistic norms, or side-payments, all pork-barrel projects would lose legislative votes by a margin of $(n-1)$ to 1 because only receiving districts derive net benefits, whereas all others only pay costs4. As

---

4 Only projects that inherently, i.e., without side-payments, produce net benefits for at least a majority of districts would pass, yielding far less overspending – indeed, likely under-spending – and not necessarily proportional to $n$. 

Riker (1962) showed, however, coalition-building strategies for distributive policy in majority-rule legislatures will optimally, opportunistically entail side-payments sufficient to induce bare-majority support, i.e., minimum-winning coalitions (MWC), meaning that \((n-1)/2\) other legislators must be paid at least their \(1/n\) of the cost. This also implies overemphasis on pork directly proportional to the number of districts, albeit at a notably lesser rate than under universalism\(^5\). Under universalism, total revenue is a common-pool for the whole \(n\)-member legislature that each legislator may exploit unilaterally, so project benefits need only exceed \(1/n\) of costs to pass. Under MWC majoritarianism, project benefits must suffice to provide \(1/n\) to the agenda setter and to the \((n-1)/2\) other legislators receiving side-payments, so the pool of revenues is effectively common to one-half-plus-one of legislators. Therefore, common pool problems manifest under MWC decision-making as under universalistic and they worsen with \(n\) in both cases, albeit at the lesser rate under MWC than under universalism. Actual democratic policymaking likely operates somewhere between pure universalism and MWC-majoritarianism\(^6\).

In sum, distributive politics generally and pork-barrel spending specifically rise 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 (see note 6). Thus, as the numbers of policymaking

\(^5\)Specifically, log-rolling legislatures pass all projects with \(\text{Benefits} > \text{Costs}/n\); legislatures with majority-rule and side-payments pass only projects with \(\text{Benefits} > [(n+1)/2n] \times \text{Costs}\). I.e., half of \(n\) must get at least \(1/n\), so projects would always require \(\text{Benefits}\) at least half of \(\text{Costs}\), but, because \(n\) must be an integer, the minimum amount by which \(\text{Benefits}\) must exceed one-half \(\text{Costs}\) declines in \(n\): obtaining support from 3 of 5 is more costly than 4 of 7, etc. Essentially, the “plus one” of the “one-half plus one” becomes cheaper to buy as \(n\) increases (see Ehrlich 2007).

\(^6\)Indeed, later scholarship deduced several reasons to expect supermajoritarian legislative decision-making: uncertainty over future membership in the MWC, e.g. (Luebbert 1986; Strom 1990). Baron (1991) showed that, while universalism on distributive bills is unlikely, over-provision increasing in \(n\) yet prevails, albeit to a degree mitigated toward the MWC minimum by procedural openness. Similarly, McCarty (2000a) and Bradbury and Crain (2001) argue, respectively, that presidents or bicameralism dampen the \(1/n\) effect (again toward the MWC minimum), by – I infer – adding a legislative step in which veto or amendment may occur. Carruba and Golden (2000) generalize these and similar results to show that, in fact, all coalitions from minimum-winning to universal may form, depending on amendment openness and other rules. Franzese and Nooruddin (2004) add that voters’ rational ignorance may leave costs too small for voters in non-receiving districts to notice while receiving-district voters readily appreciate their much larger net benefit, which would allow legislators more easily to sustain universalist or super-majoritarian pacts to support each other’s pork-barrel bills by cooperative solutions to their iterated prisoners-dilemma (Axelrod 1984) and by reducing the side-payments legislators demand to support others’ pork-barrel projects in others’ districts. In the limit, rational ignorance revives universalist scenarios of district-by-district maximization of pork-barrel benefits.
The Multiple Effects of Multiple Policymakers

players increase, not only does the potential for deadlock and policy-adjustment retardation increase, as veto-actor theory stresses, but collective-action and common-pool problems also intensify and, thereby, the bite of the law of $1/n$, as it is sometimes called, increases.

Such common-pool issues manifest myriad ways in multi-actor policy-making. For example, germane to the empirics considered below, Velasco (1998; 1999; 2000) shows that a common-property issue arises with respect to the intertemporal totality of public revenues, meaning that policymakers’ incentives regarding deficits and debts also follow the law of $1/n$, with over-drawing (i.e., over-borrowing or excessive deficits) directly proportional to $n$ equal-sized actors:

Two distortions are present if $n$ agents share the stock of the resource. First, each agent uses the whole stock and not one-$n$th of it as the basis for consumption and spending decisions. [This is WSJ’s static law of $1/n$.] Second, the return on savings as perceived by one agent is the [...] rate of return...minus what the other $n-1$ agents take out. Hence...each agent undersaves (overspends in the case of fiscal policy, overexploits in the case of natural resources). This means that deficits are incurred and debts accumulated even [without economic-welfare] incentive... [This is the new intertemporal law of $1/n$.] In short, the model exhibits a «deficit bias» (Velasco 2000, 108).

Similarly, Peterson and co-authors (1995, with Rabe and Wong 1986; with Rom 1991), Treisman (1999ab), Rodden (2006; with Eskeland and Litvack 2003) show, in very different substantive contexts and with varying emphases, how federalism, by endowing multiple actors with fiscal authority, creates several common-pool problems. For example, inter-jurisdictional competition (with high factor mobility) makes a common pool of investment resources, and so induces over-fishing; there, excessively low taxes. Contrarily, a central government that explicitly promises to serve as lender-of-last-resort for subnational jurisdictions, or is held implicitly to do so, creates another common pool – of the federal guarantee and the funds backing it – that induces excessive borrowing (i.e., either or some combination of excessively low taxes and/or high spending) – by the subnational units. Others have stressed similar common-pool issues in the European Union context, especially regarding the single currency, where the ECB becomes the guarantor of last-resort and the member-countries the fishers from its common pool of reserves and/or credibility (see, e.g., Calmfors 1998; Ozkan et al. 1997; Sibert 1999; Sibert and Sutherland 2000).

