Differentiating Mixed-Member Electoral Systems

Mixed-Member Majoritarian and Mixed-Member Proportional Systems and Government Expenditures

Frank C. Thames
Martin S. Edwards
Texas Tech University, Lubbock, Texas

The increasing use of mixed-member electoral systems has led to an explosion of research attempting to specify their effects. Yet there has been no work on the economic policy effects of such systems, even though this has been a significant subject of debate for scholars analyzing other electoral systems. An analysis of mixed-member system policy effects is problematic, given the wide variation in institutional rules among different systems. This article attempts to determine whether the institutional differences between mixed-member majoritarian (MMM) and mixed-member proportional (MMP) systems lead to differences in policy outputs. The political economy literature finds that government expenditures are positively correlated with electoral system proportionality. Our statistical analysis of government expenditures in 17 mixed-member systems between 1990 and 2000 shows that MMP systems, which are more proportional than MMM systems, are correlated with higher levels of government spending. Thus the MMM-MMP distinction produces significant policy differences.

Keywords: mixed-member system; fiscal policy; electoral system

The global explosion of mixed-member electoral systems has spurred significant research in a number of areas. Some analyze the decision to select a mixed-member system over competing alternatives (e.g., Bawn, 1993; Benoit & Schiemann, 2001; Navarra & Sobbrio, 2001; Remington & Smith, 1996; Shugart & Wattenberg, 2001b; Smith & Remington, 2001). Another focus of recent scholarship is the strategic responses of both parties and voters to the incentives created by mixing electoral rules (e.g., Bawn,
1999; G. Cox, 1997; K. Cox & Schoppa, 2002; Ferrara, 2004; Gschwend, Johnston, & Pattie, 2003; Ferrara & Herron, 2005; Herron & Nishikawa, 2001; Moser, 1999, 2001; Moser & Scheiner, 2004; Reed, 2001). In a similar manner, another group of scholars focuses specifically on the legislative effects of such systems, seeking to determine if the mixing of electoral incentives affects overall patterns of legislative behavior (e.g., Bawn & Thies, 2003; Haspel, Remington, & Smith, 1998; Herron, 2002; Lancaster & Patterson, 1990; Stratmann & Baur, 2002; Thames, 2001).

Although these studies are important, most of them focus on the electoral and party system effects of mixed-member systems rather than their potential policy effects. Understanding when parties will coordinate campaigns, determining when they will form pre-election alliances, conceptualizing how mixed-member legislators behave, or defining the conditions under which voters will split their votes are tremendously important questions. However, we have yet to understand how differences between mixed systems lead to differences in policy outcomes, especially in the area of economic policy. This is a surprising lacuna given that the broader literature on electoral systems increasingly focuses on the effects that different electoral systems have on key economic policies.1

An analysis of policy effects, or really any effect, of mixed-member systems is hampered, however, by the simple fact that within the category of mixed-member electoral systems, there is much variation. Almost all mixed-member systems combine the direct election of legislators in geographically defined districts, the nominal tier, with some form of a list proportional representation system, the list tier (Shugart & Wattenberg, 2001a). However, mixed-member systems can vary in number of areas including the type of nominal-tier election (single-member districts or single nontransferable vote), the formula to determine the proportional representation results from the list tier, the proportion of legislators elected in the different elections, and a host of others. One critical distinction between mixed-member systems, however, is whether the separate tiers allocate seats independently (Shugart & Wattenberg, 2001a). In mixed-member proportional (MMP) systems, such as those in Germany or New Zealand, the total number of legislative seats received by a party is proportional to its list-tier results. In mixed-member majoritarian (MMM) systems, such as those in Ukraine and Russia, however, the list and nominal tiers both allocate seats independently, not trying to

1. Scholars find that electoral systems affect macroeconomic performance (Crepaz, 1996), government expenditures (Hallerberg & Marier, 2004), inflation (Rogowski & Kayser, 2002), trade policy (McGillivray, 1997; Nielsen, 2003), and exchange rates (Bernhard & Leblang, 1999; Leblang, 1999).
maintain proportionality between seats and votes. Thus MMM and MMP systems differ primarily in their commitment to proportionality.

Does this difference in proportionality matter? Bawn and Thies (2003) hypothesize that the decision to link tiers is critical. Linking tiers to obtain outcomes that are more proportional means that MMP systems more closely resemble pure proportional representation systems in terms of behavior and incentives, whereas MMM systems more closely resemble pure single-member district systems in terms of behavior and incentives. If true, then distinctions between MMP and MMM systems should produce divergent outcomes, raising questions about the value of collapsing mixed-member systems into one category.

This article seeks to deal with both the issue of the policy effects of mixed systems as well as the broader issue of comparing mixed systems by undertaking a statistical analysis of government spending in 17 mixed-member systems between 1990 and 2000. We not only begin the long process of placing mixed-member electoral systems within the context of the broader electoral systems literature on economic policy effects but also demonstrate that the MMM-MMP distinction is a critical one. We take our cue from the political economy literature on government expenditures, which consistently finds that they are positively correlated with more proportional electoral systems that reward expensive public goods spending (Annett, 2002; Inter-American Development Bank, 1997; Persson, Roland, & Tabellini, 2000; Persson & Tabellini, 1999). Although our empirical results demonstrate that MMM systems spend less than comparable MMP systems as predicted, this effect is contingent on the percentage of seats elected through the nominal tier of the electoral system. Moreover, this finding is robust even if we examine spending on public goods, and not simply total government expenditures.

