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Globalization and the Politics of Subsidies

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Abstract

State subsidies to attract investment have proliferated since the 1980s, yet we know little about the factors that influence governments' subsidy policies. In this paper, I propose that in making subsidy policies, governments are influenced by capital mobility and domestic political institutions. Capital mobility influences subsidy levels in two ways. First, mobility increases the bargaining power of capital vis-à-vis governments in negotiations over subsidies, and, second, the ability of companies to move across borders triggers competition among neighboring countries, thus driving subsidy levels upwards. I argue, however, that the likelihood of governments to respond to the pressures from mobile capital will be higher in countries with electoral institutions that encourage personal vote-seeking, such as small district magnitudes and low political party discipline. The empirical analysis of subsidy levels in the EU member states during the period 1992-2006 lends support for these arguments.

Keywords

Globalization and the Politics of Subsidies

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In January 2007, the Cambridge-based semiconductor producer Plastic Logic Inc. hired the consultancy KPGM to find a location for its new production facility (Marsh 2007). After considering over 200 locations around the world, KPGM suggested the three locations that it considered ideal for a semiconductor plant: Dresden, Germany, New York State and Singapore. After negotiations with the governments in all three locations, Plastic Logic finally decided to build the factory in Dresden, one of the reasons being that the national and subnational governments offered generous grants that covered one third of the building costs.

The fact that companies such as Plastic Logic are able to consider many investment locations around the world is increasingly putting governments under pressure to offer business-friendly policies. Indeed, with global economic integration, subsidies and tax breaks to attract investment are becoming widespread: the World Trade Organization (WTO) reported that in 2003, developed countries spent nearly $250 billion on subsidies, while the global total the same year was $300 billion (WTO 2006, xxx). The widespread use of subsidies is raising concern, since within a country, subsidies affect the allocation of scarce public funds, shift the tax burden on to immobile asset holders, and favor some social groups over others (Fisher 2002; Li 2006; Thomas 2002); internationally they may distort trade and increase the dominance of large multinational companies. Yet, so far we know relatively little about how governments make subsidy policies. To what extent do governments succumb to the demands of mobile capital owners for subsidies? To what extent are they constrained by domestic institutions in making subsidy policies?

This paper explores the extent to which governments' subsidy policies are influenced by capital mobility *and* domestic political institutions. Global surveys and case study evidence suggest that the increased ability of companies to move across

borders has led to an increase in governments' use of subsidies (Oman 2000; Thomas 2000). The proposed link between capital mobility and subsidies, however, has so far not been systematically investigated. In this paper, I explore the extent to which capital mobility influences governments' subsidy policies through two mechanisms: through the increasing political power of mobile capital in bargaining with governments for subsidies, and through triggering a competition among neighboring governments. Despite the widespread use and growing significance of subsidies, moreover, research on the political determinants of subsidy policies has been scarce (Li 2006). Previous studies have examined the impact of political factors on subsidy policies, such as the ideological leaning of the party in government (Verdier 1995), electoral competition (Zahariadis 2005), and regime type (Li 2006). Political institutions, however, have been largely absent from the analysis. This is surprising given the prominence of the role of institutions in explaining economic policy choices in recent research in political economy (Cox and McCubbins 2001; Franzese et al. 2007; Hallerberg and von Hagen 1999; Persson and Tabellini 2005). My analysis here draws on this research on political institutions in order to explain how subsidy policies are made in developed countries.

My argument is that while governments face similar demands for subsidies from mobile asset owners, they respond to these demands in different ways, because national electoral institutions constrain their policy choices. Higher levels of capital mobility increase the demand for subsidies; as mobile asset owners have greater leverage vis-à-vis governments in bargaining for subsidies, and because governments enter into competition with others to attract or maintain mobile investors. However, national electoral institutions will mediate the impact of these pressures arising from capital mobility. In particular, my argument is that electoral systems characterized by small district magnitudes and low party discipline induce politicians to build personal reputations to get reelected, and therefore encourage them to offer policies such as subsidies which they can target towards specific constituencies. According to this argument, subsidies will be more prevalent in countries with small district magnitudes and low party discipline.