The severity of such common-pool problems increases in the number of policymakers but diminishes as some (one or more) of these policymakers become larger-than-equal shares of the whole, i.e., as some actor(s) become(s)
more encompassing in the Olsonian (1965) sense. In the limit, one wholly encompassing policymaker internalizes all of any project’s costs, so benefits-costs ratios must exceed one (i.e., the utilitarian criterion: Benefit > Cost) for proposals to pass. More generally, policymakers representing constituencies comprising greater shares of their nation’s fisc will internalize more of the common pool: Implication 5 of Olson’s logic of collective action (1982, 47-53). Therefore, when counting actors to gauge the severity of common-pool problems, fiscal policymakers representing constituencies comprising, for instance, 49%, 49%, and 2% of the fisc are much closer to n=2 than to n=3. In other words, the n in the quote above, in the law of 1/n, and in which collective-action and common-pool problems worsen, is properly the size-weighted or effective number of policymakers, unlike the properly unweighted n in veto-actor theory.

Collective-action and common-pool effects are as endemic to multiple-policymaker contexts as are veto-actor effects, and, like the policy inaction of the latter, collective-action/common-pool problems need not always harm, and could even benefit, society. Collective-action problems among policymakers can be boons for citizens. Goodhart (2002), for example, explains how incumbents suffer a collective-action problem in responding to their shared (common-pool of) incentives to electioneer (i.e., to manipulate economic policies for opportunistic, electoral effect; see Franzese 2002a). The greater the number of policymakers with a hand in policymaking, the more voters must divide credit (blame) for anything delivering benefits (costs) among those incumbents (see also note 7). As the size-weighted number (i.e., the effective number) of incumbents grows, their incentives to electioneer diminishes, and so opportunistic policy-manipulation timed to the electoral calendar (Tufte 1978) fades. An initial empirical exploration below focuses on this implication of common-pool mitigated electoral cycles. More generally, though, for elected, representative policymakers, these collective-action/common-pool problems (increase in their effective number and) induce over-indulgence (common-pool over-fishing) in policies that would bring popular discredit and (collective-action) under-investment in policies that would earn popular credit.

7 This and later statements choose the generic term, fisc, advisedly because, for the specific common-pool problem in fiscal policy emphasized by WSJ and Velasco to emerge in the precise form argued, the (unequally sized) hypothetical constituencies must each comprise its same share on the revenue and expenditure side of the fisc. Mismatch between constituency representation on the expenditure and the revenue sides of fiscal policymaking can exacerbate these over-spending/over-borrowing problems, mitigate them, or even over-compensate for them to induce problems of excessively (suboptimally) high taxes or low spending or borrowing. See also Primo and Snyder (2008).
Thus, at least three aspects of the collective-action/common-pool effects of the dispersion of policymaking authority may help distinguish them theoretically and empirically from the veto-actor effects of the same dispersion. First, common-pool effects regard policy levels more directly, whereas veto-actor effects strictly relate to policy-adjustment (policy-change) rates, magnitudes, and variability. Second, whereas veto-actor effects arise from government fragmentation and polarization, i.e., from both numbers of and dissension among policymakers, common-pool effects derive more exclusively from fragmentation. Third, collective-action/common-pool effects increase with size-weighted numbers of policymakers, whereas veto-actor effects increase with raw numbers and ideological/interest spread – i.e., absolute distance/spanned between the furthest extremes – of policymakers (Franzese 2002b). Size-weighted numbers are effective numbers; size-weighted polarization measures include standard deviations or variances; raw numbers are counts; and the total ideological/interest spread is called the (maximum, absolute) range.

1.3. Delegation, Bargaining, and Compromise among Multiple Policymakers

Other scholars highlight delegation, bargaining, and compromise involved in multiple-actor policymaking. The most advanced theoretical and empirical work in this vein analyzes extensive-form games designed to illuminate particular substantive contexts, often the U.S. Congress. These extensive-forms model the specific institutions and rules governing strategic policymaker rela-

8 I.e., as policymakers’ common-pool problems worsen, the levels of distributive spending, or of borrowing, etc., increase, and the levels of electioneering diminish. As the numbers (and polarization) of veto actors increase, the rate, probability, and/or magnitude of policy adjustment or change diminishes, and policy volatility or variance may increase. Relatedly, the predicted common-pool effects of government fractionalization include a policy direction, a positive sign for public bads and a negative sign for public goods; the veto-actor effects of fragmentation and polarization do not.

9 Interest heterogeneity can complicate collective action, but this is different from exacerbating common-pool issues. The former statement implies delays or difficulties in taking collective action, more similarly to veto-actor effects; the latter implies over-fishing or under-investment effects on collectively implemented action, i.e. a level effect.

10 In one dimension, range is the distance (length) farthest-left-to-right among policymakers; in multiple dimensions, range is the area (2D), volume (3D), or hyper-volume (4D+) of the upper-contour set (i.e., of the figure drawn by connecting the outermost) of the policymakers’ ideals. These last three depend on fragmentation and polarization both, so, as noted above, in multiple dimensions, fragmentation as well as polarization engenders veto-actor effects.
tions in particular contexts, and, indeed, these micro-level specificities tend to receive central emphasis. McCarty and Poole (1995) and McCarty (2000b), for example, are archetypal explicit, extensive-form theoretical models reflecting specific rules and properties of US legislative and legislative-executive bargaining\(^{11}\), and empirical models designed to evaluate those specific forms. Huber and Lupia (2001) and Huber and McCarty (2001), e.g., do likewise for parliamentary bargaining\(^{12}\); as do Alt and Lowry (1994; 2000; 2003), Lowry et al. (1998), and Lowry and Alt (2001) for US-state legislature-executive bargaining. Snyder et al. (2005) similarly analyze bargaining in weighted-voting scenarios, their substantive and empirical application being parliamentary-government formation and policymaking. In a similar approach, Kiewiet and McCubbins (1991), Bawn (1995), Epstein and O’Halloryn (1999), and Huber and Shipan (2002) analyze extensive-form theoretical models of specific bureaucratic-delegation venues (and motivations)\(^{13}\), and some of these include evaluations of correspondingly particularized empirical specifications.