After specifying the differences between MMM and MMP systems, we discuss the literature on electoral systems and government expenditures. Then, the article presents statistical models that test the argument that MMM systems will produce lower levels of government expenditures and lower levels of spending on public goods. The conclusion addresses the significance of the arguments made here.

2. With the exceptions of Moser and Scheiner (2004) and Ferrara and Herron (2005), there are very few large-N, cross-national studies of mixed-member electoral systems.
Distinguishing MMM and MMP Systems

For most of the 20th century, the bulk of the world’s electoral systems fell into two categories: majoritarian or proportional systems. In majoritarian systems, the candidate who attracts the most votes in a given district wins a seat. Such systems can differ on the number of representatives in a given district and whether they use majority or plurality rule. Nonetheless, such systems are associated with not only the tendency to create two-party systems (Duverger, 1954) but also the representation of local interests (King, 1990). Proportional representation systems use multimember districts and usually, party lists, creating multiparty systems that tend to represent national constituencies. Much of the electoral reform for most of the 20th century featured the transition toward proportional representation systems from majoritarian systems, whereas the end of the 20th century has featured the explosion of mixed-member electoral systems. Although Germany adopted its mixed-member system in 1953, the balance of mixed-member systems did not appear until the late 1980s and 1990s. New democracies, such as those in Russia and Ukraine, adopted these systems in the initial postcommunist years. However, the adoption of mixed-member systems was not limited to new democracies. Italy, Japan, and New Zealand chose mixed-member systems as replacements for their previous systems.

Typically, mixed-member systems blend representation by pairing a nominal-tier election with a list-tier election. In the nominal-tier election, voters vote for individual candidates, who accrue the votes independently of party (Shugart & Wattenberg, 2001a). The majority of mixed-member systems use single-member district elections for the nominal tier; however, Taiwan, for example, uses a single nontransferable vote election for the nominal tier. For the list tiers, legislative seats are distributed according to votes for multiple candidates nominated on party lists (Shugart & Wattenberg, 2001a). Mixed-member systems often vary on whether the list-tier election is in a national or regional district, whereas almost all mixed-member systems use some version of a proportional representation system (d’Hondt, largest remainder, etc.) with closed party lists.

Although the benefits to research on mixed-member systems are great, the difficulties of studying them are also great given the wide range of institutional rules that encompass them. If we look at mixed-member systems, we find a plethora of axes along which they may vary institutionally: the ratio of nominal-tier to list-tier seats, the electoral formula used in both the nominal and list tiers, the district magnitude of the list-tier election, the legal threshold of the list-tier election, and the relationship between the tiers (Moser, 2001).
Potentially, these variations could significantly alter the effects of different mixed-member systems, raising doubts about our ability to treat them as a separate class of systems or simply variations of majoritarian or list systems. Consequently, to understand better the effects of mixed-member systems on policy outcomes, or on other dependent variables, we need to come to grips with distinctions between systems.

Theoretically, the decision to link tiers is a critical decision, given how it changes the incentives for parties and legislators. To understand this, we first must grapple with implications of mixing a tier that creates incentives for national representation with a tier that creates incentives for local representation. In either single-member district or single nontransferable vote systems, legislators achieve reelection by winning local elections. This creates a strong "electoral connection" for individual legislators to support the interests of their local constituency, often at the expense of party or national concerns (Bean, 1990; Fenno, 1978; Fiorina, 1997; Mayhew, 1974; North, 1994; Norton & Wood, 1990; Reed & Thies, 2001; Ward & Peter, 1999). Conversely, the list tier encourages the representation of national issues by both parties and individual legislators. Because parties compete in large, sometimes national, multimember constituencies, party leaders and individual legislators have a strong incentive to promote policies that speak to a broader swath of voters. A party in a list election that focused only on parochial issues would risk losing important votes in other regions. Consequently, the list tier creates positive incentives for parties and legislators to move beyond limited, regional interests and trumpet national issues more likely to appeal to larger groups. Thus the simultaneous use of both a nominal and list tier theoretically creates an electoral system that should give parties and legislators incentives to embrace both national and regional interests.

In terms of legislative behavior, this should create legislatures that feature two distinct patterns of behavior based on the different electoral incentives of nominal- and list-tier legislators. The "mandate divide" hypothesis has been tested in a number of different contexts with mixed results. Several studies find meaningful differences between nominal- and list-tier legislators in committee preferences (Stratmann & Baur, 2002), preferences for pork barrel spending (Lancaster & Patterson, 1990), propensity for constituency work (Scholl, 1986), and party discipline (Thames, 2001). Smith and Remington (2001) find some evidence of a mandate divide in the Russian Duma; however, the appearance of the divide often varies depending on the issue. Others find little evidence of a mandate divide (Herron, 2002; Ishiyama, 2000).
None of these legislative behavior studies, however, address the potential distinctions between MMM and MMP systems. In MMP systems, a party’s total number of seats is determined by its percentage of the vote in the list tier (Shugart & Wattenberg, 2001a). In the German system, for example, this means that parties add list seats to their total nominal seats to have their total number of seats proportional to their list vote result. Effectively, MMP systems “link” their tiers, because a party’s overall allocation of seats depends on the interaction of the results of both tiers. This ensures greater proportionality in the legislature with the list-tier results. In MMM systems, however, both the nominal and list tiers independently allocate seats to parties (Shugart & Wattenberg, 2001a). Thus in the Russian system, for example, the nominal-seat total is added to the list-seat total to determine the total number of Duma seats allocated to an individual party. There is no attempt to maintain proportionality with the list-tier vote for total party seat allocation in MMM systems; therefore, the tiers are “unlinked.”

