Societal Preferences, Partisan Agents, and Monetary Policy Outcomes

David H. Bearce

Do societal preferences matter with regard to national economic policy? If different producer groups have divergent interests concerning macroeconomic policies, how do societal preferences translate into state policy outcomes? To answer these questions, I examine how the advanced industrial democracies resolved the monetary autonomy/exchange-rate stability trade-off in the post–Bretton Woods era characterized by global financial integration.

The Mundell-Fleming framework from open-economy macroeconomics posits that, with international capital mobility, governments must choose between monetary policy autonomy and exchange-rate stability.[1] This trade-off means that efforts to achieve and maintain a stable national currency come with the potential loss of monetary policy autonomy. If governments wish to stabilize exchange rates, then they must move the national interest rate in line with the prevailing world interest rate, a process known as monetary convergence. If national interest rates diverge from the world interest rate for domestic reasons (that is, monetary autonomy), then capital flows will put pressure on exchange rates, leading to currency instability. In short, governments have one monetary policy, which can either be directed at external currency stability or used for internal economic objectives.

With regard to the monetary autonomy/exchange-rate stability trade-off, political science has well-developed models of divergent societal preferences. Most notably, Frieden posited that internationally oriented producers prefer monetary convergence to achieve exchange-rate stability, while domestically oriented producers desire monetary autonomy, accepting the costs of greater currency instabil-

I thank the editor of *IO* and two anonymous reviewers for their challenging comments and useful suggestions. I also thank Bill Bernhard, Eric Fisher, Tim Frye, Mark Hallerberg, Ed Mansfield, Pat McDonald, Layna Mosley, Aníbal Pérez-Liñán, and David Rowe for their comments and advice on the many earlier versions of this article. Finally, thanks are also due to Sawa Omori for her research assistance on this project. All errors remain my own responsibility.

1. See Mundell 1960 and 1963; and Fleming 1962.

International Organization 57, Spring 2003, pp. 373–410
© 2003 by The IO Foundation.
DOI: 10.1017/S0020818303572058

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

ity.[2] Scholars developing models of societal economic preferences have often cautioned that their models only reflect political cleavages, not actual policy outcomes.[3] Yet political scientists should be interested in policy outcomes. Outcomes can explain the private interests underlying public policy formation, and also have distributional effects, strengthening certain private interests at the expense of others.

In moving from societal preferences to state policy outcomes, scholars have tended to rely (often implicitly) on a simple economic pluralist framework. Economic pluralism begins with societal economic interests. The state tends to be an underdeveloped or weak actor, functioning as a referee among competing societal interests. Larger and wealthier societal groups can be expected to win the political competition, achieving their desired policy outcome. In terms of the monetary autonomy/exchange-rate stability trade-off, scholars argue that the advanced industrial democracies have moved toward monetary convergence and fixed exchange rates consistent with the preferences and growing size (that is, expanding political power) of the export sector and international investors.[4]

There is at least one empirical problem with economic pluralism applied to monetary/exchange-rate policy. If the state simply acts as an arbiter among competitive societal groups, there should be ample evidence of these various societal groups lobbying the state for particular exchange-rate outcomes. Yet such episodes are relatively rare.[5] As Odell reported about monetary policymaking in the United States (often identified as a weak state permeated by interest group influence):

> Despite the supposed interests of various economic groups with respect to international monetary questions, the 1960s and 1970s saw virtually no campaigning by organized groups on these issues. This is one of the most striking findings of this study. Unknown private contacts between officials and close associates might have taken place, but not a single interviewee from the executive branch was able or willing to cite an instance of lobbying on international monetary issues.[6]

McNamara offered additional evidence about the apparent noninfluence of societal groups on European monetary policymaking.[7] In their recent review of the literature, Broz and Frieden identified nonlobbying on exchange-rate issues as a remaining political "puzzle."[8]

Thus an important test for any framework seeking to supplant economic pluralism is that it be able to explain why exchange-rate lobbying is a relatively infrequent activity. As an alternative to economic pluralism, I develop and test a party-as-agent framework for understanding the importance of societal prefer-

2. Frieden 1991.
3. See Frieden 1991, 450; and Rogowski 1987, 1133.
4. See Frieden 1996a and 2002.
5. On this point, see Krasner 1978a and Gowa 1988.
6. Odell 1982, 126.
7. McNamara 1998, 41.
8. Broz and Frieden 2001, 333.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

ences in monetary policy outcomes. Consistent with the broader principal-agent model, political parties function as agents for different societal principals. Rightist parties tend to represent internationally oriented business groups with preferences for monetary convergence, while leftist parties do the same for domestically oriented groups preferring monetary autonomy under capital mobility.

I offer two types of evidence in support of the party-as-agent framework. First, I present statistical evidence showing that leftist governments in the Organization for Economic Cooperation and Development (OECD) have been associated with greater monetary autonomy and currency variability than their rightist counterparts, even after controlling for basic economic indicators such as inflation. The statistical evidence also shows—contrary to simple economic pluralism—that societal group size tends not to explain either autonomous monetary choices or exchange-rate variability. Thus even large and wealthy societal groups may be unable to obtain their preferred policy outcomes when their respective partisan agents do not hold the reins of government power.

Second, I present historical case analysis focusing on the emergence of societal exchange-rate lobbying in the United States since the early 1970s. Because lobbying is a costly activity and lobbying agents not beholden to the principal's preferences can be ineffective, the principal-agent framework predicts that societal lobbying for exchange-rate stability is most likely to emerge when rightist governments fail to work toward this external policy objective, shirking the preferences of their internationally oriented principals. Societal groups preferring monetary convergence generally failed to lobby the Carter administration when exchange rates became unstable in the late 1970s. In the early 1980s, exchange-rate lobbying exploded as the first Reagan administration ignored the preferences of large international business groups, a core Republican electoral base demanding a stable and competitive U.S. dollar. Exchange-rate lobbying then subsided in the late 1980s as the second Reagan administration worked more actively on behalf of monetary convergence and exchange-rate stability.

The remainder of this article is divided into four sections. The first briefly identifies different societal groups with strong monetary policy preferences under capital mobility. It then examines three political models explaining how these preferences may get translated into policy outcomes: (1) simple economic pluralism, (2) the party-as-agent model with significant agent shirking, and (3) the party-as-agent model with no shirking (that is, the principal-agent problem is fully solved). The second section presents the statistical evidence. The third section presents the historical case analysis. The fourth section concludes.

Societal Preferences

Which Groups Matter?

To understand whether and how societal preferences matter for national economic policy outcomes, I first identify the relevant societal groups and specify their monetary policy preferences under capital mobility. I focus here on preferences for

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

monetary autonomy or convergence, rather than on preferences for or against exchange-rate stability.[9] Two frameworks for understanding societal preferences on economic policy issues predominate: sectors and factors. I will look first at monetary preferences organized by economic sector, then at preferences organized by production factors.

Economic sectors. Frieden provided the most widely cited model of societal monetary preferences.[10] Employing the Ricardo-Viner model, which assumes that factors of production (for example, capital and labor) remain fixed in different industries at least in the short term, Frieden identified four important economic sectors.[11] Capital and labor interests within a given sector can be expected to unite because these factors are specific to the sector. Import-competing producers and producers of nontradable services hold preferences for national monetary policy autonomy given their strong domestic business orientation. Conversely, export-oriented producers and international investors prefer monetary convergence because currency movements may negatively affect their cross-border business activities.

Frieden's sectoral model is not the only example of sectoral preferences regarding monetary/exchange-rate policies. Both Henning and Hefeker identified banking/financial services, a segment of the service economy with international interests, as a key sector in this issue area.[12] Henning and Hefeker argued that financial services will prefer monetary convergence under capital mobility, although they cited different underlying reasons. Despite banks' ability to hedge their foreign currency exposure, Henning concluded that "exchange rate volatility has inflicted large losses on banks and exposed weaknesses in management control. In a couple of instances [Bankhaus I. D. Herstatt and Franklin National Bank of New York in the 1970s], volatility has rendered banks completely insolvent and threatened associated creditor banks."[13]

Scholars have sometimes argued that banks profit from currency variability because of their sales of forward-exchange contracts and other hedging instruments.[14] However, Hefeker showed that banks, especially large ones, possess special reasons to favor currency stability, because total banking transactions can be expected to grow with monetary convergence. Thus any profits lost in the foreign

9. I thank an anonymous reviewer for reminding me that it is unlikely that any groups hold direct preferences for exchange-rate instability. If there were no policy trade-offs under international capital mobility, all groups would probably like to have both monetary autonomy and a stable currency. But such a trade-off does exist, and greater exchange-rate variability is the expected side-effect of choosing greater monetary autonomy. In the statistical analysis that follows, I will use measures of currency variability as robustness checks for the models of monetary policy autonomy.

10. Frieden 1991.

11. For a concise summary of Ricardo-Viner and Heckscher-Ohlin, see Alt et al. 1996.

12. See Henning 1994; and Hefeker 1997. Some scholars identify Frieden's "international investors" as banking/financial services. However, Frieden 1996a operationalized this sector in terms of foreign direct investors. Hence, I treat financial services as a different societal interest group, although one with the same expected preferences for monetary convergence as foreign direct investors.

13. Henning 1994, 25.

14. See, for example, McNamara 1998, 37–38.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

exchange divisions of large banks will be more than offset by profits earned elsewhere. Hence, large banks and financial service firms may have strong preferences for monetary convergence under international capital mobility.

Production factors. As the monetary autonomy/exchange-rate stability tradeoff follows analytically from the condition of capital mobility, one should also consider societal preferences organized along factors of production. Here I focus on a simple two-factor model with only capital and labor, applying a Heckscher-Ohlin framework. There are strong empirical and theoretical reasons to use such an undifferentiated two-factor model. On the empirical side, critics of the Heckscher-Ohlin framework note that it tends to perform best with only two factors.[15] On the theoretical side, Heckscher-Ohlin serves as a long-run framework. Over a long period of time, it often makes little sense to differentiate within factors. For example, the differences between physical and financial capital disappear over time: factories can be converted to money, just as liquid capital can purchase physical equipment. On the labor side, differences between skilled and unskilled labor may disappear over time as unskilled workers obtain training and education to advance to more skilled positions.

Heckscher-Ohlin assumes that factors of production can move without cost from one sector of the economy to another. As such, factor returns become equalized across sectors of the economy. In other words, the returns on capital are assumed to be identical regardless of whether the capital is being invested in steel or electronics. Similarly, the returns on labor (that is, wages) are assumed to be the same for workers in steel and electronics. However, the returns for each factor vary according to their relative endowment within the domestic economy. Consequently, capital and labor often have divergent preferences with regard to national economic policy.

With global financial integration, capital is not tied to the local economy. As a result, capital owners may have little interest in domestic monetary autonomy. Inasmuch as monetary convergence facilitates the free movement of money, capital owners can be expected to hold strong preferences for this policy outcome.[16] Labor is more tied to the local economy than mobile capital.[17] Consequently, labor should have a strong interest in maintaining domestic monetary autonomy.[18]

In short, it is possible to identify at least seven producer groups in society, organized along either sectors or factors, with preferences for either monetary autonomy or convergence under capital mobility. These groups and their preferences are summarized below in Table 1.

15. See, for example, Frieden 1991, 436.

16. See Gill and Law 1989; and Underhill 1991.

17. Even in the Europe Union (EU), where the movement of labor across national borders is permitted, labor mobility tends to be quite low, especially because of European cultural and linguistic differences. Most non-EU states maintain controls on labor mobility, as do EU states with regard to non-EU labor.

18. Kapstein 1996.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 1. *Societal groups and their preferred monetary policy outcome*

Societal group	*Monetary autonomy or convergence?*
Import-competing producers	Monetary autonomy
Nontradable services	Monetary autonomy
Export-oriented producers	Monetary convergence
International investors	Monetary convergence
Banking/financial services	Monetary convergence
Capital	Monetary convergence
Labor	Monetary autonomy

How Do Societal Preferences Matter?