I explore these arguments empirically with data on subsidy levels in the European Union (EU) member states in the period 1992-2006. These cases show wide variation in the key variables of the study, capital mobility and domestic political institutions. Furthermore, subsidy policies of the EU member states provide strong test cases for the arguments about national institutions, because EU rules on member state subsidies—what is called the state aid policy of the EU—create pressures for convergence in the policies of the member states. Since the late 1980s the European Commission, with the help of the European Court of Justice, has pressured the EU member states to reduce their subsidy levels in an effort to create a level playing field for companies in the single market (Smith 1998). Therefore, if national electoral institutions have an impact on subsidies in the EU member states despite EU level pressures for convergence, the case for institutions in explaining policy outcomes is strengthened.

The paper makes two key contributions to the international and comparative political economy literature. First, by focusing on the role of electoral institutions in shaping subsidy policies, I bridge the gap between the small but growing research on subsidies and research that links institutions to economic policies. By framing subsidies as instruments of distributive policy, the paper identifies the domestic institutional conditions under which politicians will be more likely to offer subsidies. It therefore furthers our understanding of the politics of subsidy decisions.

Second, the paper contributes to a core debate in international political economy: how does mobility of capital, production and people influence governments' policy choices? I examine how capital mobility influences subsidy policy-making through two related channels: first, directly by increasing the bargaining power of mobile capital vis-à-vis governments, and second, through generating competition among neighboring jurisdictions. I propose that while higher capital mobility increases the pressures for governments to supply subsidies, these pressures are mediated by electoral politics in each country. This argument is in line with recent research on the effects of globalization on national policies which stresses the mediating effect of domestic political factors (Basinger and Hallerberg 2004; Swank 2002). Subsidy policies provide a fresh testing ground for such arguments about globalization and domestic policies.

The paper proceeds as follows. The next section defines subsidies and discusses the existing research on the topic. The third section lays out my hypotheses on the impact of capital mobility and national political institutions on subsidy levels in developed countries. The fourth section describes measurement of the variables and data that I use to examine these hypotheses empirically. The fifth section discusses the findings of the regression analysis, and the sixth and last section concludes by placing the findings of this paper in the broader political economy literature.

Existing Research

Following the definitions of the OECD and the European Union I define subsidies as any form of state support to industry that is granted on a selective basis (OECD 1998; Thomas 2000). This definition includes financial, fiscal and in-kind benefits to firms such as direct grants, tax breaks, low-interest loans and loan guarantees, but excludes general measures such as an overall reduction in corporate tax rates.

Subsidies became significant industrial policy tools initially as a response to the gradual decline in tariffs in the 1960s: between 1960 and 1980 subsidy levels doubled as a percentage of GDP in OECD countries (Blais 1986, 202). Since the 1980s, national and subnational governments in developed and developing countries have started using subsidies more intensively to attract mobile investment, which can be interpreted as a response to the liberalization of domestic and international economic regimes, and the subsequent increase in the mobility of capital (Oman 2000, 77).

In exploring why governments subsidize industries, existing research has focused on both domestic social and political conditions and international competition as explanatory factors. Scholars argue that within a country, factors such as unemployment levels and the specificity of assets in the economy influence the demand for subsidies, while factors such as political party ideology and level of electoral competition influence politicians' incentives to supply them (Blais 1986; Verdier 1995; Zahariadis 2005). Empirical research on developed economies lends support to the arguments that the presence of firms with more specific assets and high unemployment levels in a country increase the demand for subsidies (Alt et al. 1999; Aydin 2007; Blais 1986; Zahariadis 1997, 2001).

Existing research also provides insights into how pressures external to a country influence its subsidy levels. Openness to trade leads to lower subsidy levels, as companies adjust to international competition and become less dependent on subsidies (Aydin 2007). The findings of Zahariadis (2005) qualify this argument, as he finds that subsidy levels are higher when the country is experiencing trade deficits, but lower when there is a trade surplus. In addition, interstate competition can influence subsidy

policy choices of a government. As national and subnational governments frequently compete with one another for the same investment projects, their policies become interdependent. Thus, a country's subsidy policy is expected to be influenced by those of the neighboring countries. Saiz (2001) finds evidence of such interdependence in the economic development policies of the US states. Similarly, Li (2006) shows that a country's tax incentive policy is influenced by those of its geographical neighbors.