The decision to link or unlink the tiers could have a significant impact on the effects of each system because they produce different incentives for politicians and parties. This becomes clear if we simply assume that parties in each system want to maximize their number of seats in the legislature and that legislators strive primarily for reelection. In MMP systems, a party maximizes seats by winning as many list votes as possible because its overall number of legislative seats will be determined by the list tier. As Bawn and Thies (2003) cogently point out, this means that political parties are less concerned about winning nominal seats because winning these seats does not add to the party’s overall seat total. This does not mean that political parties in MMP systems have no interest in supporting candidates in these elections, for having strong local candidates may improve the party’s list vote (Bawn & Thies, 2003; Herron & Nishikawa, 2001). However, it does mean that political parties may prefer to support candidates who will consistently support the party and the party’s agenda to maximize national prospects in the list tier. Legislators who were interested only in supporting local constituents’ interests would undermine the party’s coherence and its need to satisfy national concerns. Even if such legislators were popular candidates, winning nominal seats by large majorities would not increase the party’s overall seat total in MMP systems. Thus parties have a reduced incentive to back popular but ill-disciplined candidates.

3. In some systems, the votes for a party’s failed nominal-seat candidates are added to its list total (Shugart & Wattenberg, 2001b). This does not produce the same incentives as produced by mixed-member proportional (MMP) systems that link seats, because parties have an incentive to support strong local, but perhaps not victorious, candidates to obtain more votes to ensure compensatory seats.
In MMM systems, however, political parties are in a different situation. Because the party’s seat total is increased by winning nominal seats, political parties are more beholden to successful, although perhaps wayward, nominal-tier legislators (Bawn & Thies, 2003). In this situation, parties may be forced to cater more often to the demands of parochial legislators to increase overall seat totals by helping them win local elections. A party that ignores the constituency demands of its nominal-tier legislators in favor of more national concerns might sacrifice its overall seat total. Therefore, in MMM systems, parties must be more flexible in their policy stances to placate not only their list but also their nominal-tier needs.

Moreover, for parties seeking to build coalitions, MMM systems create potentially two sets of legislators from which to pull support. A party seeking to build coalitions in an MMP system faces legislators who are tied to political parties that cater to national interests. For a party in an MMM system, the terrain is different. Potentially, a party could build intraparty and interparty coalitions with not only list-tier legislators tied to parties but also more parochial nominal-tier legislators. In such circumstances, parties (and even executives) have more flexibility to build coalitions around legislators with different incentives. This may allow parties to build coalitions that are not simply based on legislator and party perceptions of their national interests.

What does this difference mean in terms of the policy outputs of mixed-member electoral systems? Bawn and Thies (2003) conclude that “MMM is not only more like pure SMD [single-member district] (and MMP more like pure PR [proportional representation]) in terms of seat shares but also in terms of electoral incentives of district members” (p. 23). If the linking of tiers in MMP systems gives parties an incentive to focus on national issues even with nominal legislators, then the behavior of MMP systems should resemble those of pure proportional representation systems. Conversely, the incentives produced by MMM systems for nominal-tier legislators to cater to parochial interests, coupled with the parties’ weak incentives to stop them, means that such systems will behave more like pure majoritarian systems. Thus the presence of nominal-tier legislators beholden to local constituents distinguishes it from MMP systems. If the institutional incentives created by institutional variations between MMM and MMP systems matter, then we would expect policy patterns in each system to diverge. In MMM systems, policy making should resemble patterns found in majoritarian electoral sys-

4. Bawn (1993) also points out that supporters of the creation of the original German MMP system chose it because they assumed it would produce effects similar to proportional representation systems.
tems. Conversely, in MMP systems, policy making should resemble patterns found in proportional representation electoral systems.5

**Electoral Systems and Government Expenditures**

The dearth of policy effects studies of mixed-member systems is surprising given the significant attention paid to the subject in the broader electoral systems literature. The effect of different electoral rules has been particularly analyzed in the comparative political economy literature on government expenditure. This literature consistently finds that majoritarian electoral systems produce lower levels of government expenditure than do proportional representation electoral systems (Annett, 2002; Grilli, Masciandaro, & Tabellini, 1991; Inman, 1990; Inter-American Development Bank, 1997; Kontopoulos & Perotti, 1999; Perotti & Kontopoulos, 2002; Persson et al., 2000; Persson & Tabellini, 1999). Assuming that the distinction in institutional rules that makes MMM systems behave more like pure majoritarian systems and MMP systems behave more like pure proportional representation systems is significant, then government expenditures should be lower in MMM systems than in MMP systems.6

How does the literature arrive at the conclusion that these electoral systems will produce different levels of government expenditures? Previous works connect proportional representation to higher expenditures through two lines of argument. The first suggests that proportional representation systems can aggravate collective action problems in fiscal policy making by creating coalition governments (Annett, 2000; Grilli et al., 1991; Inman, 1990; Inter-American Development Bank, 1997; Kontopoulos & Perotti, 1999; Perotti & Kontopoulos, 2002; Persson & Tabellini, 1999; Peterson, 1985/1986; Roubini & Sachs, 1989). Increases in the number of parties forces governments to accommodate the spending demands of more actors, producing higher expenditures and making fiscal adjustment more difficult.