Assuming that these preferences are correctly identified, how can one move from societal interests to explain national monetary policy outcomes? To answer this question, I will explore a sequence of political models. The first model, known simply as "economic pluralism," comes from liberal/interest group theories. The second, labeled "party-as-agent," is derived from the principal-agent model. The party-as-agent framework has two important variants. One variant is the party-as-agent with significant shirking. Agent shirking admits the possibility that economic pluralism and the party-as-agent framework function as potential complements. The second variant is the party-as-agent with no shirking. When the principal-agent problem is fully solved, the party-as-agent framework becomes a direct competitor to economic pluralism.

Economic pluralism. Models of societal economic preferences have been extended to explain political outcomes following an economic pluralist logic. Despite claims that their models are only intended to explain political cleavages, and not political outcomes, societal theorists have taken this second step. Rogowski borrowed Becker's simple framework, in which pressure groups compete for political influence based on their wealth and income.[19] Similarly, Frieden implicitly employed the economic pluralist logic in positing that governments will make greater efforts to stabilize exchange rates as international trade and investment grow, reflecting the growing political clout of exporters and international investors.[20]

As a liberal theory beginning with societal actors,[21] economic pluralism argues that policy outcomes can be treated as a function of political competition among societal groups with different preferences and varying political/economic clout.[22]

19. See Rogowski 1987; and Becker 1983.
20. See Frieden 1996a and 2002.
21. Moravcsik 1997.
22. Garrett and Lange 1995, 628.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

In short, one needs to know something about the various groups' preferences (described above) and their relative economic size (that is, how much resources and power they possess as compared to their political competitors). A group's economic size is usually measured relative to another group (such as a capital/labor ratio) or relative to the total economy (such as exports/gross domestic product [GDP]). Economically larger (that is, wealthier) interest groups can be expected to win the political competition, achieving their desired policy outcome. Lobbying becomes a crucial causal mechanism, serving as the means through which societal actors make their preferences known to the state. Without such lobbying, the state cannot know either the relevant societal players or their political/economic interests.

In many liberal theories such as economic pluralism, the state functions as a passive, even weak, actor.[23] The state and its various institutions process societal inputs, and a particular economic policy represents the output. But the state has little interest in the policy outcome itself; its overriding concern is vote maximization to remain in power. Governments, regardless of their supposed partisan-ideological orientation, must pay attention to the larger and more influential societal groups wherein the median voter is most likely to reside.[24] This logic underlies the often-repeated claim that there are declining differences in economic policy terms between governments of the left and right, especially on monetary/exchange-rate issues,[25] given the increasing size of international business and banking and their expanded ability to make their economic preferences heard by the state.[26]

Economic pluralism has no shortage of critics.[27] But in the absence of a simple and viable alternative framework, the pluralist logic persists. One obvious problem with economic pluralism, especially as applied to public goods such as monetary/ exchange-rate policy, is that large societal groups face strong collective action problems.[28] Inasmuch as collective action problems increase with group size,[29] one may even have reason to believe that smaller societal groups could be more effective than larger ones in obtaining their preferred monetary/exchange-rate policy outcomes.

One thus needs to take greater account of political institutions that help overcome collective action difficulties. I focus here on the role of political parties. Aldrich argued that the "political party has long been the [institutional] solution" to collective action problems.[30] Similarly, North described how ideology, a key organizing principle for political parties in the advanced industrial democracies, can overcome the free rider problem.[31] The fact that parties organize around ide-

23. Ikenberry, Lake, and Mastanduno 1988.
24. Downs 1957.
25. McNamara 1998.
26. Kurzer 1993.
27. See, for example, Garrett and Lange 1995; and Milner 1997.
28. Gowa 1988.
29. Olson 1971.
30. Aldrich 1995, 23.
31. North 1981, 45–58.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

ology, used to justify particular economic policies, shows how political parties may act as agents for different producer groups in society.

Party-as-agent framework. More important than group size for the transmission of societal preferences may be the partisan character of the government in power. Building from the principal-agent model, societal interest groups function as principals—economic actors with specific policy goals (delineated above in terms of their preferences for monetary autonomy or convergence). To surmount collective action problems, these societal groups employ agents—other actors who are entrusted to achieve their goals and desired policy outcomes. In liberal Western democracies, these agents are often ideological political parties. This party-as-agent logic suggests that governments care about more than simple vote maximization. They also care about ideas and how their policy outcomes further the interests of core supporters.[32]

To show that political parties effectively act as agents for different principals, one needs to examine affiliations between different societal economic groups and organized political parties. In many contexts, such affiliations are posited without explicit reference to the principal-agent model. For example, scholars studying partisan politics in the advanced industrial economies have long been comfortable in identifying leftist parties as agents for labor interests in society, while rightist parties function as agents for capital interests, following cleavages along factors of production (or classes). While some scholars have identified a decline in class-based partisan politics,[33] Evans recently presented a wide collection of statistical evidence showing that socioeconomic position remains a significant predictor of left/right vote in Western democracies.[34]

Despite arguments to the contrary,[35] there is also evidence to support sectoral-partisan affiliations. The theories of factoral versus sectoral cleavages are certainly derived from different economic models (Heckscher-Ohlin and Ricardo-Viner, respectively); nonetheless, it is interesting to note that the domestically

32. On this point, see Kirschen et al. 1964; Hibbs 1977; Cameron 1984; Garrett 1995 and 1998; and Boix 1998.

33. See, for example, Kitschelt 1994.

34. Evans 1999.

35. Frieden 1994a, 31, argued against any strong sectoral-partisan affiliations, noting that "many of the economic sectors in question cut across traditional party lines." I admit that the overlap is far from perfect and, indeed, there are often certain "sectoral" divisions within large political parties. Nonetheless, I believe there is enough of a broad sectoral-partisan overlap to make the party-as-agent logic potentially operative using economic sectors as well as factors (classes) of production. For example, political scientists making broad class/factoral-partisan affiliations have never argued (nor could they) that all workers voted left and all capitalists voted right. Thus in arguing that rightist and leftist political parties, tend to function as agents for particular classes and sectors within the domestic economy, I am not arguing that all individuals within a given sector vote exclusively for either rightist or leftist parties or that all firms within a given sector contribute financially to only rightist or leftist parties. I am also not arguing that leftist parties work only on behalf of domestically oriented groups preferring monetary autonomy, with rightist parties helping only internationally oriented groups interested in monetary convergence. I will discuss below the political incentives that exist in democratic systems for ideological parties to broaden their electoral base by appealing to outside interest groups.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

oriented sectors (import-competing manufacturing and many categories of nontradable services) tend to be very labor-intensive. Indeed, one identifies industries such as steel and textiles in the developed world as part of the import-competing sector, rather than as components of the international exporting sector, because their heavy manual labor inputs render them almost noncompetitive in international markets dominated by lower-cost producers from the developing world. As Esping-Andersen recently noted, traditional class-political cleavages "are being overlaid by new kinds of 'class' politics," with leftist parties advancing the interests of the sheltered public sector and the middle-class, white-collar service sector.[36] Similarly, the rightist parties in the developed world have relatively tight political links to banks and financial service firms, as well as the large multinational corporations that conduct the bulk of international trade and foreign direct investment.[37]

The strongest evidence for such sectoral-partisan affiliations certainly comes from the U.S. case.[38] Himmelstein noted how U.S. big business "moved to the right in the 1970s, emphasizing the pivotal role of 'capital-intensive industries [exporters], investment banks, and internationally oriented commercial banks' in shaping American politics."[39] Providing quantitative data, Hout, Manza, and Brooks showed that professional and routine white-collar workers in the service sector increasingly support the political left. Furthermore, skilled manual workers (likely to be found in export-oriented industries, as U.S. companies export from a comparative advantage in skilled labor) are shifting their support toward the political right. Finally, less-skilled manual workers, trapped in the import-competing manufacturing sector, remain a solid leftist constituency.[40]

If societal groups generally look to particular political party types to work for their economic interests, then policy outcomes should be consistent with group preferences when their partisan agents hold the reins of government power. Government partisanship becomes a very important explanatory factor, whereas it was effectively irrelevant for standard economic pluralism.[41] The importance of government partisanship does not necessarily mean that societal group size plays no

36. Esping-Andersen 1999, 311.

37. See, for example, Silk and Vogel 1976; and Jacobs 1999. Publicly available online data at ⟨http://www.opensecrets.org⟩ shows that U.S. commercial banks and firms in the financial/insurance/real estate sector contribute more to Republicans than to Democrats.

38. Although somewhat skeptical of sectoral-partisan affiliations, Frieden presented some affirming evidence for the European cases. He wrote: "It is . . . possible to present a highly simplified picture of French and Italian party positions on the EMS. Generally speaking, in both countries, the Right was oriented towards a mix of international business and nontradables, the center (especially the Socialists) reflected nontradables and manufacturing, and the Left (especially the Communists) represented workers in traditional manufacturing [import-competing]." Frieden 1994a, 29.

39. Himmelstein 1990, 129. On this point, see also Ferguson and Rogers 1986.

40. Hout, Manza, and Brooks 1999.

41. On this point, it is interesting to note that when Garrett and Lange 1995 offered their institutional critique of economic pluralism, they did not highlight organized political parties as an important political structure, focusing instead on regime type, electoral system, the number of veto players, autonomous bureaucracies such as independent central banks, and labor unions.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 2. *Contrasting the importance of two factors for three models translating societal preferences to state policy outcomes*

	Economic pluralism	*Party-as-agent with significant shirking*	*Party-as-agent with no shirking*
Societal group size	Most important—larger groups have more resources to win political competition versus smaller groups	Important—even partisan governments have electoral incentives to follow the preferences of larger groups	Unimportant—partisan governments follow the preferences of core supporters and ignore the preferences of nonsupporters, regardless of group size
Government partisanship	Unimportant—all governments must follow the preferences of large groups, regardless of ideology	Important—partisan governments have ideological reasons to work for core supporters	Most important—societal groups will obtain their preferred outcomes only when their partisan agents hold power

role in policy outcomes. There is ample evidence that Western political parties do, at least on occasion and on certain issues more than others, ignore the preferences of core electoral supporters in order to curry support with large and powerful outside constituencies for electoral gains.[42]

In the language of the principal-agent model, the neglected core supporters may view the party's attempts to broaden its electoral base by appealing to large outside groups as "shirking." When societal principals detect agent shirking, they can be expected to lobby their partisan agents for a return to their preferred policy outcomes. I will return to this point in greater detail in section three. The party-as-agent framework with significant shirking predicts that government partisanship and societal group size are both important factors (see Table 2). Parties care about ideology and the interests of core supporters, but they also care about vote maximization. Votes can be maximized by appealing to the largest and most powerful economic interests, following the economic pluralist logic. Thus with significant shirking, the party-as-agent framework and economic pluralism can be treated as complementary models.

However, the party-as-agent framework and economic pluralism become direct competitors as agent shirking disappears. Assuming that the principal-agent prob-

42. See Przeworski and Sprague 1986; and Iversen 1994.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

lem is fully solved (that is, no agent shirking), the party-as-agent framework predicts that societal group size is effectively unimportant. Partisan agents will work for their core societal principals even when those groups are small, and they will ignore the preferences of nonsupporters even when those economic interests are large. All that directly matters for policy outcomes is government partisanship: societal groups will obtain their preferred policy outcomes when their agents hold power, and their preferences will be denied when another group's agents hold political power.

Before dismissing this "no-shirking" assumption with regard to monetary policy outcomes as entirely implausible, several facts merit consideration. First, interest and exchange rates can easily be observed, meaning that the monitoring costs for societal principals should be relatively low. Thus shirking should be particularly easy to detect on monetary and exchange-rate issues. Second, agent shirking on monetary issues entails potentially large electoral costs. All of the broad classes/sectors with strong monetary policy preferences (identified in Table 1) are well-represented in OECD economies. Inasmuch as elections are often decided by only a few percentage points, the loss of even a small core sector could negatively affect the success of a political party in the advanced industrial democracies. As mentioned above, parties risk alienating their electoral base in pursuing new policies appealing to large outside economic interests, especially when those policies have stark distributional implications—as does monetary policy under capital mobility. Third, while there are also clear electoral benefits from courting new larger interest groups, the strong monetary trade-offs under capital mobility make it easier for parties to court outside constituencies on other issues, especially trade/commercial policy.[43]

Statistical Analysis

To test more systematically how societal preferences in Western democracies matter for state monetary policy outcomes, I examine a sample of twenty-two OECD countries[44] over the 1975–92 period using country-year observations ($N = 396$). Data limitations, which will be discussed below, preclude expanding this sample either temporally or cross-sectionally. The models estimated below take the following general form:

43. This is certainly consistent with the George W. Bush administration's recent efforts to court voters in the traditionally Democratic import-competing manufacturing sector by raising tariffs on steel imports for a three-year period.