Franzese (1999; 2002b; 2003) follows a less context-specific strategy, one that, in other words, relies less on the specifics of any particular extensive-form game. For comparativists especially, the approach may offer valuable analytical benefits, although it does necessitate greater abstractions and simplifications, and thereby sacrifices some of the theoretical and empirical precision of an extensive-forms approach. The aim here is to offer instead a simple, less context-dependent model of delegation and bargaining that might more easily travel, so to speak, over the many specific contexts across which the comparativist wishes to generalize theoretically and from which s/he seeks to infer empirically. Luckily, the conclusions of most extensive-form models of bargaining and delegation, including those in the works cited above, share some important and useful common features. Most crucially, if a set of policymakers with different preferences over policies or outcomes must agree for a result to take effect, then, in virtually any game of bargaining or delegation, the resulting status quo or new policy (the equilibrium) will be some convex combination\(^{14}\) of those policymakers’ prefer-

---

\(^{11}\) Baron and Ferejohn (1989) and Romer and Rosenthal (1978) are the foundational legislative and legislative-executive models in this tradition; Cameron and McCarty (2004) give excellent review of legislative-executive bargaining models.

\(^{12}\) Lupia and Strom (2004) is a very accessible survey of models of parliamentary bargaining in government formation; Huber and McCarty (2001) consider several alternative coalition decision-rules for their extensive-form game.

\(^{13}\) McCubbins et al. (1987) is the foundational work in this bureaucratic-delegation tradition.

\(^{14}\) A convex combination is a linear-additive function with coefficients, \(\pi_i\), such that \(0 \leq \pi_i \leq 1\) and \(\sum \pi_i = 1\); (at least rough) synonyms include weighted average and affine combination.
The Multiple Effects of Multiple Policymakers

It will lie, in other words, on the boundaries or somewhere within the set whose outer reaches are given by the policymakers’ ideal points. For two actors, the set of possible results is the line segment connecting (and including) their ideal points. In multiple dimensions with three or more actors, this possible set becomes the plane (area), volume, or hypervolume formed by connecting the outermost actors’ ideal points. In cooperative game theory, this *upper-contour set* of the policymakers’ ideal points is called the *core*. As just argued, and as Osborne and Rubinstein (1994) review, wide classes of non-cooperative bargaining games have equilibria within the *core*. The core is also central to veto-actor theory, especially Tsebelis (2002), which shared from a theoretical-modeling perspective the same aim – to *travel* analytically by minimizing extensive-form specificities – as stressed from an empirical-modeling view here.

However, the empirical approach to bargaining and delegation suggested in Franzese (1999; 2002; 2003) and pursued here takes one more-restrictive step than veto-actor theory, yet also one less step than extensive-form modeling: namely, the empirical implementation effectively assumes *Nash Bargaining*. In Nash Bargaining, the policy enacted by *n* players is a geometrically weighted-average of their optima, with weights reflecting their *relative bargaining-strengths*. Rubinstein (1982) showed that, although Nash Bargaining is cooperative game-theory, its outcomes coincide with the equilibria from several extensive-form, non-cooperative games of offers and counter-offers. In the specific non-cooperative, extensive-form models of delegation, veto, and legislative bargaining cited above, for example, the predicted outcomes do indeed lie between, i.e., are some convex-combination of, the ideal points of the bargainers. We may conjecture that, theoretically, the Nash Bargaining solution amounts to or approximates an averaging or

---

15 With full information (no uncertainty), the virtually is dispensable. With imperfect information/uncertainty, bargains can settle outside the extremes of the bargainers’ preferences, but, even then, settlements would lie at or within those extremes in expectation, which is more the concern for the strategy suggested here.

16 This set is called the *upper-contour set*; (at least rough) synonyms include convex set, affine set, or convex hull.

17 Again (see note 15), this assumes full information. Fully generally, the settlement could conceivably lie anywhere on or in the union of the bargainers indifference curves through the status quo, depending on the details of the specific game-context. Again, though, reasonable models generally predict expected outcomes within or at least near these sets.

18 *Nash Bargaining*, from cooperative game theory, should not be confused with the *Nash Equilibria*, the concept at the foundation of all non-cooperative game theory, of non-cooperative bargaining and delegation games.

19 However, many of these particular extensive-form, non-cooperative games seem to predict the bounds far more commonly than do cooperative-game bargaining models like Nash Bargaining and its non-cooperative analogues.
integrating over the range of specific micro-institutional details of extensive-form games of delegation and bargaining among multiple policymakers. If and insofar as this conjecture holds, bargaining among many players will tend, across a wide array of very specific circumstances, at least in expectation, to yield policy empirically at or near the weighted-average of the policymakers’ ideals, with the weights given by their bargaining powers. Indeed, in the most thorough-going comparisons of their kind to date, the contributions to Thomson et al. (2006), which offer multiple alternative power-index-weighted and extensive-form bargaining-models of E.U. decision-making, collectively demonstrate at least the empirical comparability, and more-often the superiority, of simple Nash-bargain-style weighted-compromise models relative to these specific extensive-form alternatives (see, especially, Achen 2006). In sum, in addition to distinct and distinctly modelable veto-actor and common-pool effects (policy-adjustment retardation, and overfishing or underinvestment, respectively), multiple policymakers have distinct and distinctly modelable effects of bargaining and delegation, namely they induce weighted-averaging of outcomes relative to the preferences of those actors, i.e., compromise.