Despite a growing number of comparative and systematic studies, the literature on subsidies is still underdeveloped (Cao et al. 2007, 304). It is difficult to draw general arguments from the existing literature to explain subsidy policies, due to the different methods, data and variables used by the authors, and the occasionally contradictory findings of their empirical research. The argument about the impact of governing party ideology on subsidy levels is a case in point. While Blais (1986) and Zahariadis (1997) find that the presence of left parties in government is linked to higher levels of subsidies, Neven (1994), in contrast, finds that right parties are more likely to subsidize industries. More recently, Cao et al. (2007) demonstrate that the relationship between party ideology and subsidies is more complex: left governments, when faced with foreign economic competition, prefer social welfare policies over subsidies to business, while right governments, when faced with foreign competition, prefer subsidies to social welfare policies. Likewise, research on the political and institutional determinants of subsidy policies is inconclusive. Researchers have investigated institutions such as regime type and electoral competition; however, there is no broad consensus over which institutions matter in explaining subsidy policy outcomes and why, and empirical research is still limited (Li 2006; Neven 1994; Zahariadis 2005).

This paper addresses some of the shortcomings of this literature by linking the research on subsidies more closely to broader research agendas in political economy. More specifically, I propose analyzing subsidies as a form of distributive policy that politicians use to bolster their electoral support. Framing subsidies as distributive policies allows us to explore how different electoral institutions influence the prevalence of subsidies in a country. Previous research has recognized the role of electoral politics in shaping the subsidy decisions of governments. For instance, in his analysis of different economic development strategies in the United States, Turner (2003) argues that state governors choose subsidies and tax incentives over other policies because they perceive the former to have immediate electoral benefits. In the context of OECD countries, Zahariadis (2005, 129) argues that tight electoral races provide incentives for politicians to provide subsidies with broader scope, although the empirical evidence is inconclusive. My analysis in this paper builds on this earlier research that emphasizes the significance of electoral politics for governments' subsidy policies, but extends it by linking it to the broader literature on distributive politics in political science and economics (Grossman and Helpman 2005; McGillivray 2004; Park and Jensen 2007; Persson and Tabellini 2005).

Explaining the Politics of Subsidies

The European Commission reports that in 2006, EU member state governments distributed approximately €48 billion in subsidies to the industry and services, which represents 0.42% of the EU GDP (Commission 2007). This average figure masks significant differences among member states' subsidy policies, however, as Figure 1 illustrates. For instance, in 2006, while the German government spent €16 billion on subsidies, the French government spent over €7 billion, and the UK government spent