44. The OECD panel includes: the United States, Japan, Germany, Britain, France, Italy, the Netherlands, Belgium, Denmark, Ireland, Greece, Spain, Portugal, Austria, Sweden, Finland, Norway, Switzerland, Canada, Australia, New Zealand, and Turkey.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

$$\begin{aligned}\text{MONAUT}_{it} = {} & B_0 + B_1 * \text{GDPGROWTH}_{it} + B_2 * \text{INFLATION}_{it} + B_3 * \text{KAPMOBILITY}_{it} \\ & + B_4 * \text{KLRATIO}_{it} + B_5 * \text{EXPORT}_{it} + B_6 * \text{FDI}_{it} + B_7 * \text{BANKING}_{it} \\ & + B_8 * \text{IMPORT}_{it} + B_9 * \text{NONTRADABLE}_{it} + B_{10} * \text{LEFTIST}_{it} \\ & + B_{11} * \text{SHARE}_{it} + B_{12} * \text{PR}_{it} + B_{13} * \text{CBI}_{it} + B_{14} * \text{FIXCOMMIT}_{it} \\ & + B_{15} * \text{UNION}_{it} + \sum(\alpha_j * \text{COUNTRY}_{jit}) + \sum(\alpha_j * \text{YEAR}_{jit}) \qquad (1)\end{aligned}$$

Dependent Variable

In equation (1), the dependent variable is an indicator of monetary policy autonomy (MONAUT), measured in terms of an interest rate differential. Political scientists have been using the term "monetary policy autonomy" for years without precisely defining what it means. So I borrow a definition from open-economy macroeconomics, where the monetary autonomy/exchange-rate stability trade-off under full capital mobility in expressed in terms of the interest parity condition: $i - i^* = \Delta e$, where i is the domestic interest rate, i^* is the prevailing world interest rate, and Δe is a measure of exchange-rate instability.[45] If a government wants to keep its exchange rate stable ($\Delta e \rightarrow 0$), then it must move the domestic interest rate in line with the prevailing world interest rate ($i \rightarrow i^*$), a process known as monetary convergence. Monetary autonomy is thus defined as holding a domestic interest rate that differs from the prevailing world interest rate.[46]

45. See Rose 1994, 30. There is also a covered version of the interest parity condition, which adds a forward premium term to the left-hand side: $(i - i^* + fp)$ where fp measures the forward premium to cover expectations of future currency movements. However, the data demands for calculating the forward premium are quite high, making the measure very difficult and expensive to obtain for anything but a very small sample of states. See Simmons 1999, 58–59 for a discussion of the problems. Because I want to look at a full sample of OECD states, I focus here on the uncovered interest parity condition. In the models that follow, many of the factors that affect the forward premium—such as country and market risk—will be measured indirectly using country- and year-specific fixed effects.

46. I recognize that in certain circumstances, such as during a speculative currency attack, governments will defend their fixed exchange rates by raising domestic interest rates above the prevailing external rate. In this situation, a large positive interest rate differential would indicate a commitment to fix, rather than an autonomous monetary stance. However, these situations are not necessarily problematic when the statistical unit of analysis is a country-year. Speculative currency attacks are almost always a short-term phenomenon, stopping when either the government or market actors run out of money/exchange reserves. They are also relatively rare events among the advanced industrial democracies; see Leblang and Bernhard 2000, 292. The empirical work on exchange market attacks necessarily uses more disaggregated time-series units, usually days, weeks, or months. My interest rate differential indicator of monetary autonomy employs a yearly average measure of national central bank rates. Consequently, even when a government temporarily raises domestic rates above the prevailing external rate to defend their fix (and there are other policy options, including capital controls), the short-term interest rate spike tends not to dominate the yearly average measure. Thus when the average yearly central bank rate remains above the prevailing external rate ($i > i^*$), it is more due to long-term autonomous policy choices, including fiscal expansion, than a temporary defense of a fixed exchange rate.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

Political scientists seem comfortable with the idea that monetary expansion ($i < i^*$) fits the definition of monetary autonomy. But monetary autonomy is also consistent with high domestic interest rates ($i > i^*$), a situation often forced by expansionary fiscal policy choices.[47] Fiscal looseness produces inflationary pressure, forcing government to use monetary policy for inflation control—an internal policy goal consistent with monetary autonomy—rather than the external goal of monetary convergence for exchange-rate stability. This fits with the monetary convergence experience in Western Europe, where prospective Economic and Monetary Union (EMU) member states were required to reduce their fiscal deficits and public debt, as well as lower nominal interest rates, converging on the low-inflation states in the European Union (EU).[48]

Monetary policy autonomy becomes a story of nominal interest rate differentials not because inflation does not matter, but because the nominal interest rate differential reflects fully any expected inflation differential when capital is fully mobile.[49] It is important to understand that real interest rate differentials signify the extent to which money can move across international borders to equalize real returns (that is, capital mobility). Thus a real interest rate differential would not capture the concept of monetary autonomy as understood in open-economy macroeconomics; rather, it measures international capital mobility—a different menu item in the Mundell-Fleming "impossible trinity."

The dependent variable MONAUT thus measures nominal interest rate differential of country i in year t in absolute terms, because nominal interest rates either below or above the world interest rate indicate autonomous choices. To best capture the monetary policy "choice" of national governments (rather than imposed market interest rates), I use the state's central bank rate[50] relative to the average of the Group of 5 (G-5)'s central bank rates,[51] operationalizing the prevailing "world" interest rate.[52]

47. This situation of monetary policy autonomy is described in greater detail in Bearce 2002, 202–4.

48. For a full discussion of the EMU convergence criteria, see Watson 1997.

49. The nominal interest rate differential can be rewritten in terms of real interest rates (r) and expected inflation rates (Π): $(r + \Pi) - (r^* + \Pi^*)$, where * marks the prevailing "world" interest and inflation rates. With full capital mobility, the real interest rate differential is assumed to be zero; hence $r - r^* = 0$. If the real interest rate differential is not zero, then capital can be expected to flow until such differential real returns are equalized, underscoring the important point that the real interest rate differential simply measures the extent of capital mobility, not the extent to which national monetary policies are autonomous. With full capital mobility, the r terms cancel and the nominal interest rate differential fully reflects any differential rates of expected inflation. To the extent that capital is not fully mobile, I add a control variable for capital account openness in the statistical models that follow.

50. The central bank rate usually comes from International Monetary Fund, *International Financial Statistics* line 60 ("discount rate"). When line 60 is empty, I use values from line 60b, followed by 60c, both of which are other central bank interest rates. For the United States, 60b is the "Federal funds rate" and 60c is the "Treasury bill rate."

51. For each G-5 state in the sample, I make an important adjustment. The interest rate differential for the United States, Japan, Germany, Britain, and France is measured relative to the other G-4 states.

52. The logic here is that the G-5 states have the world's largest capital-producing economies, and thus together set the prevailing world interest rate.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

Independent Variables

The first set of independent variables serve largely as control terms. Considering that monetary policy is normally adjusted with the national business cycle, I include terms for domestic economic growth and inflation in the model. GDPGROWTH measures the real growth rate of state *i*'s GDP in year *t*, while INFLATION indicates the inflation rate.[53] KAPMOBILITY controls for the country's openness on the payments and receipts of capital.[54]

The next set of independent variables indicates the relative size (as a measure of the economic power) of the societal groups referenced in Table 1. KLRATIO measures the capital/labor ratio of country *i* in year *t* (in thousands of constant $US), to operationalize the relative strength of capital versus labor interests following an economic pluralist logic.[55] EXPORT indicates the potential strength of the export sector, looking at exports as a percent of country *i*'s total GDP in year *t*.[56] FDI measures the relative size of international investors, measuring outward foreign direct investment as a percent of country *i*'s total GDP in year *t*.[57] BANKING measures the size of the financial service sector as a percent of total GDP for country *i* in year *t*. IMPORT indicates the imports of country *i* in year *t* as a percent of its total GDP.[58] NONTRADABLE measures the size of the nontradable service sector net of financial *services* as a percent of total GDP for country *i* in year *t*.

LEFTIST measures the ideological complexion of the government in power for state *i* in year *t*, employing a five-point scale where 1 = right dominance, 2 = right-

53. These data come from the World Bank, *World Development Indicators CD-ROM*.

54. Quinn and Inclan 1997.

55. These data come from the Penn World Tables, Mark 5.6a, and are available only through 1992, thus restricting my temporal domain.

56. Export, import, service sector, and banking/financial service sector data all come from the OECD's *Annual National Accounts, Volume II: Detailed Tables* (various years). Sectoral data for Luxembourg was unavailable, so it was not included in this OECD sample. Complete sectoral data, especially concerning the size of the banking/financial service sector, is very hard to obtain from non-OECD sources, hence the OECD states define my cross-sectional domain.

57. Investment data are provided in the World Bank's *World Development Indicators CD-ROM*. Ideally, one would also include short-term international investments (portfolio investment) in the calculation, but this data is not available for many observations in the sample and is often unreliable even when available. I chose outward foreign direct investment since firms headquartered in the domestic economy are likely to hold the greatest political influence. The results do not change in any significant way if I use an inward FDI measure or inward plus outward FDI.

58. A careful reader will recognize that this variable does not measure the potential political strength of the import-competing sector; rather, it indicates the threat faced by the import-competing sector. Another way to more directly indicate the relative size of this sector would be to subtract exports from total manufactures; the remainder might indicate the amount of manufactured goods that remain in the domestic market subject to import competition. However, because export data includes re-exports and intra-firm trade, exports often exceed total manufactures, especially for the small open European states. Hence, this alternate indicator sometimes yields implausible negative numbers. I thus use imports relative to GDP as the preferred indicator, while acknowledging its potential weakness in an economist pluralist framework.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

centre, 3 = balanced, 4 = left-centre, and 5 = left dominance.[59] This coding scheme includes a potentially problematic assumption that power-sharing necessarily produces centrist policy outcomes: as the right shares power, $1 \rightarrow 3$; and as the left shares power, $5 \rightarrow 3$. So to model more directly the effect of different power-sharing arrangements, I include the variable SHARE, which measures the extent of government party fractionalization.[60] This measure is continuous between 0 and 1, with higher values indicating greater power-sharing among different parties.

Garrett and Lange argued that any test of economic pluralism must fully model the institutional context within which societal preferences become state policy outcomes.[61] Following their advice, I include several other institutional control variables. PR is a simple dummy variable, coded as 1 if state *i*'s electoral system was proportional representation in year *t*; all other systems are coded as 0.[62] CBI measures the independence of state *i*'s central bank in year *t*, using the data from Cukierman, Webb, and Neyapti.[63] Their aggregate central bank independence score is continuous between 0 and 1, with larger values indicating greater legal independence from the government. FIXCOMMIT indicates whether state *i* had a fixed exchange-rate commitment in year *t*. I use a simple index for exchange-rate commitments: states that float their exchange rates are coded as 0, a unilateral peg is coded as 1, and membership in a multilateral currency arrangement is coded as 2.[64] UNION measures the percent of the workforce that is unionized for country *i* in year *t*.[65]

59. These data come from Woldendrop, Keman, and Budge 1993. I use their coding scheme, and data from Lane, McCay, and Newton 1997 to fill in the missing country units.

60. This data comes from the World Bank's *Database of Political Institutions* and begin in 1975, thus further restricting my temporal domain. Power-sharing has a different meaning depending on a country's electoral institution. For countries with high-opposition proportional representation electoral systems (Germany, Italy, the Netherlands, Belgium, Denmark, Austria, Sweden, Finland, Norway, and Switzerland) where power-sharing focuses on executive branch divisions, I use their measure GOVFRAC. For countries with low-opposition proportional representation electoral systems (Greece, Ireland, Spain, and Portugal) and majoritarian electoral systems (the United States, Japan, Britain, France, Canada, Australia, New Zealand and Turkey) where power-sharing extends into the legislative branch, I use their measure FRAC. On the importance distinction between high- and low-opposition proportional representation electoral systems, see Bernhard and Leblang 1999, 77.