Specifically regarding fiscal policies, Cusack (1999; 2001; but, cf., Clark 2003) offers one interesting set of theoretical propositions that may offer some purchase in the application below on this bargaining-compromise effect of multiple policymakers. He argues that the desired fiscal policies of left and right parties differ not so much by the size of deficits as by the (Keynesian) activism with which they respond (counter-cyclically) to (macro)economic conditions. As Hibbs (1987ab) demonstrated thoroughly, the natural constituency of the right and of the left, the higher and lower ends of socioeconomic hierarchies, have strongly differing relative distastes for inflation and unemployment (i.e., for nominal and real macroeconomic bads), objectively and subjectively, with the lower/left weighing unemployment more relative to inflation than do the higher/right. Responsive left-party policymakers will have ideal policies reflecting greater Keynesian activism than those of right-party policymakers. I.e., fiscal policy will respond more aggressively counter-cyclically to economic conditions under left than under right government; the right may even be procyclical. When multiple parties share fiscal-policymaking control, such as in contexts of coalition or divided government for instance, bargaining models would suggest that the degree of activism of the resulting policy should be some geometrically weighted average of the optimum policies of those policymakers. A simply operationalized Nash-Bargaining model, for example, might

\[\text{potential fiscal policy} = \frac{\text{left activism} \times \text{left share} + \text{right activism} \times \text{right share}}{\text{left share} + \text{right share}}\]

Always less clearly established has been why left or right would be particularly responsive to their core voters, who have no better electoral options, than to marginal voters. However, parties earn core constituencies by a reputation for serving them, and reputations are hard to build and sustain without some on-average truth behind them.
suggest that activism under a coalition government would be some function of the cabinet-seat shares of that coalition’s parties; the empirical specification below reflects this conjecture.

2. An Empirical Model of the Theoretical Synthesis

2.1. Specification of the Empirical Model

This paper first extends the empirical model of public debt from Franzese (2002b, ch. 3)\(^{21}\), to demonstrate the possibility of estimating distinctly the veto-actor, common-pool, and bargaining-compromise effects of multiple policymakers. In particular, the model specification reflects (1) the different aspects of multiple policymakers’ fragmentation, polarization, and partisanship that relate (a) to veto-actor effects: their raw numbers and ideological ranges, (b) to common-pool/collective-action effects: their effective numbers and ideological standard-deviations or variances, and (c) to bargaining-compromise effects: weighted means of their ideologies; and to reflect (2) the different ways in which these three distinct effects manifest in policies (such as public debt): (a) veto-actors (primarily\(^{22}\)) slow policy-adjustment/delay fiscal-stabilization; (b) collective-action/common-pools induce over-drawing of public resources from the future (larger deficits) and under-investing in policymakers’ common properties (less electioneering); and (c) inter-partisan bargaining induces some convex-combinatorial, i.e., roughly, some compromise policies: left-activist/right-conservative Keynesian-countercyclical/conservative-procyclical fiscal-policy in proportion to the policymaking-influences/bargaining-powers of left and right. That is, the empirical model of fiscal policy should reflect the three distinct natures of multiple policymakers’ fragmentation, polarization, and partisanship that can affect fiscal-policy outcomes and the three distinct manners by which this dispersion of fiscal policymaking authority across multiple actors affect those outcomes. Absolute numbers of veto actors and their ideological range should modify policy-adjustment rates (primarily, see note 22); effective numbers of incumbent policymakers and, possibly, standard deviations of ideological positions should affect the intensities of their common-pool problems with respect to debt levels and in exploiting their opportunistic incentives to electioneer; and some compromise among these partisan policymakers (e.g.,

\(^{21}\) Specifically, the form of that model including country fixed-effects first published in Franzese (2000).

\(^{22}\) As discussed above, veto actors also reduce the maximum-possible policy-change and therefore perhaps the average policy-change, and they may also reduce policy volatility (variance). Incorporating these second-moment implications remains for future refinements of the model.
a Nash–Bargaining process implies a simple weighted-influence conception) should determine what combination of their ideological interests the overall government’s policy responsiveness to macroeconomic conditions (i.e., the degree of Keynesian activism) will reflect.

Expressing these propositions as a (nonlinear) regression equation gives:

\[ D_{it} = \alpha_i + (1 + \rho_{NP} NP_{it} + \rho_{Wii} AR威G_{it}) \times (1 + \rho_{D1,i,i+1} D_{i,i+1} + \rho_{D2,i,i+2} D_{i,i+2} + \rho_{D3,i,i+3} D_{i,i+3}) \]

\[ + (\beta_{d1} \Delta Y_{i,i} + \beta_{dU} \Delta U_{i,i} + \beta_{dP} \Delta P_{i,i}) \times (1 + \beta_{c1} CoG_{it}) \]

\[ + (\gamma_{e1} E_{i,i} + \gamma_{e2} E_{i,i-1}) \times (1 + \gamma_{e3} ENP_{it} + \gamma_{e4} SDR威G_{it}) + x' \eta + z' \omega + \epsilon_{it} \]  

(1)

where \( D_{it} \) is the debt (gross debt of consolidated central government as a percent of GDP) in country \( i \) and year \( t \)\(^{23} \) (as a partial-adjustment, autoregressive, or dynamic model of debt, i.e., as a model having lagged debt on the right-hand side, this is effectively a model of deficits and debt). The nonlinearity (in parameters) arises here, in the product of coefficients across the parenthetical terms, from the imposition of theoretically-substantively implied structure – namely, that veto actors proportionately dampen all autoregressive terms, that effective policymakers proportionately dampen responses to all electioneering indicators, and that (right) government partisanship proportionately dampen (Keynesian countercyclical) responses to all macroeconomic conditions. Thus, for example, theory suggests the fiscal-policy effects of all three macroeconomic conditions depend on government partisanship, but, also according to that theory, we do not need separate coefficients on three linear-interaction terms. We need only the one coefficient, \( \beta_{c1} \), indicating the factor of proportionality by which right government-partisanship (on the \( CoG \) scale) dampens Keynesian countercyclicality. Specifying the empirical model to reflect (i.e., impose) theoretically-substantively given structure greatly enhances estimation efficiency and greatly contributes to our ability distinguish and estimate well empirically the multiple effects of multiple policymakers.

\( NP \) and \( AR威G \) are the raw Number of governing Parties and the Absolute partisan Range within Government farthest left to farthest right\(^{24} \). These

\(^{23} \) Except as otherwise noted, all data are from Franzese (2002b) and defined as therein. All data are available from the author’s web-page: http://www.umich.edu/~franzese.