5. The similarity between mixed-member majoritarian (MMM) systems and majoritarian systems and MMP and proportional systems is found in other studies of the political effects of mixed-member systems (K. Cox & Schoppa, 2002; Ferrara & Herron, 2005; Moser, 2001; Roberts, 1988).

6. Moser (2001) points out that mixed-member systems provide the opportunity to test theories on two different electoral systems while holding other factors “such as culture, social cleavages, and level of socioeconomic development” constant (p. 21). Some argue this is difficult because of “contamination” or “interaction” effects between the tiers (K. Cox & Schoppa, 2002; Ferrara & Herron, 2005; Herron & Nishikawa, 2001); however, this corruption may not be significant enough to undermine the usefulness of the controlled comparison (Moser, 2001; Moser & Scheiner, 2004).
A second line of argument focuses more on the electoral dimensions of proportional representation systems. In most proportional representation systems, seats are allocated on the basis of party performance in large, sometimes nationwide, constituencies. As a result, parties face incentives to adopt policies that speak to as broad a swath of voters as possible, not limiting themselves to narrow interests (Lizzeri & Persico, 2001; Milesi-Ferretti & Perotti, 2002; Persson & Tabellini, 1999). Consequently, parties in these systems can maximize votes by delivering public goods to large classes of voters. Such spending tends to be expensive, leading to increases in overall government expenditure.

The incentives created by majoritarian systems, on the other hand, can lead to lower government expenditures. First, the lower number of parties often found in majoritarian electoral systems reduces the level of competition concerning fiscal policy in comparison with proportional representation systems by making coalition government and gridlock less likely. Consequently, the spending dynamic found in multiparty proportional representation systems is less of a problem in majoritarian systems. In addition, majoritarian systems produce fewer incentives for expensive public goods spending in comparison with proportional representation systems. In majoritarian systems, legislators prefer to provide targeted spending to select blocs of voters to achieve a majority of votes in their constituencies. As Mayhew (1974) notes, this allows deputies to claim credit for targeted spending.

Most important for us, this weakens, but obviously does not eliminate, the incentive to increase public good expenditures to satisfy large, nationwide classes of voters. By having nominal-tier legislators seeking to reap the benefits of targeted spending, coupled with the fact that parties must cater to these legislators to maximize votes, expenditure bills can be passed in MMM legislatures with targeted appeals to nominal-tier legislatures, and not simply with more expensive public goods spending. Another way to think about it is to consider the situation of an executive attempting to pass the yearly state budget. In an MMP system, creating a successful budget coalition requires providing enough public goods spending to entice the support of parties who maximize seats by winning nationally. In an MMM system, the executive is in a different situation. Although providing public goods spending can get votes from some legislators and parties, executives can also use targeted spending to increase support for the budget among nominal-tier legislators. Thus executives can essentially buy legislative support with particularistic transfers, avoiding the more expensive public goods spending. Potentially, executives in MMM systems could build not only intraparty but also interparty coalitions, using the lure of particularistic resources to entice nominal-tier legislatures who must satisfy local constituents at all costs. In an
MMP system, however, executives are forced to bargain with other parties over expensive public goods spending. Thus coalition building in MMP systems is more expensive in MMM systems, leading, potentially, to both more overall expenditures and more public goods expenditures.

This discussion leads to two key conclusions for the work that follows. First, if our contention that the distinction between MMM and MMP is a substantive one, we expect a similar link between proportionality and government spending and find that MMM systems produce lower levels of government expenditure than MMP systems:

Hypothesis 1: MMM systems will have lower levels of government expenditure than MMP systems.

Second, it is possible that the effect of MMM systems will be conditional not simply on the absence of the link between the tiers but also the proportion

<table>
<thead>
<tr>
<th>Country</th>
<th>Mixed System Type</th>
<th>Nominal-Tier Percentage</th>
<th>Executive Type</th>
<th>Years in Data Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>MMP</td>
<td>74.2</td>
<td>Presidential</td>
<td>2</td>
</tr>
<tr>
<td>Bolivia</td>
<td>MMP</td>
<td>52.3</td>
<td>Presidential</td>
<td>4</td>
</tr>
<tr>
<td>Georgia</td>
<td>MMM</td>
<td>36.2</td>
<td>Presidential</td>
<td>4</td>
</tr>
<tr>
<td>Germany</td>
<td>MMP</td>
<td>50</td>
<td>Parliamentary</td>
<td>9</td>
</tr>
<tr>
<td>Hungary</td>
<td>MMM</td>
<td>45.6</td>
<td>Parliamentary</td>
<td>10</td>
</tr>
<tr>
<td>Italy</td>
<td>MMM</td>
<td>75.4</td>
<td>Parliamentary</td>
<td>6</td>
</tr>
<tr>
<td>Japan</td>
<td>MMM</td>
<td>60</td>
<td>Parliamentary</td>
<td>7</td>
</tr>
<tr>
<td>Lithuania</td>
<td>MMM</td>
<td>50.4</td>
<td>Semipresidential</td>
<td>8</td>
</tr>
<tr>
<td>Mexico</td>
<td>MMM</td>
<td>60</td>
<td>Presidential</td>
<td>3</td>
</tr>
<tr>
<td>New Zealand</td>
<td>MMP</td>
<td>54.2</td>
<td>Parliamentary</td>
<td>5</td>
</tr>
<tr>
<td>Panama</td>
<td>MMM</td>
<td>36.6</td>
<td>Presidential</td>
<td>8</td>
</tr>
<tr>
<td>Philippines</td>
<td>MMM</td>
<td>93.7</td>
<td>Presidential</td>
<td>3</td>
</tr>
<tr>
<td>Russia</td>
<td>MMM</td>
<td>50</td>
<td>Semipresidential</td>
<td>3</td>
</tr>
<tr>
<td>South Korea</td>
<td>MMM</td>
<td>80.5°</td>
<td>Presidential</td>
<td>9</td>
</tr>
<tr>
<td>Taiwan</td>
<td>MMM</td>
<td>76.9°</td>
<td>Presidential</td>
<td>4</td>
</tr>
<tr>
<td>Ukraine</td>
<td>MMM</td>
<td>50</td>
<td>Semipresidential</td>
<td>2</td>
</tr>
<tr>
<td>Venezuela</td>
<td>MMP</td>
<td>45.2°</td>
<td>Presidential</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: MMM = mixed-member majoritarian; MMP = mixed-member proportional.