61. Garrett and Lange 1995.

62. The cross-sectional variation in OECD electoral systems is described above. Greece, Portugal, and Spain shift to a PR electoral system in the 1970s; hence, there is some temporal variation, as well as cross-sectional, variation in these data.

63. Cukierman, Webb, and Neyapti 1993.

64. These data come from the International Monetary Fund *Exchange Rate Arrangements and Exchange Restrictions Annual Report* (various years). The idea here is that states committing to a multilateral currency arrangement face greater pressures to maintain their commitment in some form. While states with only a unilateral commitment are likely to pay internal audience costs for abandoning the fix, states with a multilateral commitment may also face external audience costs.

65. These data come from Visser 1991. The fact that unions are organized in all sectors of the economy, including banking/financial services, suggests the importance of separating the effects of unionization from those of leftist governments, since, at least on monetary issues, union interests in

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

To complete the model, COUNTRY is a set of dummy variables for each country in the sample, with the United States as the reference category, to control for any country-specific institutional factors that may otherwise be omitted from the model. Country fixed effects are also particularly valuable here given the importance of country premiums in models of monetary policy.[66] Finally, YEAR is a set of dummy variables for each year in the sample, with 1975 as the reference category, to control for any year-specific systemic effects.

As the error structure in these time-series cross-sectional models is likely to be nonspherical—that is, plagued by autocorrelation, heteroskedasticity, or both—I use an econometric technique correcting for both panel heteroskedasticity and spatial (contemporaneous) autocorrelation.[67] I also correct for potential serial autocorrelation within each panel by estimating and adjusting for a panel-specific AR(1) process.[68] The results thus provide Prais-Winsten coefficients with panel-corrected standard errors (PCSE). I will discuss potential problems due to multicolinearity below.

Hypotheses

As models translating societal preferences into state policy outcomes, economic pluralism and both versions of the party-as-agent framework make different predictions concerning the coefficients of key terms in equation (1). These are displayed in Table 3 below. Economic pluralism posits that states with higher capital/labor ratios and greater exports, foreign direct investment, and banking should be associated with less monetary autonomy, consistent with the monetary convergence preferences of these large groups. States with greater import competition and nontradable service sectors should be associated with more monetary autonomy. As all governments are expected to be equally responsive to the larger economic groups, the partisan character of the government in power should not be statistically different from zero.

With significant shirking, economic pluralism and party-as-agent become complementary models. Government partisanship clearly matters for ideological reasons, with leftist governments likely to opt for greater monetary autonomy. But group size also matters, consistent with economic pluralism, because partisan governments face incentives to abandon smaller core supporters to obtain political support from larger outside groups.

some sectors may depart from those of leftist parties. In this regard, it is important to note that some unions affiliate themselves with rightist (especially Christian Democratic) parties in Europe.

66. See fn. 45 above.

67. Beck and Katz 1995.

68. Achen 2000 recommends against the standard practice of simply adding a lagged dependent variable to correct for serial autocorrelation because a lagged dependent variable can bias other coefficients in the model towards zero. As I will draw conclusions from the statistical insignificance of certain variables, it becomes important to avoid Type II errors (statistically rejecting true relationships).

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 3. *Competing hypotheses regarding monetary autonomy*

Independent variables	*Economic pluralism*	*Party-as-agent with significant shirking*	*Party-as-agent with no shirking*
KLRATIO	$B_4 < 0$	$B_4 < 0$	$B_4 = 0$
EXPORT	$B_5 < 0$	$B_5 < 0$	$B_5 = 0$
FDI	$B_6 < 0$	$B_6 < 0$	$B_6 = 0$
BANKING	$B_7 < 0$	$B_7 < 0$	$B_7 = 0$
IMPORT	$B_8 > 0$	$B_8 > 0$	$B_8 = 0$
NONTRADABLE	$B_9 > 0$	$B_9 > 0$	$B_9 = 0$
LEFTIST	$B_{10} = 0$	$B_{10} > 0$	$B_{10} > 0$

Finally, in direct competition to economic pluralism, the party-as-agent model with no shirking posits that all societal group size measures should be statistically insignificant. Group size should not matter directly for policy outcomes because partisan governments represent particular private interests.[69] Governments work on behalf of core supporters, even when those groups are small, and ignore nonsupporters, even when those groups are large. With no shirking, explanatory power should come solely from the term measuring the partisan character of the government in power; leftist (rightist) governments, representing the domestically oriented (internationally oriented) groups in society, should be associated with more (less) monetary autonomy.

Monetary Autonomy

The first set of estimates for equation (1) is shown below in Table 4. Starting with the economic pluralist hypotheses, only three of the six societal group size measures achieve statistical significance with the expected sign. Country-year units with higher capital/labor ratios (KLRATIO) are associated with less monetary autonomy (that is, greater monetary convergence). Country-year units with greater

69. Of course, group size could matter indirectly in the party-as-agent model with no shirking, as more voters in a given sector can provide an electoral advantage to a particular party type. This is difficult to test empirically, however, because the number of employees as voters in each relevant sector can be hard to count. For example, while it may be possible to identify the number of employees in the financial service sector (and treat them all as potential rightist voters), it is very difficult to identify the number of employees in the import-competing sector for reasons discussed in a footnote above. Even if countable, the fact that countries with large import-competing sectors do not consistently elect leftist governments, for example, may be due to differential rates of voting across sectors and even within sectors over time. For space reasons, I do not develop a model here about voter turnout in different economic sectors.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 4. *Estimates of monetary policy autonomy, 1975–92*

Model # *DV*	*1* MONAUT	*2* MONAUT	*3* MONAUT
Constant	−6.52	−3.03	−3.16
	(9.15)	(9.29)	(5.16)
GDPGROWTH	−0.10	−0.11	−0.07
	(0.08)	(0.08)	(0.08)
INFLATION	0.12**	0.12**	0.13**
	(0.06)	(0.06)	(0.06)
KAPMOBILITY	1.75***	1.69***	1.78***
	(0.51)	(0.53)	(0.50)
KLRATIO	−0.32***	−0.32***	
	(0.10)	(0.11)	
EXPORT	−0.04	−0.06	
	(0.07)	(0.08)	
FDI	−0.05	−0.01	
	(0.12)	(0.12)	
BANKING	−0.42	−0.44	
	(0.30)	(0.30)	
IMPORT	0.09**	0.08*	
	(0.04)	(0.05)	
NONTRADABLE	0.36**	0.30*	
	(0.16)	(0.16)	
LEFTIST	0.42***		0.34**
	(0.14)		(0.13)
SHARE	0.82	−0.41	−0.18
	(1.27)	(1.18)	(1.28)
PR	1.87	2.68	2.86
	(1.89)	(1.97)	(2.02)
CBI	−3.66	−1.42	−8.51
	(8.78)	(9.01)	(8.96)
FIXCOMMIT	−0.05	0.008	−0.08
	(0.33)	(0.368)	(0.34)
UNION	0.03	0.03	−0.02
	(0.06)	(0.06)	(0.05)
Observations	396	396	396
R^2	0.49	0.48	0.50
Prob > χ^2	0.000	0.000	0.000

Note: Estimates are Prais-Winsten coefficients with panel-corrected standard errors in parentheses. Country-specific and year-specific fixed effects are not reported. Two-tailed tests reported for each estimate. Statistical significance is indicated as follows:
*** $p < .01$.
** $p < .05$.
* $p < .10$.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

import competition (IMPORT) and nontradable service sectors (NONTRADABLE) show significantly more monetary autonomy. However, the sizes of the export sector, foreign direct investors, and the banking/financial service sector have no strong statistical effect on monetary policy choices.

Consistent with the party-as-agent framework, leftist governments are associated with significantly more monetary autonomy than rightist governments. This result holds even when all the societal group size measures are dropped from the equation (see Model 3 in Table 4). Given the statistically significant inflation control variable, the positive coefficient on the LEFTIST term cannot be explained simply by higher current inflation outcomes associated with the political left. Instead, this result strongly suggests that leftist-led governments opt for greater monetary autonomy, as demanded by their domestically oriented societal principals, than would be expected given current business cycle conditions.

It is important to assess whether any of these results are affected by multicolinearity, especially among the six societal group size measures. Not surprisingly, there is a strong bivariate correlation between most of these measures. Indeed, if I have measured relative group size correctly, there should be such strong correlations, as an increase in the relative size of one group can only come with a relative decrease in the size of another group. Despite these correlations, it is not hard to demonstrate that the statistical (in)significance of the group size measures is not because of multicolinearity. A useful test is to reestimate each model using only one group size measure at a time. With only a single group size measure in each model, the statistical significance of a given group size measure cannot be because of colinearity with the other group size measures, which are omitted.

These results, shown in Table 5, reveal that no group size measure gains statistical significance (as compared with Model 1) when all the other group size measures are omitted from the model. Indeed, NONTRADABLE loses statistical significance in Model 9, suggesting further weakness in the simple economic pluralist logic. Showing the important role of political parties as primary agents of societal monetary interests, the LEFTIST variable achieves strong statistical significance in all models. It is also notable that UNION stands as an insignificant predictor of monetary autonomy, perhaps suggesting that unions are not the primary agent employed by societal principals to obtain their monetary policy preferences, and underscoring the importance of political parties in this issue area.[70]

70. With regard to the statistical insignificance of the UNION term, it is important to acknowledge that because unions are organized across all sectors of the economy, including banking and financial services, they may have different preferences with regards to monetary autonomy or convergence under capital mobility. Ideally, I would have used a more disaggregated measure of unionization by economic sector, but these data are much too limited for a pooled time-series statistical model. Consequently, I employed a broader measure of unionization, which may be problematic because it aggregates unions with different sets of preferences into a single measure.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 5. *Estimates of monetary policy autonomy, 1975–92*

Model #	*4*	*5*	*6*	*7*	*8*	*9*
DV	MONAUT	MONAUT	MONAUT	MONAUT	MONAUT	MONAUT
Constant	0.12	−3.53	−3.27	3.69	−4.73	−11.20
	(4.77)	(8.59)	(4.77)	(8.64)	(5.41)	(7.54)
GDPGROWTH	−0.10	−0.07	−0.07	−0.10	−0.09	−0.04
	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)
INFLATION	0.12**	0.13**	0.13**	0.12**	0.13**	0.13**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
KAPMOBILITY	1.67***	1.71***	1.81***	1.75***	1.88***	1.65***
	(0.49)	(0.51)	(0.48)	(0.53)	(0.50)	(0.51)
KLRATIO	−0.21**					
	(0.09)					
EXPORT		0.08				
		(0.06)				
FDI			−0.05			
			(0.11)			
BANKING				−0.36		
				(0.28)		
IMPORT					0.073**	
					(0.036)	
NONTRADABLE						0.19
						(0.13)
LEFTIST	0.35**	0.37***	0.35**	0.35**	0.36***	0.35**
	(0.14)	(0.14)	(0.14)	(0.14)	(0.13)	(0.14)
SHARE	0.45	0.43	0.23	0.05	0.46	0.47
	(1.26)	(1.29)	(1.30)	(1.29)	(1.30)	(1.27)
PR	2.29	2.81	2.72	2.84	2.54	2.88
	(1.98)	(2.02)	(2.00)	(2.03)	(1.99)	(2.04)
CBI	−4.69	−8.44	−9.11	−6.00	−8.49	−9.33
	(8.71)	(9.05)	(8.53)	(9.24)	(8.98)	(9.21)
FIXCOMMIT	−0.04	−0.07	−0.09	0.02	−0.14	−0.12
	(0.34)	(0.35)	(0.35)	(0.34)	(0.33)	(0.34)
UNION	−0.001	0.003	−0.02	−0.06	0.02	−0.005
	(0.047)	(0.050)	(0.05)	(0.06)	(0.05)	(0.048)
Observations	396	396	396	396	396	396
R^2	0.50	0.52	0.49	0.50	0.51	0.52
Prob > χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Note: Estimates are Prais-Winsten coefficients with panel-corrected standard errors in parentheses. Country-specific and year-specific fixed effects are not reported. Two-tailed tests reported for each estimate. Statistical significance is indicated as follows:
*** $p < .01$.
** $p < .05$.
* $p < .10$.