\(^{24} \) These data are directly from Franzese (2002b). For simple parliamentary systems, \( NP \) is the number of parties in the cabinet. \( AR威G \) is the range farthest-left to farthest-right – on the scale of the \( CoG \) score (see below) – of these cabinet parties. French, Finnish, and Portuguese presidents are assumed to be part of government. For the U.S., \( NP \) is 1 under single-party control of President, House, and Senate, and 2 otherwise; \( AR威G \) is 0 if \( NP \) is 1, and the distance from the Democratic to the Republican party (approximately 3) otherwise.
fragmentation and polarization measures relate to the veto-actor conception of
the effects of multiple policymakers and so enter the model multiplicatively/
interactively with lagged dependent variables, thereby modifying the dynamics:
i.e., the policy-adjustment rate. Veto-actor theory expects greater fragmenta-
tion and polarization to slow policy adjustment, so we hypothesize positive
\( \rho_s \) and \( \rho_{ar} \). Lacking any reason to expect fragmentation and polarization to
alter adjustment-rates differently across the first-, second-, and third-order
lags that this model requires empirically\(^{25}\), estimating a separate coefficient
for each interaction of \( NoP \) or \( ARwiG \) with these three lags would be un-
necessarily highly inefficient\(^{26}\).

\( \Delta Y \) is real GDP growth; \( \Delta U \) is the change in the unemployment rate;
and \( \Delta P \) is the inflation rate. Certainly, debt will respond to macroeconomic
conditions: negatively, indicating fiscal improvement, to \( \Delta Y \) and \( \Delta P \) and
positively (fiscal deterioration) to \( \Delta U \). Government members from more-left
parties should push to magnify these automatically countercyclical fiscal
responses; members from more-right parties should push less hard or even
counteractively. \( CoG \), the partisan Center of Gravity of government\(^{27}\), gauges
parties 0-10 left to right, so negative \( \beta_{cg} \) would reflect lesser Keynesian countercy-
clicality, perhaps even classical procyclicality, from the right. Again, without
strong reason to expect otherwise, the specification assumes partisanship will
modify policy cyclicality equally with respect to each macroeconomic factor,
greatly enhancing efficiency.

\(^{25}\) Lagrange-multiplier tests do indicate some remaining first-order residual correla-
tion (although Ljung-Box Q-tests and partial correlations reveal only some inexplicable
seventh-order correlation). This remaining residual correlation implies LS estimation of
lagged-dependent-variable (LDV) models is biased. However, these residual correlations,
and so the biases, are very small; and no simple ARIMA specification fully removed them
consistently across the two specifications considered. Thus, the LDV results are reported
to simplify exposition. (ARIMA results available upon request; a model with two lags of
the dependent variable and AR(1) in residuals performs best.) Substantive inferences do
not depend to any noteworthy extent on these precise dynamic-model specifications.

\(^{26}\) That proportionate, rather than linear, increases in \( NoP \) or \( ARwiG \) would retard the
policy-adjustment rate seems plausible, so specifications using logs of \( NoP \) and of \( 1+ARwiG \)
were also considered. The empirical web-appendix (at www.umich.edu/~franzese) gives
these results, which do not differ greatly substantively from those reported.

\(^{27}\) Center of Gravity and \( CoG \) are Cusack’s term and mnemonic; the measure used
here is from Franzese (2002b) though. Roughly summarizing, each party has a 0-10 left-
right code, mostly derived from (the sources used by) Laver and Schofield (1991) and
from the expert survey of Laver and Hunt (1992), with a few minor additions from other
sources and myself. For simple parliamentary systems, the \( CoG \) for a government is the
cabinet-seat weighted-average of these scores. For France, Finland, and Portugal, the
president and cabinet are each taken to be half of government. For the U.S., government
is 1/3 each the President, House, and Senate.
ENoP and SDwiG are the Effective Number of Parties in government and Standard Deviation within Government, i.e., the standard deviation of the party left-right scores for each government member. These fragmentation and polarization indices relate to the weighted-influence conception of the common-pool effects of multiple policymakers. Accordingly, these factors enter the model in ways that affect debt levels directly and that modify the expected electioneering of government, i.e., multiplicatively with pre-election- and post-election-year indicators $E_t$ and $E_{t-1}$. By the collective-action/common-pool theory regarding the policymakers’ incentives to electioneer, fragmentation should dampen electoral cycles, as perhaps should polarization (though this is not as strongly expected theoretically), so we hypothesize $\gamma_{\text{en}} < 0$ and $\gamma_{\text{sd}} \leq 0$. This dampening should be equiproportionate across the pre- and post-electoral surge, so, again, we assume equal coefficients on ENoP and SDwiG interacted with pre-electoral ($E_t$) and post-electoral ($E_{t-1}$) indicators.

The term $x'\eta$ refers to political-economic conditions (controls) the fiscal-policy response to which is not expected to be strongly partisan-differentiated: $dxrig$, the difference between expected real-interest and real-growth rates; terms-of-trade shocks ($ToT$: terms of trade, $open$: trade exposure, and $ToT\cdot open$); and $oy$: the ratio of the over-65 to under-16 populations.

---

28 These data are directly from Franzese (2002b). In simple parliamentary systems, ENoP is the effective (i.e., cabinet-seat-weighted) number of cabinet parties and SDwiG the standard deviation of the party CoG scores of those seats. French, Finnish, and Portuguese presidents are treated as an additional cabinet seats of that party, where $n$ is the number of true cabinet seats: i.e., presidents and cabinets are each ½ of government. The U.S. president and each Senator are, respectively, 435 and 4.35 House members of his/her party: again, each branch is 1/3 of government.

29 Franzese (1999; 2002; 2003; 2007) has repeatedly found that electioneering surges are at least as strong and statistically significant in post- as in pre-election years.

30 These data are directly from Franzese (2002b). Roughly summarizing, the pre-election indicator assigns a total of 1 to the 365 days preceding an election. A December 31st election would give 1 to that year; a June 30th election would give ½ to that year and ½ to the preceding year. Notice that a one-year time-lag of a pre-election-year indicator actually indicates a post-election year: if last year was a pre-election year, then this year is a post-election year.

31 As with NoP and ADwiG, size-weighted counts (and standard deviations) of government parties (ideologies) may proportionately rather than linearly induce common-pool effects, so specifications using natural logs of ENoP and 1+SDwiG were also considered. The empirical web-appendix (at www.umich.edu/~franzese) gives these results, which do not differ greatly substantively from those reported.