a. Between 1992 and 1996, Albania employed an MMM system. Our data for government spending in Albania, however, cover only the MMP period.

b. Because of changes in the electoral system, this is the average percentage of nominal-tier seats across the different systems.
of nominal-tier legislators. The proportion of nominal-tier to list-tier legislators varies significantly between different electoral systems. For example, although the Russian and Ukrainian systems elect 50% of their legislators in the nominal tier, the Philippine systems elects 93.7% of its legislators in the nominal tier. If the expenditure savings in MMM systems comes from the ability of executives or parties to build budget coalitions with targeted spending aimed at nominal-tier legislators, it makes sense that expenditures would vary based on the amount of nominal-tier legislators. A larger pool of nominal-tier legislators creates more opportunities to use cheaper particularistic spending to build coalitions. If this insight were correct, we would expect that

Hypothesis 2: In MMM systems the level of government expenditure should decrease as the percentage of nominal-tier seats increases.

In addition, the difference between systems may be not merely in total government expenditures but also in levels of public goods spending. If legislators in proportional representation systems desire more public goods spending than legislators in majoritarian systems, then we should definitely see differences in public goods spending between these systems. If we do not find such a link, then one could argue that the levels of increased spending may simply reflect greater transfer payments and “pork barrel” politics, and not greater public goods spending. Thus the following can be hypothesized:

Hypothesis 3: MMM systems will have lower levels of public goods spending than MMP systems.

Hypothesis 4: In MMM systems, the level of public goods spending should decrease as the percentage of nominal-tier seats increases.

Data and Method

To test our hypotheses, we constructed a data set of 17 countries with mixed-member electoral systems between 1990 and 2000 (see Table 1).7 We did not include observations for those years in which countries were not at least minimally democratic.8 Moreover, the lack of data forced us to eliminate several potential cases such as Armenia, Azerbaijan, Cameroon, Croatia, Guinea, Guatemala, Macedonia, Senegal, Thailand, and Tunisia.

7. This range of cases was driven primarily by the availability of data and the fact that the 1990s saw the creation of so many new systems.
8. For an observation to be included, the country must have scored at least six on the Democracy score in the Polity IV data set (Polity IV Project, 2000).
The Bulgarian legislature elected by the mixed system served for only 1 year; therefore, it is also removed from the sample.9

We employ two dependent variables to test our hypotheses. First, we measure government expenditure as a percentage of GNP (Bank of Japan, 2004; Republic of China Directorate-General of Budget, Accounting, and Statistics, 2002; World Bank, 2002). This variable is the best available cross-national measure of government spending. Second, we measure public goods as the percentage of government spending devoted to social support programs (International Monetary Fund, 2004 2003 IN REF). Social support programs are by definition universal in design and cannot be tailored to the specific demands of citizens. Thus this operationalization fits the notion of a public good well. For our purposes, this includes spending on programs for sickness and disability, old age, survivors, families and children, unemployment, and housing (International Monetary Fund, 2001).10

To estimate these equations, we use time-series regression models that employ panel-corrected standard errors with an AR (1) specification. The Wooldridge (2002) test for autocorrelation in panel data indicated the presence of autocorrelation in all model specifications. This is not surprising, given that one of the strongest determinants of expenditure in a given year is the level of expenditure in the previous year. Thus we use an AR (1) specification in all models and assume the autocorrelation is common to all panels (N. Beck & Katz, 1995). In addition, the model assumes that the errors are heteroscedastic and correlated across panels.

To understand mixed-electoral system effects on overall state spending and public goods spending, we use two independent variables. First, MMM is a dummy variable that indicates those systems that are MMM systems. In our data set, there are 5 states with MMP systems and 12 states with MMM systems. If Hypotheses 1 and 3 are correct, then this variable should be negatively correlated with both total government expenditures as a percentage of GNP and with the percentage of public goods spending when controlling for other factors.

To test the effect of the percentage of nominal-tier seats (Hypotheses 2 and 4), we construct an interaction term between MMM and the percentage of nominal-tier seats. If our hypotheses are correct, this variable should be negatively correlated with both total government expenditures as a percent-

9. Some states adopted mixed-member systems during the period covered in our data set. To control for this, we ran several models with dummy variables indicating these countries and found no significant changes in the results.