€3.1 billion, amounting to 0.69, 0.41 and 0.16 percent of their respective GDPs. (Commission 2007, 9). Furthermore, subsidy policies of EU member state governments varied in terms of the objectives of aid: while Sweden allocated a large share of its subsidies for environmental and energy saving objectives, Denmark gave more than half of its total subsidies for employment, and Austria and Portugal provided a large share of their total subsidies to support specific service sectors. Subsidy levels have also varied over time in the EU member states, as Figure 2 demonstrates. What explains the variation in subsidy policies across the EU member states and over time?
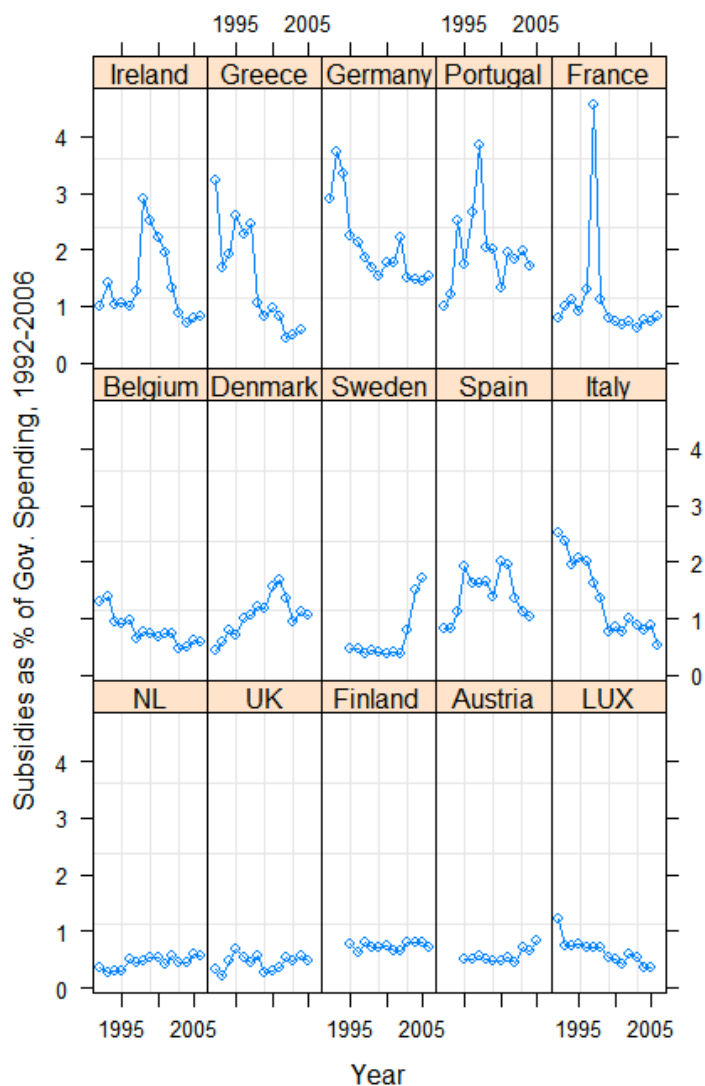

Figure 1: Level of subsidies as a percentage of government expenditures in the EU member states, 1992-2006.
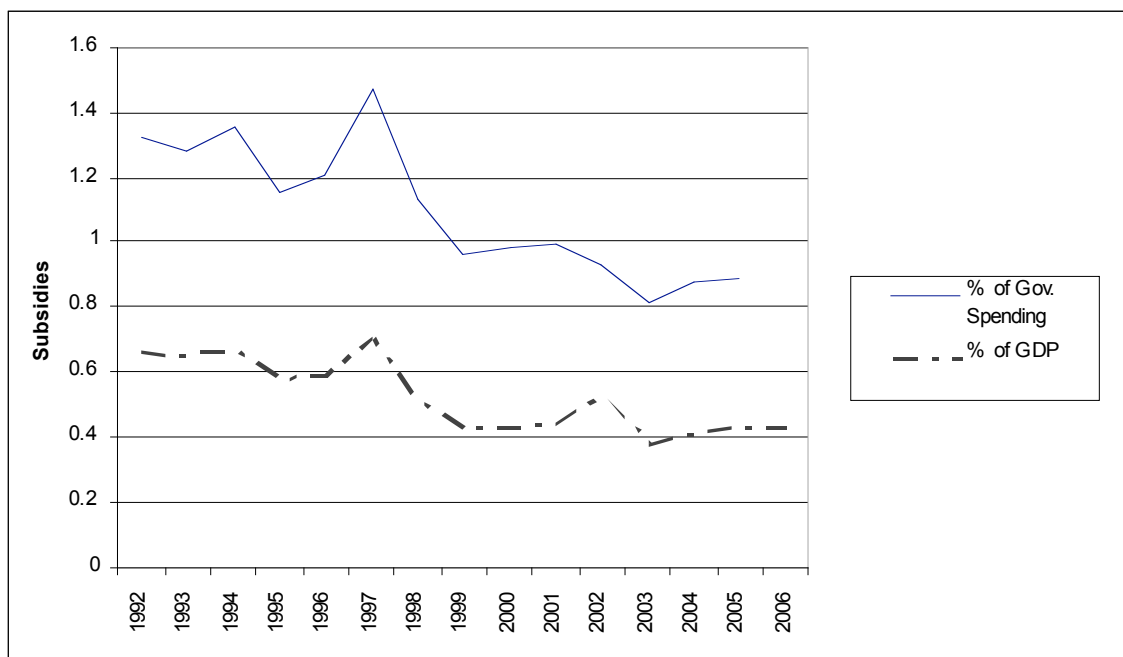
Figure 2: Average level of subsidies as a percentage of GDP and of government spending in the EU member states, 1992-2006.