Exchange-Rate Variability

Given the trade-off between monetary autonomy and exchange-rate stability under the condition of capital mobility, I should be able to replace the dependent variable in equation (1) with a measure of country-year exchange-rate variability

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

and achieve a similar set of statistical results. To best capture the extent of currency variability experienced by diversified international actors, I measure it relative to the Special Drawing Right (SDR), the International Monetary Fund's basket currency based on a weighted average of the G-5 currencies.[71] This is also appropriate because I operationalized monetary autonomy relative to the average G-5 central bank rate.[72] The dependent variable EXRCV thus indicates the coefficient of nominal variation (the standard deviation divided by the mean[73]) for country *i*'s currency versus the SDR in year *t*.[74]

Table 6 shows that simple economic pluralism receives even less statistical support in models of exchange-rate instability. Only one of the six societal group size measures (EXPORT) achieves statistical significance with the expected sign. I note here that the importance of export sector's size for exchange-rate outcomes is generally consistent with Frieden's previous findings.[75] But the fact that all the other group size measures are statistically significant reveals some very important limitations to simple economic pluralism as applied to exchange-rate policy. As predicted by the party-as-agent framework, leftist governments are robustly associated with more currency variability than their rightist counterparts.

71. Given a theoretical story beginning with the preferences of diversified economic actors (exporters and investors) and their propensity to engage in lobbying when exchange rates become excessively unstable, measures of exchange-rate variability using a single currency benchmark (for example, German DM or U.S. $) could be invalid. I can illustrate the potential validity problem with a series of examples. Although Germany is the largest trading partner of each of the following states, less than 1/6 of British exports, less than 1/5 of French and Italian exports, less than 1/4 of Belgian exports, and less than 1/3 of Dutch exports actually went to Germany in 1992. So even using an all-European sample of countries, measuring currency variability relative to only the DM might misrepresent how much exchange-rate instability is actually experienced by diversified traders and investors. Given my broader OECD sample, this validity problem would grow. At least in theory, when these actors encounter undesirable currency movements in one market, they can shift their business activities to other markets as an alternative to costly lobbying for exchange-rate stability. Thus it is important to measure national currency variability relative to a broad currency basket. One alternative to the SDR benchmark would be to create a trade- and capital-weighted measure of national currency variability. In practice, such a measure is problematic to construct for at least two reasons. First, the data on bilateral capital flows are extremely poor. Second, to the extent that currency variability helps determine trade levels, trade-weighted measures of currency variability tend to suffer from serious endogeneity problems (trade levels are used to create the measure of currency variability, yet trade levels are also a function of currency stability). I thus prefer to use the simple SDR benchmark, which presents no extraordinary data demands and no obvious endogeneity problems.

72. Providing some construct validity, Bearce 2002, 197–201 showed that these measures of exchange-rate stability and monetary policy autonomy have the relationship expected by the Mundell-Fleming framework: when controlling for international capital mobility, monetary autonomy—measured in terms of an interest rate differential vis-à-vis the G-5 average—is a statistically significant predictor of exchange-rate instability, measured as national currency variability versus the SDR.

73. In the pooled time-series models that follow, it would be incorrect to use the standard deviation, which is an absolute measure of variability and affected by the unit of measurement (that is, national currency unit), since this unit differs for each country in the sample. Dividing the standard deviation, measured in national currency units, by the mean, also measured in national currency units, creates a unit-less relative measure of currency variability suitable for pooled time-series analysis.

74. Exchange-rate data come from the International Monetary Fund, *International Financial Statistics CD-ROM*, series xxx..ac.zf. . . . I obtain a yearly coefficient of variation using monthly exchange-rate values.

75. See Frieden 1996a and 2002.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 6. *Estimates of exchange-rate variability, 1975–92*

Model # / *DV*	*10* EXRCV	*11* EXRCV	*12* EXRCV
Constant	2.44	5.49	1.37
	(5.58)	(5.57)	(3.37)
GDPGROWTH	−0.01	−0.02	−0.01
	(0.05)	(0.05)	(0.05)
INFLATION	0.09***	0.09***	0.10***
	(0.03)	(0.03)	(0.03)
KAPMOBILITY	0.59*	0.48	0.63**
	(0.32)	(0.31)	(0.28)
KLRATIO	0.02	0.04	
	(0.07)	(0.07)	
EXPORT	−0.07*	−0.08**	
	(0.04)	(0.04)	
FDI	−0.07	−0.04	
	(0.09)	(0.09)	
BANKING	−0.25	−0.24	
	(0.17)	(0.18)	
IMPORT	−0.01	−0.02	
	(0.03)	(0.03)	
NONTRADABLE	0.10	0.04	
	(0.07)	(0.07)	
LEFTIST	0.25***		0.23***
	(0.07)		(0.06)
SHARE	2.13***	1.16*	2.21***
	(0.78)	(0.66)	(0.78)
PR	−0.95	−0.20	−0.69
	(1.45)	(1.45)	(1.42)
CBI	−5.34	−4.20	−6.42
	(7.39)	(7.65)	(6.61)
FIXCOMMIT	0.10	0.22	0.17
	(0.24)	(0.23)	(0.23)
UNION	−0.08*	−0.08**	−0.05
	(0.04)	(0.04)	(0.04)
Observations	396	396	396
R^2	0.63	0.62	0.63
Prob > χ^2	0.000	0.000	0.000

Note: Estimates are Prais-Winsten coefficients with panel-corrected standard errors in parentheses. Country-specific and year-specific fixed effects are not reported. Two-tailed tests reported for each estimate. Statistical significance is indicated as follows:
*** $p < .01$.
** $p < .05$.
* $p < .10$.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 7. *Estimates of exchange-rate variability, 1975–92*

Model #	*13*	*14*	*15*	*16*	*17*	*18*
DV	EXRCV	EXRCV	EXRCV	EXRCV	EXRCV	EXRCV
Constant	1.44	1.63	1.23	6.26	1.46	−2.35
	(3.40)	(3.34)	(3.35)	(5.03)	(3.32)	(4.54)
GDPGROWTH	−0.01	−0.01	−0.006	−0.03	−0.001	−0.006
	(0.05)	(0.05)	(0.050)	(0.05)	(0.050)	(0.050)
INFLATION	0.10***	0.10***	0.10***	0.09***	0.10***	0.10***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
KAPMOBILITY	0.62**	0.68**	0.60**	0.56**	0.54*	0.63**
	(0.29)	(0.29)	(0.28)	(0.28)	(0.29)	(0.28)
KLRATIO	0.004					
	(0.068)					
EXPORT		−0.07**				
		(0.03)				
FDI			−0.09			
			(0.08)			
BANKING				−0.20		
				(0.16)		
IMPORT					−0.036	
					(0.024)	
NONTRADABLE						0.08
						(0.07)
LEFTIST	0.23***	0.22***	0.24***	0.24***	0.22***	0.25***
	(0.17)	(0.07)	(0.06)	(0.06)	(0.06)	(0.07)
SHARE	2.22***	2.18***	2.16***	2.13***	2.08***	2.33***
	(0.78)	(0.76)	(0.78)	(0.78)	(0.80)	(0.76)
PR	−0.69	−0.88	−0.82	−0.66	−0.67	−0.73
	(1.47)	(1.43)	(1.44)	(1.40)	(1.43)	(1.41)
CBI	−6.34	−6.22	−6.15	−6.06	−4.66	−6.38
	(7.12)	(6.62)	(6.59)	(6.61)	(6.96)	(6.58)
FIXCOMMIT	0.17	0.12	0.13	0.21	0.19	0.12
	(0.23)	(0.23)	(0.24)	(0.23)	(0.23)	(0.23)
UNION	−0.05	−0.06	−0.04	−0.07	−0.07	−0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Observations	396	396	396	396	396	396
R^2	0.63	0.63	0.63	0.63	0.63	0.63
Prob $> \chi^2$	0.000	0.000	0.000	0.000	0.000	0.000

Note: Estimates are Prais-Winsten coefficients with panel-corrected standard errors in parentheses. Country-specific and year-specific fixed effects are not reported. Two-tailed tests reported for each estimate. Statistical significance is indicated as follows:
*** $p < .01$.
** $p < .05$.
* $p < .10$.

To further demonstrate that these results are not because of multicolinearity among the societal group size measures, I reproduce the six models from Table 5 using the exchange-rate variability dependent variable. These results, shown above in Table 7, are consistent: no societal group size measure, other than EXPORT, achieves statistical significance, and the partisan character of government in power remains a strong predictor of monetary/exchange-rate policy outcomes.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

As a further robustness check, I also created a measure of national currency variability versus the German Deutschmark (DM). The obvious drawback in only measuring variability versus the SDR is that no OECD government pegged its national currency directly to the SDR, but several countries were effectively pegged to the DM. So despite the potential validity problems associated with single currency benchmarks, it is important to have a secondary measure of currency variability. These regression results, reported in the Appendix, further demonstrate the importance of partisan factors in explaining exchange-rate variability versus the DM. The results also offer yet another illustration of the statistical nonimportance of societal group size measures.

Taken together, the quantitative models of both monetary autonomy and exchange-rate variability show no support for simple economic pluralism. The party-as-agent framework is clearly dominant. While there is some evidence of shirking toward larger societal groups, the evidence in this regard is quite inconsistent. For example, no societal group size measure achieves statistical significance in both the monetary autonomy and exchange-rate variability models. In contrast, the partisan character of the government in power is statistically significant in all models.

Why is there not more evidence of partisan shirking toward larger societal groups on monetary policy issues? As mentioned above, societal principals can easily detect agent shirking on monetary issues because interest and exchange rates are readily observable. While parties often face electoral incentives to shirk smaller core supporters to court larger new interest groups, the stark trade-offs with regard to monetary policy under capital mobility make it easier for parties to shirk on other economic issues, especially trade/commercial policy. Finally, when parties have sought new bases of societal support, the search has not always forced them to compromise on monetary policy preferences. For example, the new societal base of many leftist parties, the labor-intensive service sector, presumably holds the same preferences for monetary policy autonomy as does the more traditional societal base for leftist parties, the labor-intensive import-competing manufacturing sector.

While these statistical results tell an interesting story about the importance of partisan agency for monetary policy outcomes, additional evidence must be considered. As mentioned in the introduction, an important test for any such model in the monetary/exchange-rate issue area is whether or not it can account for the empirical observation that societal groups rarely lobby the state for particular exchange-rate policies. The principal-agent model, from which the party-as-agent logic is derived, sets forth some very restricted conditions under which such societal lobbying activity should emerge. These lobbying expectations accord well with the U.S. experience in the post–Bretton Woods era.

Historical Case Analysis

Lobbying the government represents a very costly activity for societal groups in terms of political capital, time, and financial resources. Thus societal actors will

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

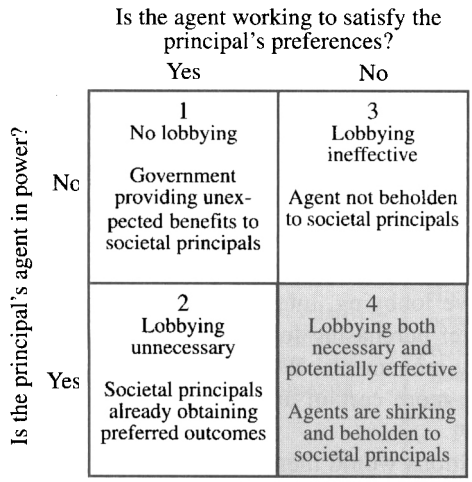


FIGURE 1. *Principal-agent framework and the emergence of societal lobbying*

conduct less lobbying when such activity is either (1) unnecessary or (2) likely to be ineffective. To understand when lobbying will be both necessary and potentially effective, one needs to know if the principal's agent holds government power, and if the agent who does hold power is working on behalf of the principal's interests (see Figure 1).

Lobbying is not expected when the principal's agent does not hold power and yet the agent in power does work unexpectedly on behalf of the principal's preferences (cell 1 in Figure 1). Expensive lobbying is simply unnecessary when the societal principal is receiving surprising and unanticipated benefits from some other group's agent in power. For multinational corporations, international investors, and exporters normally allied with rightist parties, there is certainly no need to lobby a leftist government not beholden to their interests when monetary policy is convergent and exchange rates remain relatively stable.