10. We do not claim that differences between types of mixed systems affect the year-on-year change in spending levels, because our argument does not address how differences in mixed systems make it easier for politicians to increase or decrease the rate of change of government expenditure.
For models with the interaction term, however, we do not include the main effects variable MMM. Although this goes against standard practice, there are solid theoretical reasons to remove this variable from the models. In a model that included the interaction and the MMM main effects variable, we would interpret the main effects variable as an MMM system with no nominal-tier seats. This would be equivalent to a pure proportional representation system. More important, when nominal-tier seats are 0, there is no theoretical difference between MMM and MMP. Thus we drop the main effects MMM variable because the difference between MMM and MMP can exist only when the percentage of nominal-tier seats is above 0.11 Furthermore, it

11. The authors would like to thank Kathleen Bawn and an anonymous reviewer for making this point to us.

Table 2
Time-Series Regression on Government Spending as a Percentage of GNP

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Model 1 Coefficient</th>
<th>Model 2 Coefficient</th>
<th>Model 3 Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNP per capita(t−1)</td>
<td>−0.0002 (0.0002)</td>
<td>−0.0003 (0.0002)</td>
<td>−0.0002 (0.0002)</td>
</tr>
<tr>
<td>Growth(t−1)</td>
<td>0.0307 (0.1021)</td>
<td>0.0400 (0.1084)</td>
<td>0.0389 (0.1071)</td>
</tr>
<tr>
<td>Unemployment(t−1)</td>
<td>0.1086 (0.2078)</td>
<td>0.1185 (0.2179)</td>
<td>0.1164 (0.2159)</td>
</tr>
<tr>
<td>Percentage of population older than 65</td>
<td>0.5070 (0.4141)</td>
<td>0.6754 (0.4494)</td>
<td>0.6488 (0.4363)</td>
</tr>
<tr>
<td>Openness(t−1)</td>
<td>0.0345 (0.0283)</td>
<td>0.0332 (0.0296)</td>
<td>0.0343 (0.0299)</td>
</tr>
<tr>
<td>Inflation(t−1)</td>
<td>−0.0014 (0.0041)</td>
<td>−0.0016 (0.0043)</td>
<td>−0.0015 (0.0043)</td>
</tr>
<tr>
<td>Lagged election (1,0)</td>
<td>0.0086 (0.7834)</td>
<td>−0.0685 (0.8183)</td>
<td>−0.0517 (0.8265)</td>
</tr>
<tr>
<td>Effective number of political parties</td>
<td>−0.6537 (0.4824)</td>
<td>−0.5919 (0.5726)</td>
<td>−0.5530 (0.5707)</td>
</tr>
<tr>
<td>Presidential system (1,0)</td>
<td>−9.5665** (4.2084)</td>
<td>−9.5554** (4.1587)</td>
<td>−9.5126* (4.1148)</td>
</tr>
<tr>
<td>MMM (1,0)</td>
<td>−3.3509*** (1.2328)</td>
<td>−4.0303*** (1.5006)</td>
<td></td>
</tr>
<tr>
<td>Percentage of nominal-tier seats MMM*Percentage of nominal-tier seats</td>
<td>6.7717 (6.6715)</td>
<td>13.1901* (7.6555)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>29.5542*** (8.5820)</td>
<td>25.4347** (10.7870)</td>
<td>21.8163* (11.1675)</td>
</tr>
<tr>
<td>Countries</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Cases</td>
<td>95</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Model chi-square test</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Note: Panel-Corrected standard errors in parentheses. MMM = mixed-member majoritarian.

* p > .10. ** p > .05. *** p > .01.
should be noted that this situation does not correspond to a real world case. Consequently, we report models with the interaction term of MMM and nominal-tier seat percentage without the main effects variable MMM.12

To control for potential economic determinants of government expenditure, we include a host of lagged independent variables that could potentially account for changes in government expenditure: GNP per capita, GNP growth, unemployment, the percentage of the population older than 65 years of age, openness of the economy to trade, and the rate of inflation as measured by a GDP deflator. These control variables are standard in the econometric analysis of fiscal policy (Milesi-Ferretti & Perotti, 2002; Perotti & Kontopoulos, 2002) and are taken from the World Bank’s (2002) World Development Indicators.

In addition, our regression models employ further political controls. Several studies indicate that presidential systems tend to be associated with lower levels of spending (Baldez & Carey, 2001; McCarty, 2000; Persson et al., 2000; Persson & Tabellini, 1999). Thus we will estimate models using a presidential dummy variable as well. For this variable, all presidential systems are coded 1.

We also include a control for the number of political parties in the political system in all models. The increased spending in MMP systems might simply be because of the number of political parties and not what types of spending they demand. To control for the effect of multiple parties, we include a variable measuring the effective number of political parties (T. Beck, Clarke, Groff, Keefer, & Walsh, 2001; Taagepera & Shugart, 1979).

Finally, we include a lagged dummy variable indicating an election in the previous year. The literature on the political business cycle suggests that expenditures may increase as incumbent governments ramp up spending to secure electoral support (Alesina, 1994; Schultz, 1998). To ensure that our results correctly attribute changes in expenditures to the existing political institutions, we control for pre-election years as well.