This paper explores the factors that influence governments' subsidy policy choices. I argue that subsidy policies are shaped by the impact of capital mobility on the one hand, and domestic political institutions on the other. My first hypothesis concerns the mobility of capital. The impact of international market forces on national policies has been a core area of research in political economy (Frieden and Rogowski 1996; Garret and Mitchell 2001; Swank 2002). The so-called "convergence thesis" in this literature predicts that the liberalization of trade and capital movements will constrain governments' policymaking autonomy and lead policies converge on those that promote the free play of market forces (Garrett 1995). Empirical research, however, has shown that in the postwar period, domestic policies have remained divergent (Berger and Dore 1996). In contrast with the expectations for convergence, for instance, scholars find that governments in the developed world respond to trade liberalization by increasing social spending, rather than decreasing it (Cameron 1978; Rodrik 1998).

Capital mobility may prove to have a stronger impact on national policies than trade liberalization, however (Garrett 1995). Due to the decreasing costs of transport and communication, and the decline in legal barriers to mobility, capital mobility has increased significantly since the 1960s. As investors can move more easily across borders in search of increasing returns on their investments, governments have strong incentives to adopt policies that mobile investors find favorable, possibly leading to a downward spiral in social policies, tax rates and environmental and labor standards. Empirical research has not found support for a strong downward trend in social policies and tax rates, a finding explained by the persistence of domestic political institutions that make such changes difficult (Basinger and Hallerberg 2004) and the resistance from domestic social groups that would be harmed by such policy changes (Swank 2002).

How does capital mobility influence governments' subsidy policies? First, since mobile firms can "vote with their feet" (Tiebout 1956), they are in a good bargaining position vis-à-vis governments to get their preferred levels of public goods, taxes and subsidy packages. Mobile firms can credibly threaten governments with leaving the country or not investing there in the first place if they do not receive generous subsidies. With increasing levels of capital mobility, therefore, there will be more and stronger demands for subsidies. I expect, then, that spending on subsidies will be higher in a country in which the economy is dominated by mobile assets.

H1: *The higher the ratio of mobile to immobile capital in a country, the larger is the spending on subsidies.*

Capital mobility may also influence subsidy policies in an indirect way by inducing competition among countries. The argument here is that as countries strive to attract mobile capital, they strategically formulate their subsidy policies in order to gain a competitive advantage over other countries. Countries' subsidy policies are shaped, then, partly by their strategic response to their competitors' behavior (Konisky 2007).[1] Such competitive dynamics were apparent, for instance, among national governments in Europe and subnational governments in North America competing to attract the same automobile investments in the 1980s and 1990s (Molot 2005; Mytelka 2000; Yanarella and Green 1990). As governments tried to match or exceed the subsidies offered by their competitors, the average value of subsidy packages given to automotive companies increased. Beyond the anecdotal evidence from individual subsidy packages, Saiz (2001) demonstrates that in the United States (US), states that are in a competitive 'neighborhood' strategically adopt similar economic development policies. Li (2006) shows that tax incentive policies of a country are influenced by competition with other countries in the same geographical region, though due to the costs of tax incentives, the effect of international competition declines above a certain threshold. My argument here is that countries will respond to subsidy policies of countries in their neighborhood, because they often share similar resource endowments and cultural conditions, and thus are competitors for same investments (Li 2006, 69).

H2: *The higher the average subsidy levels of neighboring countries, the larger is a country's spending on subsidies.*

My argument in this paper is that electoral and party politics, in addition to capital mobility, constrain governments' policy choice on subsidies. This argument is in line with recent research, which demonstrates that national institutions mediate the effects of globalization on domestic policies. Basinger and Hallerberg (2004), for instance, show that capital mobility has not led to the expected race to the bottom in capital tax policies in OECD countries from 1980 to 1997. Even though countries were sensitive to the tax reforms of their competitors, their reactions were mediated by the domestic costs to reform arising from veto players in the legislatures, and the political costs of ideological opposition. Similarly, Swank (2002) argues that domestic political institutions such as social corporatism and proportional representation mitigate the effects of capital

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[1] This is the underlying logic of the race to the bottom arguments about environmental policies, tax rates and welfare policies (Basinger and Hallerberg 2004; Berry et al. 2003; Potoski 2001; Rom et al. 1999).

mobility on social policies. My argument likewise focuses on the role of electoral politics in shaping the policy choices of governments.