Lobbying the government will also be unnecessary for societal principals when their own agents are actively working on behalf of their preferences (cell 2). In other words, international investors, bankers, and capital-intensive exporters need not engage in costly lobbying when rightist governments adopt a convergent monetary policy consistent with exchange-rate stability. Because convergent interest rates and stable exchange rates can be readily observed, agent monitoring can usually be accomplished without extensive lobbying by the principals.[76]

76. Austen-Smith and Wright's 1994 theory of counteractive lobbying argues that groups will lobby their own agents, even when those agents are working, in an effort to counteract the lobbying activity of opposing groups. Their theory is tested on judicial nominations, and they conclude that their theory may be unlikely to explain lobbying on distributive issues such as monetary policy. Austen-Smith and Wright 1994, 43.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

One should not expect to observe much evidence of societal lobbying by principals whose partisan agent does not hold power even when the government works against their interests (cell 3). Internationally oriented groups preferring monetary convergence may not lobby leftist governments because their costly lobbying activity is likely to be ineffective, as these leftist agents actively work on behalf of their domestically oriented societal principals demanding monetary autonomy. The absence of lobbying activity should not be read as an indication that societal groups favoring monetary convergence are happy with leftist monetary policy outcomes; in fact, just the opposite is likely to be true. But rather than engage in costly and potentially ineffective lobbying, internationally oriented societal principals may, for example, do better purchasing forward exchange contracts as a hedge against undesirable currency movements. While such hedging instruments can be costly, their effects will be more certain and immediate than lobbying someone else's agent.

Under what conditions would there be costly lobbying on behalf of exchange-rate stability? The principal-agent framework suggests that lobbying is most likely to emerge when the principal's agent does hold power, yet does not work on behalf of principal interests (cell 4). This situation occurs, for example, when rightist governments fail to achieve monetary convergence with stable exchange rates as demanded by their societal principals. If rightist governments "shirk" this duty, then lobbying becomes both necessary and potentially effective, as internationally oriented principals signal publicly to their agent that "shirking" has been detected and that the agent can expect the loss of electoral support if policy changes do not occur.

These expectations about societal lobbying fit well with the U.S. experience in the post–Bretton Woods era. Because of space considerations, I focus here on three U.S. governments: the Carter administration, the first Reagan administration, and the second Reagan administration. These three cases offer interesting variation in terms of partisan agency, exchange-rate stability outcomes,[77] and the extent of societal lobbying as summarized in Figure 2. During the Carter years, exchange rates were relatively unstable, especially in 1977–78,[78] yet there is little evidence of societal lobbying for greater currency stability. Exchange-rate instability also grew during the first Reagan administration, and Republican business groups became quite active in lobbying the government for a more stable and competitive

77. I focus here on exchange-rate stability outcomes, not on outcomes concerning the exchange-rate level. Nonetheless, exchange-rate movements (that is, currency variability) tend to have a trending direction (either appreciation or depreciation). Thus there is no factual way to talk about specific instances of currency instability without mentioning levels and acknowledging that both issues (stability and the level) may be at stake. When Frieden presented his case material on American societal pressure concerning the gold standard at the turn of the century, he noted that one "complication is that the two issues, exchange rate flexibility and currency value . . . are often elided." Frieden 1994b, 86.

78. Over the 1975–80 period, my measures of exchange-rate variability show a local peak in 1978 for the United States, consistent with Cohen and Meltzer's more qualitative assessment of dollar instability during the Carter Administration. See Cohen and Meltzer 1982.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

	Agency	Exchange-rate stability	Lobbying activity
Carter 1977–80	Leftist agent committed to monetary autonomy	Dollar relatively unstable, especially 1977–78	Low—agent in power not beholden to internationally oriented societal principals
1st Reagan 1981–84	Rightist agent expected to work for monetary convergence	Dollar relatively unstable, especially 1984–85	High—agent in power shirking preferences of its internationally oriented societal principals
2nd Reagan 1985–88	Rightist agent more committed to monetary convergence	Dollar relatively stable, especially 1986–88	Low—agent in power working on behalf of its internationally oriented societal principals

FIGURE 2. *Three U.S. governments, exchange-rate stability, and societal lobbying*

U.S. dollar.[79] Finally, exchange rates became more stable during the second Reagan term in the wake of the Plaza and Louvre Accords[80]; correspondingly, societal lobbying on exchange-rate policy subsided.

Carter Administration

Despite efforts to court U.S. big business before the 1976 election, Carter ended up drawing most of his financial support from organized labor groups, and most of his voting support from manual working classes and the growing white-collar middle classes.[81] Because McGovern had alienated even " 'liberal' multinational business"[82] earlier in the decade, large U.S. corporations threw their political sup-

79. Consistent with the conventional wisdom, my measures of exchange-rate variability show that dollar instability grew in the early 1980s, especially 1983 to 1985, when dollar instability reached its peak for the United States time-series in the post–Bretton Woods era.

80. Following the 1985 peak, my measures show greater dollar stability for the remainder of the second Reagan administration.

81. See Stanley and Niemi 1988; and Haut, Manza, and Brooks 1999.

82. Ferguson and Rogers 1986, 76.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

port to the Republican Party. As this leftist government's domestically oriented societal principals preferred monetary policy autonomy, the Carter government "perceived no need to expend significant time or energy on exchange rate policy."[83] The Democrat's autonomous policy choices, including fiscal expansion, put pressure on the U.S. dollar, and its value began to fall rapidly in late 1977 versus the German DM and Japanese yen. The U.S. currency also appreciated during this period against the Canadian dollar.

This exchange-rate instability grew in 1978, yet there was no significant lobbying on the part of societal groups with international business interests disrupted by U.S. currency instability. As Cohen and Meltzer concluded, "domestic pressures and constraints were not a factor in the formulation or conduct of U.S. exchange rate policy in the 1977–78 period."[84] They continued: "While it is difficult to prove that something does not exist, extensive research and interviews failed to find evidence of any major or sustained domestic criticism of official exchange rate policy in the public domain."[85]

It appears not to be the case that internationally oriented societal groups failed to lobby the Carter government simply because currency depreciations are less politically salient for exporters than are currency appreciations.[86] First, international investors and banks prefer a stable and appreciated currency.[87] Thus for these internationally oriented business interests, currency instability in a depreciating direction should be especially salient. Second, the U.S. dollar's instability in 1977–78 included appreciation against the currency of Canada, America's largest export market at the time. Thus even U.S. exporters should have found the dollar's instability during this period to be politically salient.

Instead, these internationally oriented business groups may have refrained from costly lobbying activity, because the Carter government made it clear that exchange-rate stability was a very low Democratic economic priority.[88] In a well-publicized *Washington Post* interview, Treasury Secretary Michael Blumenthal publicly stated that "he [was] prepared for the dollar to depreciate further without making an effort to intervene."[89] "I would like to see a free floating—apart from smoothing

83. Cohen and Meltzer 1982, 17.
84. Ibid., 33.
85. Ibid., 34.
86. Frieden 1996b, 134, suggests that this might be the case.
87. Frieden 1991, 445.
88. The Carter administration perhaps worked indirectly for exchange-rate stability in pressuring foreign governments, notably Japan and Germany, to expand their economies: the so-called "locomotive" strategy pursued in the wake of the 1978 Bonn Summit. In theory, expansion abroad would permit U.S. expansion to proceed with a smaller trade deficit and less pressure on the dollar. It is notable, however, that "exchange rates were largely neglected as a topic of conversation at the [Bonn] summit itself." Henning 1994, 268.
89. Hobart Rowen, "Blumenthal: Dollar's Fall Nearly Over." *Washington Post*, 22 July 1977, D6. It is perhaps not unusual for U.S. government officials, even those interested in currency stability, to express their apparent satisfaction with dollar appreciation, especially when it signals the strength of the U.S. economy. It is more unusual, and politically significant, for U.S. government officials to express satisfaction with dollar depreciation.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

out ragged movements—and allow the exchange rate between the dollar and the yen and the dollar and the Deutschmark to settle down where it does in that context. Whether or not that point has been reached, time will tell, and I would be quite happy to live with whatever the result is."[90]

First Reagan Administration

The early 1980s have been termed a period of "exchange rate neglect"[91] in the United States; indeed it is sometimes argued that the Reagan administration was not interested in exchange-rate stability. But this is a conclusion reached about economic outcomes *ex post* rather than political objectives *ex ante*. It is worth remembering that many members of the Reagan economic team did believe that a stable U.S. dollar should be a top priority, and some even advocated a return to a gold-standard fixed exchange rate regime.[92]

Dissatisfied with the Carter administration's autonomous policy stance, what little support the Democrats had received from banking and multinational firms completely evaporated, helping the Republicans to regain the presidency in 1980.[93] Indeed, U.S. big business contributed significantly more to Republicans than Democrats during the 1979–80 election cycle,[94] and these internationally oriented societal actors anticipated that the new Reagan government would pursue a tighter fiscal stance permitting lower interest rates—a policy mix more consistent with stable exchange rates. But the Reagan administration's effective policy mix—looser on the fiscal side and tighter on the monetary side than their principals desired—meant that exchange-rate stability would be difficult to achieve. As the U.S. budget deficit swelled, U.S. interest rates stayed high, attracting international capital and putting strong upward pressure on the dollar. When the Treasury Department, led by Donald Regan and Beryl Sprinkel, announced in 1981 that it would no longer intervene in international currency markets for dollar stabilization, Republican societal principals began to see officials in the Reagan administration as "shirking" their duties to achieve a stable and competitive U.S. dollar.[95]

Beginning in late 1982, internationally oriented businesses began to lobby their Republican agents on behalf of policy convergence (including cuts in government spending to permit lower interest rates) and exchange-rate stability. Caterpillar Inc. and the Business Roundtable's Task Force on International Trade and Invest-

90. Ibid.

91. Destler and Henning 1989, chap. 2.

92. Stockman 1986, 63. Despite his apparent policy of exchange-rate neglect, Treasury Secretary Donald Regan actually called for a "new Bretton Woods" conference in 1982. Destler and Henning 1989, 25.

93. Ferguson and Rogers 1986, 113.

94. Ryan, Swanson, and Buchholz 1987, 132.

95. It is important to note that many members of the Reagan cabinet, especially Secretary of State George Schultz, opposed Regan and Sprinkel's nonintervention policy. See Destler and Henning 1989, 40–41.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

ment took the early lead. A long list of other international firms and organizations, reluctant at first to criticize the administration because of their "affiliation with the Republican Party and interest in Reagan's reelection," soon followed.[96]

Second Reagan Administration

The years 1984 and 1985 arguably marked the peak of societal lobbying on exchange-rate policy in the United States during the post–Bretton Woods era. This lobbying activity eventually produced its desired effect, as the Republican government worried about the "movement of core Reagan supporters in the large multinational companies to the [Democratic] trade-activist camp."[97] James Baker replaced Regan as Treasury Secretary in 1985 and immediately ended the nonintervention policy in international currency markets. More significantly for internationally oriented Republican principals, Baker orchestrated the September 1985 Plaza Accord, an event which led to coordinated G-5 currency intervention to stabilize the dollar at a more competitive level.

As Destler and Henning concluded:

> In policy terms, the Plaza strategy was a clear success. Economists will forever debate whether the dollar would have come down anyway at about the same rate, and properly so. For Baker as a domestic and international politician, however, it sufficed that clear action had been followed by desired market movement.
>
> When the dollar declined sharply, traded-goods producers and Congress voiced their relief and their approbation. For the first time, the Reagan administration had shown receptive and positive leadership in the broad international economic policy sphere. One close advisor to the president even described Plaza as "the most successful public relations operation of the decade."[98]

The second Reagan administration remained active on behalf of its societal principals favoring monetary convergence. Notable in this regard was U.S. participation in the 1987 Louvre Accord, establishing a de facto target zone for the G-5 currencies. The U.S. dollar's value remained relatively stable for the rest of the 1980s. Because the second Reagan administration had "redressed the main griev-

96. Destler and Henning 1989, 36. Also consistent with the partisan agent logic, firms within the more labor-intensive import-competing sector of the U.S. economy lobbied their Democratic agents in Congress at this time for trade relief and the closing of American markets to foreign competition. As Destler and Henning 1989, 123, noted, the AFL-CIO's "lobbying energy went toward trade and industrial policy rather than exchange rate remedies. . . ." Furthermore, these Democratic societal principals tended to lobby their agents in Congress because these groups "saw the White House as generally hostile, and lobbying the administration as a waste of political resources." Destler and Henning 1989, 124.