**Results**

Table 2 presents the time-series regression results on government spending as a percentage of GNP. Models 1 and 2 show strong support for Hypothesis 1. Even after controlling for other institutional factors, including the presence of a presidential system, lagged elections, and the effective number of political parties in the legislature, governments in MMM systems have

12. The substantive results of the model do not differ if we include the MMM main effects variable.
consistently lower levels of expenditure on the order of more than 3% of GNP (Model 1). The effect of MMM systems holds even when we control for the percentage of nominal-tier seats (Model 2). Yet although strong theory and prior empirical work both recommend the inclusion of the control variables, none of them individually are significant determinants of the level of expenditure.\textsuperscript{13}

Turning to Model 3 in Table 2, the percentage of nominal seats increases government spending as a percentage of GNP only in those systems that are MMP. This suggests that Hypothesis 2 may be correct. To confirm Hypothesis 2, however, requires that we assess the effect of increasing the percentage of nominal seats in MMM systems. The variable MMM*nominal-tier seat percentage tells us how these two variables are related, and from Model 3 we see that the slope of the regression line changes substantially as we increase the percentage of nominal-tier seats. From this, we see that as the nominal-tier seat percentage increases, the distinction between MMM and MMP becomes more salient, as MMM systems have even lower levels of government expenditure.\textsuperscript{14}

To better illustrate the magnitude of these effects, we follow Brambor, Clark, and Golder’s (2004) advice to illustrate graphically the marginal effects of MMM on government expenditure across the observed range of nominal-tier percentage. The graph of this effect is shown in Figure 1. We have added confidence bands around the estimate to make our results more apparent.

Figure 1 suggests that differences between MMM and MMP are not merely a pure intercept difference but instead, are closely related to the percentage of nominal seats. When the percentage of nominal seats is low, these confidence intervals are wide and only one of them is above the 0 line. As the percentage of nominal seats increases past 60%, the upper and lower bounds of the confidence intervals are both negative, telling us that MMM systems exhibit significantly lower levels of government spending in this range of nominal seats, as suggested in Hypothesis 2.\textsuperscript{15}

Of course, the reason these results hold is simple. It is theoretically possible for a country to have an MMM system with a very small percentage of seats elected by single-member districts. However, one should not expect such a system to exhibit the same behavior as an MMM system in which 75% of the members are elected in single-member districts because the prefer-

\textsuperscript{13} Joint tests, however, indicate that we could not reject the hypothesis that these variables are not different from 0.

\textsuperscript{14} Standard linear combination tests also support this claim (Friedrich, 1982).

\textsuperscript{15} Of our observations, 42% have nominal-seat percentages above 60% and are MMM (\(N = 40\)). Thus this result is not driven by a small number of observations.
ences of legislators in each system for transfers or public goods will differ. As we increase the percentage of legislators chosen by the nominal tier, this means more legislators that prefer (lower cost) transfers to (more expensive) public goods spending. As a result, the budgets that are adopted in this second system have lower levels of expenditure than in the first.

As we note above, the extant literature links proportional representation systems to higher levels of public goods spending. To better demonstrate this, we run similar models using percentage of expenditures on social protection as our measure of public goods spending to test Hypotheses 3 and 4.16 Table 3 reports the results of these models. As expected, MMM systems have lower levels of social protection spending even when controlling for other economic and political factors (Hypotheses 3). As in Table 2, we see the negative effects of presidential regimes on spending. In contrast, however, we also find that the rate of inflation, the percentage of population older than 65, and per capita income are important determinants of the level of social protection expenditure.17

16. Unfortunately, we do not have reliable public goods spending data for Georgia, Japan, and Taiwan.

17. The result for percentage of population older than 65 is negative, not positive. This result is because of a high level of collinearity with the presidential dummy, and we chose to leave it in rather than omit the variable from Models 4 through 6. We estimated the models without both variables and found no significant changes in the results.
## Table 3