32 Since Franzese (2007), the variable $dxrig$, the difference between the expected real-interest and real-growth rates, has been enhanced to model expected growth-rates using country fixed-effects, two lags of growth, and one lag of real GDP per capita, of $oy$, $open$, $ToT$, and $open\cdot ToT$. These enhancements also ease interpretation of the model,
The term $y'\omega$, finally, refers to constituent terms involved in the various interactions: $CoG$, $ENoP$, $SDwiG$, $NoP$, and $ARwiG$. Theoretically, positive coefficients on $ENoP$ (and possibly $SDwiG$) could reflect a common-pool effect on debt levels. As Velasco (1998, 1999, 2000) expounds most fully and clearly, though, the present government’s share of the present value of all current and future revenues — a sort of intertemporal fractionalization — would be much more relevant in this regard than the current government’s partisan fractionalization. Substantively, a negative coefficient on $CoG$ would indicate a level effect of smaller deficits under right governments at macroeconomic conditions of growth, inflation, and unemployment rates equal to zero. We do not have expectations about partisan effects at this level of macroeconomic performance; we have strong expectations only that activism, i.e., responsiveness to macroeconomic conditions, varies with partisanship. Regarding $NoP$ and $ARwiG$, veto-actor theory suggests no reason these terms should affect debt levels when debt is zero because they should affect only adjustment rates; i.e., the coefficients of these constituent terms should be zero. Substantively-theoretically, then, $\omega$ could quite likely all be zero; indeed, theoretical and substantive expectations generally lean more toward than away from zero. We nonetheless include these terms, $z$, at least to start, as a kind of prudent, practical application of Occam’s razor (see Kam and Franzese 2007; cf. Brambor et al. 2006).

2.2. Estimation and Discussion of the Empirical Model and Results

Table 1 gives nonlinear-least-squares (NLS) estimates of this model – a methodological web-appendix (at www.umich.edu/~franzese) offers simple introduction to NLS estimation – with heteroskedasticity-consistent standard errors, using data from 21 OECD countries from 1956± through 1995± (non-democratic country-years excluded), country fixed-effects, the full set of constituent terms, $z$, and using un-logged $NoP$, $ENoP$, $SDwiG$, and $ADwiG$. We find some evidence for the common-pool-moderated electoral-cycles argument, as seen in the $\gamma_{en}$ estimate of how the effective number of governing ensuring that coefficients on these variables reflect their effects on debt exclusive of any path through expected future growth.

33 Ideal measures for this effect would be party-by-party estimates of own expected lifetime share of policymaking.

34 The most-favorable results to all the present arguments, albeit by the slimmest of margins, actually emerge in a model that logs the veto-actor measures, but not the common-pool ones (These and other additional results appear in an empirical web-appendix, available at www.umich.edu/~franzese.) That specification emerging as best may make substantive-theoretical sense in that the weighted measures already reflect a certain proportionality.
Tab. 1. Nonlinear-Least-Squares Estimation of Equation (1).

|                      | Coeff.  | Std. Err. | t-Stat. | Pr(T>|t|) |
|----------------------|---------|-----------|---------|----------|
| Lagged dependent variables |         |           |         |          |
| D_{t-1}              | 1.212   | 0.060     | 20.112  | 0.000    |
| D_{t-2}              | -0.153  | 0.085     | -1.792  | 0.074    |
| D_{t-3}              | -0.121  | 0.045     | -2.677  | 0.008    |
| \rho_n (veto-actor effect: fractionalization) | 0.007   | 0.006     | 1.089   | 0.277    |
| \rho_m (veto-actor effect: polarization) | -0.000  | 0.006     | -0.013  | 0.990    |
| Macroeconomic conditions |         |           |         |          |
| \Delta Y             | -0.336  | 0.111     | -3.033  | 0.003    |
| \Delta U             | 0.992   | 0.308     | 3.219   | 0.001    |
| \Delta P             | -0.188  | 0.063     | -2.965  | 0.003    |
| \beta_cg (partisan-compromise bargaining) | -0.037  | 0.037     | -0.988  | 0.323    |
| Controls             |         |           |         |          |
| x_1 (open)           | 15.891  | 5.279     | 3.010   | 0.003    |
| x_2 (ToT)            | 0.388   | 1.744     | 0.222   | 0.824    |
| x_3 (open-ToT)       | -10.681 | 5.156     | -2.072  | 0.039    |
| x_4 (dstryg)         | -0.036  | 0.066     | -0.544  | 0.587    |
| x_5 (oy)             | 2.064   | 1.094     | 1.866   | 0.060    |
| Pre- and Post-Electoral indicators |         |           |         |          |
| E_1                  | 0.687   | 0.568     | 1.210   | 0.227    |
| E_{t-1}              | 1.490   | 0.645     | 2.310   | 0.021    |
| \gamma_{en} (common-pool effect: fractionalization) | -0.547  | 0.182     | -3.001  | 0.003    |
| \gamma_{sd} (common-pool effect: polarization) | 0.573   | 0.486     | 1.179   | 0.239    |
| z_1 (CoG)            | 0.051   | 0.131     | 0.390   | 0.697    |
| z_2 (ENoP)           | 0.281   | 0.446     | 0.629   | 0.530    |
| Constituent terms from the interactions |         |           |         |          |
| z_3 (SDwiG)          | 0.542   | 0.437     | 1.242   | 0.215    |
| z_4 (NoP)            | 0.181   | 0.277     | 0.654   | 0.514    |
| z_5 (ARwiG)          | -0.312  | 0.259     | -1.205  | 0.228    |

Summary Statistics

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N (Deg. Free)</td>
<td>735</td>
<td>(691)</td>
<td>2.525</td>
<td></td>
</tr>
<tr>
<td>R^2 (R^2)</td>
<td>0.991</td>
<td>(0.990)</td>
<td>DW-Stat.</td>
<td>2.101</td>
</tr>
</tbody>
</table>

Notes: Estimated using E-Views 5.1. Country fixed-effects suppressed to conserve space; available on request.