97. Destler and Henning 1989, 41.

98. Ibid., 46.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

ances of Congress and private groups regarding exchange rate policy, the interest of outside actors tended to wane" and lobbying activity "virtually evaporated."[99]

Conclusion

In this article, I have argued that partisan agency offers a better theoretical account than simple economic pluralism to explain how societal monetary preferences are translated into state policy outcomes. Building from the broader principal-agent model, societal economic groups with divergent preferences for monetary autonomy/convergence under capital mobility function as the principals. Their agents are political parties; leftist parties tend to represent domestically oriented producer groups with preferences for monetary autonomy, while rightist parties work more on behalf of internationally oriented groups desiring monetary convergence. Societal principals thus obtain their monetary policy preferences when their partisan agents hold the reins of state power, but not necessarily when the groups are economically large, following standard pluralist logic.

With regard to the long-running state-society debate in international/comparative political economy, this article should not be read as support for statist theories. Just the opposite; the partisan state is not working on behalf of any "national interest;"[100] instead it works on behalf of certain private interests. Thus this work offers empirical support for the societal theorists who argue that private monetary preferences matter for policy outcomes. My criticism of their theoretical work lies not with the specification of private preferences, but rather with the black box political model that these scholars have often employed to move from preferences to outcomes.

Many societal theorists have treated government partisanship as a simple institutional control variable. This perspective tends to view partisan effects, if any, as secondary compared with the primary effects of societal interest groups, usually measured in terms of relative group size. Such a focus on group size suggests the continued dominance of economic pluralism. But economic pluralism has long presented empirical problems, perhaps leading some scholars to conclude that societal monetary theorists had misidentified interest group preferences,[101] or that such preferences—even if correctly identified—were simply irrelevant for policy outcomes.[102]

To the contrary, this research suggests that sectoral and factoral monetary policy preferences[103] do matter for monetary and exchange-rate policy outcomes.

99. Ibid., 74, 131.
100. Krasner 1978b.
101. See, for example, Oatley 1997, 17; and Giovannini 1992.
102. McNamara 1998, 8, 32–41.
103. With regard to the debate about whether monetary policy preferences under capital mobility are best characterized by sectoral or factoral cleavages, this work offers some support for both sets of cleavages.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

Scholars have simply been looking in the wrong place (interest group size measures) to find evidence to support this conclusion. Given the large size of all the relevant sectors/factors and the well-known collective action problems for large groups associated with monetary/exchange-rate policy, government partisanship should not be a secondary consideration. Partisan agency may well be the primary transmission mechanism from preferences to outcomes in this issue area. It is important to acknowledge that, in other issue areas such as trade/commercial policy where collective action problems are less prevalent, partisan agency may become less important and societal group size more important in explaining state policy outcomes.

Thus one needs to be careful in identifying convergent monetary policies and stable exchange rates as logical outcomes associated with the growing size and power of international capitalists. Certainly, when the political right held power, as it did in most advanced industrial economies in the 1980s and early 1990s, it was easy to make such a generalization. But as the left regains political power in many OECD economies, we might expect to see greater policy autonomy and a reduced commitment to exchange-rate stability, particularly as the national economy worsens and domestically oriented producer groups demand that their leftist agents focus more on internal business conditions.

Indeed, it is notable in this regard that the four EU states (Britain, Denmark, Sweden, and Greece) who remained outside EMU after its launching in 1999 were all led by leftist governments. Other leftist governments (including France and Germany) have expressed their dissatisfaction with the conduct of the common European monetary policy since joining EMU.[104] In trying to assess whether the EMU states can succeed with a common monetary policy and currency, scholars have focused almost exclusively on economic considerations (whether Europe fits the definition of an optimal currency area) to the neglect of political factors. One necessary, but certainly not sufficient, condition for EMU success may be the political dominance of rightist parties in European national capitals. The European left could arguably accept the domestic constraints associated with monetary convergence in the late 1990s, when the European economies were historically healthy and societal pressures for domestic policy autonomy were correspondingly light. But as the European economies experience tougher times ahead and societal demands for policy autonomy grow, leftist governments—if they remain in power—should be expected to take these demands very seriously.

Appendix: Measuring Currency Variability Versus the DM

Measuring currency variability relative to the SDR presents certain advantages as it represents a useful "average" measure of exchange-rate instability consistent with the understand-

104. *Economist*, 17 March 2001, 74.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

ing that international investors and exporters are diversified broadly across national markets. But as mentioned earlier, it is also problematic in that no OECD government has directly pegged its currency to the SDR.[105] Several OECD governments have pegged their currencies to the German Deutschmark (DM), either unilaterally (for example, Austria) or as part of a multilateral currency arrangement (the Exchange-Rate Mechanism of the European Monetary System was often described as an effective DM zone). Consequently, it is useful to examine how government partisanship and societal group size indicators affect national currency variability versus the DM.

For this purpose, I created the dependent variable EXRDM, which measures exchange-rate variability versus the DM.[106] I also replaced the institutional control variable FIXCOMMIT (which indexed the country's fixed exchange-rate commitments over time but made no distinctions with regard to the reference currency) with a different indicator more appropriate for a dependent variable measuring currency variability versus the DM. The new control variable DMFIX is coded as 1 if state i pegged to the German currency in year t; otherwise, it is coded as 0.[107]

Table 8 shows that the partisan result is robust using this secondary measure of exchange-rate variability, as the LEFTIST term is statistically significant and positively signed. It is also notable that no societal group size measure (including EXPORT[108]) is statistically significant at even the .10 level, although four of six obtain the expected sign for the economic pluralist framework. The societal group size measures do not gain statistical significance when I drop the LEFTIST term (column 2). Similarly, LEFTIST remains statistically significant when I drop all six societal group size terms (column 3). The results in columns (1) to (3) effectively reproduce the results reported earlier in Table 6.

Focusing on currency variability versus the German DM, but examining a more limited sample of Western European states, Frieden found that leftist governments were actually associated with less currency variability.[109] To check whether this result represents a sam-

105. However, to the extent that a country pegs to any one of the G-5's national currencies, which form the benchmark for the IMF's currency unit, then it also pegs indirectly to the SDR.

106. International Monetary Fund, *International Financial Statistics CD-ROM* does not provide a series directly showing the DM's value relative to the national currency unit (ncu). So I used the DM/SDR series (134..aa.zf...) multiplied by the SDR/ncu series (xxx..ac.zf...) to obtain a monthly series denominated DM/ncu. I then used these monthly values to calculate the yearly nominal coefficient of variation versus the DM. Germany logically drops from the OECD sample so $N = 378$.

107. I followed Clark and Hallerberg 2000, 343 to code this variable over the 1975–92 period. Austria 1975–92, Belgium 1975–92, Denmark 1975–92, Finland 1977–92, France 1979–92, Great Britain 1991–92, Ireland 1979–92 (Ireland pegged to the British pound through 1978), Italy 1979–92, the Netherlands 1975–92, Norway 1975–92, Spain 1989–92, Switzerland 1981–92, and Sweden 1975–92 are all treated as pegging to the DM.

108. Frieden 2002, 853, found that greater manufacturing exports to the DM zone as a percent of GDP were significantly associated with less currency variability versus the DM. However, given the economic pluralist logic underlying this research, it seems somewhat arbitrary to focus only on manufacturing exports to this particular region. Exporters of all types and to all markets potentially hold preferences for monetary convergence and exchange-rate stability vis-à-vis the large market around Germany. For example, even exporters not well integrated into the DM zone may desire monetary convergence and currency stability vis-à-vis Germany to facilitate their entry into this untapped market. To the extent that such exporters have been successful in other markets, they should also have the economic clout to pressure their governments for these outcomes. It is thus my contention that a broader measure of the export sector's political strength offers a better test of the economic pluralistic logic.

109. Ibid.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

TABLE 8. *Estimates of exchange-rate variability versus the DM*

DV	EXRDM	EXRDM	EXRDM	EXRDM
Constant	1.24	4.65	0.87	1.38
	(6.03)	(5.68)	(2.85)	(2.93)
GDPGROWTH	−0.02	−0.03	−0.03	−0.02
	(0.06)	(0.06)	(0.06)	(0.06)
INFLATION	0.07***	0.08***	0.09***	0.08***
	(0.03)	(0.03)	(0.03)	(0.03)
KAPMOBILITY	0.64*	0.54	0.69**	0.72**
	(0.37)	(0.36)	(0.33)	(0.33)
KLRATIO	0.03	0.03		
	(0.08)	(0.08)		
EXPORT	−0.06	−0.08		
	(0.05)	(0.06)		
FDI	−0.03	−0.01		
	(0.11)	(0.11)		
BANKING	−0.23	−0.22		
	(0.18)	(0.19)		
IMPORT	−0.02	−0.02		
	(0.03)	(0.03)		
NONTRADABLE	0.11	0.05		
	(0.09)	(0.08)		
LEFTIST	0.17**		0.16**	0.26**
	(0.09)		(0.07)	(0.11)
DMFIX	−1.02**	−0.91*	−1.05**	−0.65
	(0.53)	(0.52)	(0.54)	(0.52)
LEFTIST * DMFIX				−0.24*
				(0.14)
SHARE	1.11	0.45	1.21*	0.69
	(0.76)	(0.66)	(0.71)	(0.79)
PR	−1.71	−1.26	−1.54	−1.39
	(1.32)	(1.26)	(1.25)	(1.26)
CBI	0.33	0.55	−0.53	−1.11
	(6.74)	(6.84)	(6.16)	(6.18)
UNION	−0.07	−0.07	−0.03	−0.03
	(0.05)	(0.05)	(0.04)	(0.04)
Observations	378	378	378	378
R^2	0.70	0.70	0.69	0.69
Prob > χ^2	0.000	0.000	0.000	0.000

Note: Estimates are Prais-Winsten coefficients with panel-corrected standard errors in parentheses. Country-specific and year-specific fixed effects are not reported. Two-tailed tests reported for each estimate. Statistical significance is indicated as follows:
*** $p < .01$.
** $p < .05$.
* $p < .10$.

ple artifact or a more generalizable finding, I added an interaction term to my model: LEFTIST * DMFIX. The interaction term captures the exchange-rate behavior of more leftist governments fixed to the DM. The LEFTIST term now captures the behavior of more leftist governments not fixed to the DM (that is, when DMFIX = 0). The results in column (4) show that both terms attain statistical significance, but with opposite signs. It is important

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

to note that this finding does not contradict the main thesis of this article: for monetary issues characterized by large collective action problems, societal groups need political parties to obtain their preferred policy outcomes (that is, parties matter for monetary issues).

But then results do suggest that the societal base of leftist parties within the larger OECD sample may differ by country or region. One simple possibility is that certain European leftist parties obtain greater political support from the export sector; thus, they expend greater efforts than other OECD leftist parties in stabilizing the national currency. A related possibility is that, because of the compact economic geography in central Europe (especially around Germany), many services, which are nontradable in other regions, become effectively tradable in the heart of Europe.[110] Consequently, certain segments of the growing European service sector may actually hold greater preferences for monetary convergence than the original models predicted. European leftist parties representing these internationally oriented services would thus be expected to work more on behalf of exchange-rate stability.

These possibilities suggest some interesting questions for future research:

1. Are the sectoral bases of political support for leftist parties in Europe different from those in other parts of the world?[111]

2. Have the monetary preferences of the service sector shifted away from policy autonomy toward currency stability as the European economic geography becomes more compact because of political changes and technological advances?

References

Achen, Christopher H. 2000. Why Lagged Dependent Variables Can Suppress the Explanatory Power of Other Independent Variables. Unpublished manuscript, University of Michigan, Ann Arbor.

Aldrich, John. 1995. *Why Parties? The Origins and Transformation of Political Parties in America.* Chicago: University of Chicago Press.

Alt, James E., Jeffry A. Frieden, Michael J. Gilligan, Dani Rodrik, and Ronald Rogowski. 1996. The Political Economy of International Trade: Enduring Puzzles and an Agenda for Inquiry. *Comparative Political Studies* 29 (6):689–717.