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Model 4 Coefficient</th>
<th>Model 5 Coefficient</th>
<th>Model 6 Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNP per capita(_{(t-1)})</td>
<td>5.880E-06** (2.410E-06)</td>
<td>5.000E-06** (2.400E-06)</td>
<td>5.670E-06*** (2.020E-06)</td>
</tr>
<tr>
<td>Growth(_{(t-1)})</td>
<td>-0.001 (0.0003)</td>
<td>0.0001 (0.0003)</td>
<td>0.0000 (0.0004)</td>
</tr>
<tr>
<td>Unemployment(_{(t-1)})</td>
<td>-0.0014 (0.0017)</td>
<td>-0.0013 (0.0017)</td>
<td>-0.0013 (0.0017)</td>
</tr>
<tr>
<td>Percentage of population older than 65</td>
<td>-0.0308*** (0.0094)</td>
<td>-0.0308*** (0.0092)</td>
<td>-0.0322*** (0.0085)</td>
</tr>
<tr>
<td>Openness(_{(t-1)})</td>
<td>-0.0004 (0.0003)</td>
<td>-0.0004 (0.0003)</td>
<td>-0.0004 (0.0003)</td>
</tr>
<tr>
<td>Inflation(_{(t-1)})</td>
<td>-0.0001* (0.0000)</td>
<td>-0.0001* (0.0000)</td>
<td>-0.0001* (0.0000)</td>
</tr>
<tr>
<td>Lagged election (1,0)</td>
<td>0.0053 (0.0047)</td>
<td>0.0043 (0.0048)</td>
<td>0.0042 (0.0047)</td>
</tr>
<tr>
<td>Effective number of political parties</td>
<td>0.0187*** (0.0037)</td>
<td>0.0205*** (0.0065)</td>
<td>0.0212*** (0.0067)</td>
</tr>
<tr>
<td>Presidential system (1,0)</td>
<td>-0.3545*** (0.0814)</td>
<td>-0.3675*** (0.0789)</td>
<td>-0.3749*** (0.0750)</td>
</tr>
<tr>
<td>MMM (1,0)</td>
<td>-0.0500** (0.0241)</td>
<td>-0.0573** (0.0235)</td>
<td>-0.0573** (0.0235)</td>
</tr>
<tr>
<td>Percentage of nominal-tier seats</td>
<td>0.0766* (0.0393)</td>
<td>0.1596*** (0.0515)</td>
<td>0.1596*** (0.0515)</td>
</tr>
<tr>
<td>MMM Percentage of nominal-tier seats</td>
<td>-0.0998*** (0.0324)</td>
<td>-0.0998*** (0.0324)</td>
<td>-0.0998*** (0.0324)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.5321*** (0.1256)</td>
<td>0.5012*** (0.1295)</td>
<td>0.4631*** (0.1314)</td>
</tr>
<tr>
<td>Countries</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Cases</td>
<td>77</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td>Model chi-square test</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Note: Panel-Corrected standard errors in parentheses. MMM = mixed-member majoritarian.

*\(p > .10\), **\(p > .05\), ***\(p > .01\).
However, our claim is not that this distinction is merely an intercept effect. As can be seen from Model 6 in Table 3, the interactive variable MMM*nominal-tier seat percentage is negative and strongly significant, as suggested in Hypothesis 4. To further support Hypothesis 4, we estimate the marginal effects of MMM across the percentage of nominal-tier seats (see Figure 2).

Figure 2 presents the estimates of the marginal effects of MMM across the percentage of nominal-tier seats, using the same procedure described earlier. These results are similar to those displayed in Figure 1. As more legislators are elected in the nominal tier, the differences between MMM and MMP systems become more visible. Increases in the nominal-tier percentage mean that more legislators are elected in local districts and have incentives to provide particularistic goods to local constituents. Because we know that these legislators have lower demands for public goods spending and because MMM systems have independent tiers, there are weak incentives for higher levels of expenditure. Not only does it not help individual legislators win office but also the parties do not have incentives to cater to broad swaths of voters.18

18. We reestimated both models with a 2SLS regression in which growth or unemployment led politicians to change either the electoral system or the percentage of nominal seats. Our regressions using this approach produced no evidence that this charge has validity.
Conclusion

The proliferation of mixed-member electoral systems has led to significant effort to specify their effects. However, scholars studying these systems are notably silent regarding how differences within the category of mixed systems shape policy outcomes. Although the category of mixed-member systems encompasses a multitude of different institutional configurations, this article demonstrates how these distinctions can be simplified by addressing two significant distinctions in mixed-member systems, namely, whether a system is MMM or MMP and the percentage of nominal seats. Using the political economy literature on the electoral system effects on size of government, we hypothesize that MMM systems would behave more like pure majoritarian systems and that MMP systems would behave more like pure proportional representation systems. We provide empirical support for this hypothesis and show that the institutional differences between the systems produce divergent policy outcomes. In addition, we find that the distinction between MMM and MMP is in fact contingent, as it turns on the percentage of nominal seats. Increases in the size of the nominal tier serve to heighten distinctions between MMM and MMP, leading to important distinctions between the two types of systems in expenditure patterns.

These findings have definite implications for the future of study of mixed-member electoral systems. The differences in fiscal policy outcomes between MMM and MMP systems noted here is further indication of the diversity among mixed-member systems. It is clear that this diversity is a warning to those who make arguments about the common effects of mixed-member systems as a whole. More important, however, the findings of this article indicate that more research must take place on institutional differences among mixed-member systems to understand better when and how these distinctions matter.

Finally, there are clear policy implications for the institutional variations among mixed-member systems. The decision to link tiers and the choice of a particular nominal-tier to list-tier ratio clearly affects levels of government expenditures and the types of expenditures the system produces. Thus when we try to understand the policy effects of mixed-member systems, we need to take into account the differences among mixed-member system rules. The results presented here fit within the broader literature on the fiscal policy effects of electoral systems, lending credence to them. Nonetheless, only further research can indicate whether the different institutional configurations of mixed-member systems can lead to different results in areas beyond fiscal policy.
References


Ishiyama, John. (2000). Candidate recruitment, party organization and the Communist successor parties: The cases of the MSzP, the KPRF, and the LDDP. *Europe-Asia Studies*, 52, 875-896.


Reed, Steven. (2001). Duverger’s law is working in Italy. *Comparative Political Studies*, 34, 312-327.


Frank C. Thames is an assistant professor in the Department of Political Science at Texas Tech University. His research primarily focuses on legislative behavior in post-Communist regimes. His recent work has appeared in Comparative Political Studies, Social Science Quarterly, and Communist and Post-Communist Studies.

Martin S. Edwards is an assistant professor in the Department of Political Science at Texas Tech University. His research primarily focuses on the interaction of domestic and international financial institutions. His most recent work has appeared in Social Science Quarterly.