parties moderates cycles, although the positive \gamma_{en} estimate suggests governing-party polarization may work against this\(^{35}\). We find the expected sign for veto-

\(^{35}\) More likely, this exemplifies Achen’s (1985) effect of correlated imperfect measures of the same or closely related concepts in one regression model. He showed the indicator more accurately gauging the concept tends to get inflated coefficient estimate and
actor policy-adjustment retardation as measured by raw numbers of parties ($\rho_{\text{rn}}$), although the absolute range measure of polarization shows no such effect ($\rho_{\text{ar}}$). We also find the expected sign for $\beta_{\text{cg}}$, indicating partisan-differentiated degrees of Keynesianism, with the partisan measure employed suggesting a weighted-average (Nash-bargained) compromise among government-members’ parties. Although these correctly-signed parameter estimates are only about equal to their standard errors, a Wald joint-significance test of the conditioning effects of multiple policymakers ($\gamma_{\text{en}}$, $\gamma_{\text{sd}}$, $\rho_{\text{rn}}$, $\rho_{\text{ar}}$, and $\beta_{\text{cg}}$) overwhelmingly rejects excluding these from the model (p≈.001) whereas a joint-significance test of the set of constituent terms, $z$, clearly fails to reject (p≈.602) their exclusion. Since the inclusion of these constituent terms follows no important theoretical, substantive, statistical, or mathematical reason – to the contrary, we generally expect these coefficients to be zero – but rather reflected prudent, practical application Occam’s razor, and since the empirical evidence seems so comfortable with their omission as well, we can confidently respecify the model to omit these $z$ terms. Furthermore, the best-fitting version of these saturated models, the one using natural log of the veto-actor but not the common-pool measures (see note 34) supports all of the conclusions that lead to omitting $z$ even more strongly.

As seen in Table 2, the results are much clearer and remarkably supportive of our theoretical arguments once we drop those constituent terms (although, of course, we can no longer take the $p$-values reported here as face-value «significance levels» since the model has now been pre-tested on this data and some previously insignificant regressors removed). The effects expected from increasing polarization of policymakers, $\gamma_{\text{sd}}$ and $\rho_{\text{ar}}$, remain absent and/or counter-intuitive – perhaps parties’ fiscal preferences may be too crudely measured by the fixed, expert-judgment left-right indices used here – but, otherwise, these results are remarkably favorable to the three-way model of the effects of the dispersion of policymaking authority induced by increasing the number of actors. Ceteris paribus, adding a party to government retards debt-adjustment rates by about 1% ($\rho_{\text{rn}} \approx .01$), but, at the same time, increasing the effective number of parties by one dampens electoral cycles in fiscal policy by almost 60% ($\gamma_{\text{en}} \approx .57$). Meanwhile, if adding this party to government shifts significance while the lesser proxy gets reversed sign and muted significance. Here, both ENoP and their S DwIG may relate to voters’ divvying of credit for electioneering, which creates the common pool, but the former indicator also surely better measures and more accurately reflects the underlying concept than does the latter. A similar, though weaker, effect seems to be operating with NoP and ADwIG.

As noted, ENoP and S DwIG, whose coefficients may relate somewhat to the intertemporal common-pool problem in public-debt levels, are partial exceptions. Some weak evidence of such an effect does emerge. The estimated effect at the sample average of ELE ($\approx .3$) of both ENoP and S DwIG increasing by one is +.83% of GDP, significant at p= .105.
TAB. 2. NLS Estimation of Equation (1) with Insignificant Constituent Terms Removed.

|                      | Coeff. | Std. Err. | t-Stat. | Pr(T>|t|) |
|----------------------|--------|-----------|---------|----------|
| Lagged dependent     |        |           |         |          |
| variables            |        |           |         |          |
| D_{t-1}              | 1.207  | 0.060     | 20.290  | 0.000    |
| D_{t-2}              | -0.158 | 0.085     | -1.851  | 0.065    |
| D_{t-3}              | -0.117 | 0.045     | -2.577  | 0.010    |
| ρ_n (veto-actor      | 0.011  | 0.005     | 2.369   | 0.018    |
| effect: fractionalization) |       |           |         |          |
| ρ_s (veto-actor      | -0.002 | 0.004     | -0.437  | 0.662    |
| effect: polarization)|        |           |         |          |
| Macroeconomic        | ΔY     | -0.375    | -4.332  | 0.000    |
| conditions           | ΔU     | 1.095     | 3.829   | 0.000    |
|                      | ΔP     | -0.207    | -3.889  | 0.000    |
| β_cg (partisan-compromise bargaining) |     |           |         |          |
| Controls             | x_1 (open) | 16.128   | 5.314   | 3.035    | 0.002    |
|                      | x_2 (ToT)  | 0.414    | 1.728   | 0.239    | 0.811    |
|                      | x_3 (open∙ToT) | -10.780 | 5.194   | -2.076  | 0.038    |
|                      | x_4 (dxrig) | -0.038   | 0.066   | -0.578  | 0.563    |
|                      | x_5 (oy)   | 1.898    | 1.100   | 1.724   | 0.085    |
| Pre- and Post-       | E_t     | 0.475    | 0.420   | 1.133   | 0.258    |
| Electoral           | indicators | E_{t-1}  | 1.146   | 0.562   | 2.040   | 0.042    |
|                      | γ_en (common-pool effect: fractionalization) | -0.570  | 0.209   | -2.727  | 0.007    |
|                      | γ_sd (common-pool effect: polarization)    | 0.881   | 0.586   | 1.503   | 0.133    |
| Summary Statistics   |        |           |         |          |
| N (Deg. Free)        | 735    |           |         | 2.522    |
|                      | 696    |           |         |          |
| R^2 (R^2)            | 0.991  |         |         | 2.099    |

Notes: Estimated using E-Views 5.1. Country fixed-effects suppressed to conserve space; available on request.

its partisan center of gravity one unit rightward (leftward), Keynesian activism diminishes (increases) by 5% ($\beta_{cg} \approx 0.05$), and all of these effects are satisfactorily precisely estimated. Again, we could refine these results further by adopting a log-veto-actor specification and/or dropping these weakly estimated counter-intuitive results, and doing so yields estimates even more favorable to these arguments (such results available upon request).