Austen-Smith, David, and John R. Wright. 1994. Counteractive Lobbying. *American Journal of Political Science* 38 (1):25–44.

Bearce, David H. 2002. Monetary Divergence: Domestic Political Institutions and the Monetary Autonomy-Exchange Rate Stability Trade-Off. *Comparative Political Studies* 35 (2): 194–220.

Bearce, David H., and Eric O'N. Fisher. 2002. Economic Geography, Trade, and War. *Journal of Conflict Resolution* 46 (3):365–93.

Beck, Nathaniel, and Jonathan N. Katz. 1995. What to Do (and Not to Do) with Times-Series Cross-Section Data. *American Political Science Review* 89 (3):634–47.

Becker, Gary S. 1983. A Theory of Competition Among Pressure Groups for Political Influence. *Quarterly Journal of Economics* 98 (3): 371–400.

Bernhard, William, and David Leblang. 1999. Democratic Institutions and Exchange-Rate Commitments. *International Organization* 53 (1):71–97.

110. On the issue of compact economic geographies making nontradable commodities into tradable ones, see Bearce and Fisher 2002.

111. There is surprisingly little systematic cross-national data on the subject, as scholars continue to focus most closely on factoral/class bases of partisan support.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

Boix, Carles. 1998. *Political Parties, Growth and Equality: Conservative and Social Democratic Economic Strategies in the World Economy*. New York: Cambridge University Press.
Broz, J. Lawrence, and Jeffry A. Frieden. 2001. The Political Economy of International Monetary Relations. *Annual Review of Political Science* 4:317–43.
Cameron, David R. 1984. Social Democracy, Corporatism, Labour Quiescence and the Representation of Economic Interests in Advanced Capitalist Society. In *Order and Conflict in Contemporary Capitalism*, edited by John H. Goldthorpe, 143–78. Oxford: Clarendon Press.
Clark, William Roberts, and Mark Hallerberg. 2000. Mobile Capital, Domestic Institutions, and Electorally Induced Monetary and Fiscal Policy. *American Political Science Review* 94 (2):323–46.
Cohen, Stephen D. and Ronald I. Meltzer. 1982. *United States International Economic Policy in Action: Diversity of Decision Making*. New York: Praeger.
Cukierman, Alex, Steven B. Webb, and Bilin Neyapti. 1992. Measuring the Independence of Central Banks and Its Effect on Policy Outcomes. *World Bank Economic Review* 6 (3):353–98.
Destler, I. M., and C. Randall Henning. 1989. *Dollar Politics: Exchange Rate Policymaking in the United States*. Washington, D.C.: Institute for International Economics.
Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper and Row.
Esping-Andersen, Gosta. 1999. Politics Without Class: Postindustrial Cleavages in Europe and America. In *Continuity and Change in Contemporary Capitalism*, edited by Herbert Kitschelt, Peter Lange, Gary Marks, and John D. Stephens, 293–316. New York: Cambridge University Press.
Evans, Geoffrey, ed. 1999. *The End of Class Politics? Class Voting in Comparative Context*. Oxford: Oxford University Press.
Ferguson, Thomas, and Joel Rogers. 1986. *Right Turn: The Decline of the Democrats and the Future of American Politics*. New York: Hill and Wang.
Fleming, J. Marcus. 1962. Domestic Financial Policies Under Fixed and Floating Exchange Rates. *IMF Staff Papers* 3 (9):369–79.
Frieden, Jeffry A. 1991. Invested Interests: The Politics of National Economic Policies in a World of Global Finance. *International Organization* 45 (4):425–51.
———. 1994a. Making Commitments: France and Italy in the European Monetary System, 1979–1985. In *The Political Economy of European Monetary Unification*, edited by Jeffry A. Frieden and Barry Eichengreen, 25–46. Boulder, Colo.: Westview Press.
———. 1994b. Exchange Rate Politics: Contemporary Lessons from American History. *Review of International Political Economy* 1(1):81–103.
———. 1996a. The Impact of Goods and Capital Market Integration on European Monetary Politics. *Comparative Political Studies* 29 (2):193–222.
———. 1996b. Economic Integration and the Politics of Monetary Policy in the United States. In *Internationalization and Domestic Politics*, edited by Robert O. Keohane and Helen V. Milner, 108–36. New York: Cambridge University Press.
———. 2002. Real Sources of European Currency Policy: Sectoral Interests and European Monetary Integration. *International Organization* 56 (4):831–60.
Garrett, Geoffrey. 1995. Capital Mobility, Trade, and the Domestic Politics of Economic Policy. *International Organization* 49 (4):657–87.
———. 1998. *Partisan Politics in the Global Economy*. New York: Cambridge University Press.
Garrett, Geoffrey, and Peter Lange. 1995. Internationalization, Institutions, and Political Change. *International Organization* 49 (4):627–55.
Gill, Stephen R., and David Law. 1989. Global Hegemony and the Structural Power of Capital. *International Studies Quarterly* 33 (4):475–99.
Giovannini, Alberto. 1992. Economic and Monetary Union: What Happened? Exploring the Political Dimension of Optimum Currency Areas. Unpublished manuscript, Columbia University, New York.
Gowa, Joanne. 1988. Public Goods and Political Institutions: Trade and Monetary Policy Processes in the United States. *International Organization* 42 (1):15–32.
Hefeker, Carsten. 1997. *Interest Groups and Monetary Integration: The Political Economy of Exchange Regime Choice*. Boulder, Colo.: Westview Press.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

Henning, C. Randall. 1994. *Currencies and Politics in the United States, Germany, and Japan*. Washington, D.C.: Institute for International Economics.

Hibbs, Douglas A., Jr. 1977. Political Parties and Macroeconomic Policy. *American Political Science Review* 71 (4):1467–87.

Himmelstein, Jerome L. 1990. *To the Right: The Transformation of American Conservatism*. Berkeley: University of California Press.

Hout, Michael, Jeff Manza, and Clem Brooks. 1999. Classes, Unions, and the Realignment of U.S. Presidential Voting, 1952–1992. In *The End of Class Politics? Class Voting in Comparative Context*, edited by Geoffrey Evans, 83–96. New York: Oxford University Press.

Ikenberry, G. John, David A. Lake, and Michael Mastanduno. 1988. Introduction: Approaches to Explaining American Foreign Economic Policy. *International Organization* 42 (1):1–14.

International Monetary Fund (IMF), various years. *Exchange Arrangements and Exchange Restrictions Annual Report*. Washington, D.C.: IMF.

International Monetary Fund, various years. *International Financial Statistics CD-ROM*. Washington, D.C.: IMF.

Iversen, Torben. 1994. The Logics of Electoral Politics: Spatial, Directional, and Mobilizational Effects. *Comparative Political Studies* 27 (2):155–89.

Jacobs, David C.D. 1999. *Business Lobbies and the Power Structure in America: Evidence and Arguments*. Westport, Conn.: Quorum Books.

Kapstein, Ethan B. 1996. Workers in a World Economy. *Foreign Affairs* 75 (3):16–37

Kirschen, E. S., J. Bernard, H. Besters, F. Blackaby, O. Eckstein, J. Faaland, F. Hartog, L. Morissens, and E. Tosco. 1964. *Economic Policy in Our Time*. Vol. 1. Amsterdam: North-Holland.

Kitschelt, Herbert. 1994. *The Transformation of European Social Democracy*. New York: Cambridge University Press.

Krasner, Stephen D. 1978a. United States Commercial and Monetary Policy: Unraveling the Paradox of External Strength and Internal Weakness. In *Between Power and Plenty: Foreign Economic Policies of Advanced Industrial States*, edited by Peter J. Katzenstein, 51–87. Madison: University of Wisconsin Press.

———. 1978b. *Defending the National Interest: Raw Materials Investments and U.S. Foreign Economic Policy*. Princeton, N.J.: Princeton University Press.

Kurzer, Paulette. 1993. *Business and Banking: Political Change and Economic Integration in Western Europe*. Ithaca, N.Y.: Cornell University Press.

Lane, Jan-Eric, David McKay, and Kenneth Newton. 1991. *Political Data Handbook: OECD Countries*. New York: Oxford University Press.

Leblang, David, and William Bernhard. 2000. The Politics of Speculative Attacks in Industrial Democracies. *International Organization* 54 (2):291–324.

McNamara, Kathleen R. 1998. *The Currency of Ideas: Monetary Politics in the European Union*. Ithaca, N.Y.: Cornell University Press.

Milner, Helen V. 1997. *Interests, Institutions, and Information: Domestic Politics and International Relations*. Princeton, N.J.: Princeton University Press.

Moravcsik, Andrew. 1997. Taking Preferences Seriously: A Liberal Theory of International Politics. *International Organization* 51 (4):513–53.

Mundell, Robert A. 1960. The Monetary Dynamics of International Adjustment Under Fixed and Flexible Exchange Rates. *Quarterly Journal of Economics* 74 (2):227–57.

———. 1963. Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. *The Canadian Journal of Economics and Political Science* 29 (4):475–85.

North, Douglass C. 1981. *Structure and Change in Economic History*. New York: Norton.

Oatley, Thomas. 1997. *Monetary Politics: Exchange Rate Cooperation in the European Union*. Ann Arbor: University of Michigan Press.

Odell, John S. 1982. *U.S. International Monetary Policy: Markets, Power, and Ideas as Sources of Change*. Princeton, N.J.: Princeton University Press.

Olson, Mancur. 1971. *The Logic of Collective Action: Public Goods and the Theory of Groups*. 2d ed. Cambridge, Mass.: Harvard University Press.

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press

Organization for Economic Cooperation and Development (OECD), various years. *Annual National Accounts, Volume II: Detailed Tables*. [diskette]. Paris: OECD.

Przeworski, Adam, and John Sprague. 1986. *Paper Stones: A History of Electoral Socialism*. Chicago: University of Chicago Press.

Quinn, Dennis P., and Carla Inclan. 1997. The Origins of Financial Openness: A Study of Current and Capital Account Liberalization. *American Journal of Political Science* 41:771–813.

Rogowski, Ronald. 1987. Political Cleavages and Changing Exposure to Trade. *American Political Science Review* 81 (4):1121–37.

Rose, Andrew K. 1994. Exchange Rate Volatility, Monetary Policy, and Capital Mobility: Empirical Evidence on the Holy Trinity. NBER Working Paper 4630. Cambridge, Mass.: National Bureau of Economic Research.

Ryan, Mike H., Carl L. Swanson, and Rogene A. Buchholz. 1987. *Corporate Strategy, Public Policy and the Fortune 500: How America's Major Corporations Influence Government*. New York: Basil Blackwell.

Silk, Leonard, and David Vogel. 1976. *Ethics and Profits*. New York: Simon and Schuster.

Simmons, Beth A. 1999. The Internationalization of Capital. In *Continuity and Change in Contemporary Capitalism*, edited by Herbert Kitschelt, Peter Lange, Gary Marks, and John Stephens, 36–69. Cambridge: Cambridge University Press.

Stanley, Harold W., and Richard G. Niemi. 1988. *Vital Statistics on American Politics*. Washington, D.C.: Congressional Quarterly Press.

Stockman, David A. 1986. *The Triumph of Politics: How the Reagan Revolution Failed*. New York: Harper & Row.

Underhill, Geoffrey R. D. 1991. Markets Beyond Politics?: The State and the Internationalization of Financial Markets. *European Journal of Political Research* 19 (2-3):197–225.

Visser, Jelle. 1991. Trends in Trade Union Membership. *OECD Employment Outlook*. 1991 (July): 97–134.

Watson, Alison M. S. 1997. *Aspects of European Monetary Integration: The Politics of Convergence*. New York: St. Martin's Press.

Woldendrop, Jaap, Hans Keman, and Ian Budge, eds. 1993. Political Data 1945–1990: Party Government in 20 Democracies. *European Journal of Political Research* 24 (1):1–120.

World Bank, various years. *World Development Indicators CD-ROM*. Washington, D.C.: World Bank.

World Bank, various years. *Database of Political Institutions*. Available online at (http://www.worldbank.org/research/bios/pkeefer.htm).

https://doi.org/10.1017/S0020818303572058 Published online by Cambridge University Press