Three tables convey substantive magnitudes for the multifarious estimated effects of multiple policymakers. First, Table 3 describes the estimated effect of numbers of veto actors on the policy-adjustment rate in five ways. Row a calculates the net coefficient on lagged dependent-variables as a func-
tion of the (raw) number of parties in government. Public debt, unsurprisingly, adjusts very slowly under any conditions, but the extent to which last year’s debt persists into this year varies over the sample range of NoP from .943 in single-party to .986 in six-party governments. This corresponds to policy-adjustment rates of a very slow 5.7% to a glacial 1.4% per year, as seen in row b. Even more dramatically, these estimates also imply an even more widely varying long-run multiplier, from 17.5 for unified governments to 44.7 for five-party and a whopping 73.2 for six-party governments. These multipliers mean that the long-run effects of permanent changes in regressors whose impact on debt occurs unless and until policies respond, such as economic or demographic shocks, are that many times greater under more fractionalized governments. For example, a permanent 0.5 increase in the ratio of over-65 to under-16 population would increase debt by about 16.6% of GDP in a polity continually governed by single-party governments whereas the same demographic shift would increase debt by about 42.4% of GDP under permanent five-party rule. Finally, as the number of veto actors rises over the sample range from one to six, the half-lives of these long-run effects range from 11.8 to 50.4 years, and between 39 and 168 years must pass for 90% of these long-run effects to accumulate.

Table 4 illustrates the estimated bargaining effects multiple policymakers. More precisely, the empirical specification assumes that the partisanship
reflected in fiscal policy is a weighted average of the preferences of govern-
ment members, indicative of some bargained compromise. It does not test the
empirical efficacy of that assumed bargaining structure against alternatives.38
Right (left) partisanship, as gauged by this government Center of Gravity, is
then expected to counter (enhance) Keynesian activism. The (significantly)
estimated $\beta_{cg}$ indicates about 5% such dampening per unit of CoG. (For re-
ferences: U.S. Democrats and Republicans are about 3 CoG units apart and
U.K. Labour and Conservatives about 5; typical U.S. governments, which
blend partisan shares of the presidency and each legislative chamber equally,
average about 1 CoG-unit apart, leaning right or left with the presidency.) The
substantive magnitude of this bargained-CoG effect on fiscal activism (defi-
cits) varies with economic performance. For instance, with macroeconomic
conditions (inflation, real-GDP growth, unemployment change) two standard-
deviations worse than their sample mean, the left-most sample-government
($CoG=3$) would apply over 3% of GDP fiscal stimulus (deficits), whereas the
right-most ($CoG=9$) would apply just 2%, ceteris paribus. Conversely, these
same left-most (right-most) governments would retire 7% (4.5%) of GDP
in debt in a year with macroeconomic conditions two standard-deviations
better than their means. In a sample-average year, governments would retire
debt, ceteris paribus, at rates varying from almost 2% of GDP at far left to
1.25% at far right of the sample. Of course, these hypotheticals overstate the
macroeconomic cycle, and so the fiscal cycle, because growth, unemployment,
and inflation do not usually improve and worsen in lock-step; nonetheless, the
relative magnitude of estimated left- and right-government fiscal cycles over
these hypothetical, extreme macroeconomic cycles, which range from over
10% to about 6.5% of GDP left to right, are informative39.

Table 5, lastly, describes the estimated substantive effects of the common-
pool problem faced by multiple policymakers in fiscal electioneering. Credit
from voters for economic boons delivered by deficit spending is a common
pool for policymakers. Therefore, as the effective (i.e., size-weighted) number
of policymakers increases, electioneering diminishes, seen here in the fad-
ing amplitude of estimated electoral deficit-cycles, from 1% of GDP under
single-party government down to 0.25% of GDP as the effective number of
governing parties rises to six.

38 Recall: Thomson et al. (2006), especially Achen (2006) therein, provide evidence
that would support this assumption.

39 The greater average debt-reduction stance of left parties than of right parties is
consistent with findings in Franzese (2000; 2002b), and the finding here of greater left-
Keynesianism supports Cusack (1999; 2001) and is not inconsistent with Franzese’s (2000;
2002b) finding regarding replacement-risk-conditional partisan debt-cycles.
3. Conclusion: Multiple, but Distinguishable, Effects of Multiple Policymakers

The dispersion of policymaking authority across multiple actors affects policies in myriad ways. When empirical models are specified to reflect correctly the central implication of Tsebelis’ veto-actor theory, most fully expounded
in *Veto Players: How Political Institutions Work* (2002), that the number (and polarization) of veto actors increases policy inertia, evidence strongly and consistently supports that core proposition. However, the number (and polarization) of policymaking actors does more than induce veto-actor effects. It also creates collective-action problems for these multiple policymakers that induce over-fishing of their common-pool resources, and it ignites bargaining between them, which tends to engender partisan compromises in their enacted policies. This paper has argued theoretically that these veto-actor, common-pool, and bargaining-compromise effects manifest differently in outcomes – retarding policymakers’ responses to their policymaking incentives, dampening (amplifying) policymakers’ incentives undertake politically rewarding (detrimental) activities, and blending policymakers’ differing incentives into one compromise, respectively – and that the particular aspects of the number and ideal points of policymakers that produce these different effects, i.e., the specific aspects of government fractionalization and polarization, likewise varies – respectively: raw numbers and preference ranges, size-weighted (i.e., effective) numbers and variances or standard-deviations of preferences, and weighted-averages of preferences. This paper has also illustrated how to model these effects empirically and shown that these aspects of fractionalization and polarization that induce the multifarious effects of the dispersion of policymaking authority and the form and manifestation of those effects on fiscal-policy outcomes vary sufficiently across democracies and over time to obtain noticeably distinct and appreciably precise estimates of their substantively interesting implications.

References


Franzese, R. (2000), *Electoral and Partisan Manipulation of Public Debt in Developed Democra-


The Multiple Effects of Multiple Policymakers