I posit that subsidies to business are distributive policies which allow the concentration of benefits and the diffusion of costs (Franzese and Nooruddin 2004; Lowi 1964). Pork barrel projects are the classic example in the US context, whereby the benefits are concentrated in a single district and the costs spread across all districts (Cain et al. 1987, 210). Distributive policies are "characterized by the ease with which they can be disaggregated and dispensed unit by small unit, each unit more or less in isolation from other units and from any general rules" (Lowi 1964, 690). Distributive programs benefit a narrow group of citizens, and thus they differ from redistributive programs such as social insurance or pensions, which provide benefits to many citizens (Persson and Tabellini 2001). Subsidies, which are selective measures that provide financial or fiscal benefits to individual firms, differ from broad redistributive measures such as social welfare policies, which are targeted towards large constituencies. Politicians can selectively grant subsidies to support employment, to attract, or to retain businesses in an electoral district in order to bolster their electoral support there. Defining subsidies as a form of distributive policy, I examine how electoral politics and institutions shape the preferences of politicians for providing subsidies.

Some electoral institutions and party structures generate incentives for politicians to pursue a "personal vote" (Cain et al. 1987). Under such institutions, politicians try to create a personal reputation and seek to distinguish themselves from both candidates of their own party and those of rival parties. In order to do this, politicians deliver constituency service, pork barrel projects and various distributive policies to their districts. I argue that subsidies to firms are such distributive policies that politicians can use to create a personal support base, and I therefore expect electoral and party politics in a country to influence the level and types of subsidies. In particular, building on earlier research on institutions and distributive politics, I focus on the impact of district magnitude and party discipline on subsidies.

District magnitude refers to the number of legislators that acquire a seat in a typical voting district (Rae 1971). The argument here is that as district magnitude increases, politicians' incentives to provide distributive policies decrease. There are two reasons for the negative impact of district magnitude on politicians' incentives to offer distributive policies. First, small district magnitudes increase the accountability link between the politician and her constituency (Lancaster and Patterson 1990). Mayhew argues that in order to increase their chances of reelection, legislators strive to claim credit for pieces of governmental accomplishment, and especially for particularized benefits for which they can believably generate a sense of responsibility (Mayhew 1975, 52-3). Small district magnitudes make it easier for them to claim credit for a project that benefits their constituency. In the extreme case of a single member district, a politician can claim credit alone for a policy that benefits the district (Cain et al. 1987). In multi-member districts, in contrast, the accountability link between the politician and her constituency is more diffused (Lancaster 1986). Claiming credit for a political project is more difficult when more than one individual represents a district, and therefore, politicians tend to free ride on the efforts of fellow party members in cultivating a reputation in large districts.

Second, Persson and Tabellini (2001) argue that district magnitude matters because small districts channel electoral competition into a few marginal districts. With small district magnitudes, a party is a sure winner in some districts and a sure loser in others,

and electoral competition is focused in a few pivotal districts (Persson and Tabellini 2001, 4-5). Distributive policies are more effective than broad redistributive policies in seeking such narrow support. Large district magnitudes, in contrast, diffuse electoral competition and therefore induce politicians to focus on redistributive policies to benefit large constituencies. In short, small district magnitudes generate more direct electoral accountability and more focused electoral competition, and thus, are expected to be associated with higher levels of subsidies.

H3: *The smaller the district magnitude in a country, the higher will be the level of subsidies.*

My second argument about electoral politics concerns party unity. Party unity refers to the cohesion of political parties in two contexts, in elections and legislatures (Bowler et al. 1999, 5). Party unity in the context of elections, which is of interest here, refers to whether candidates seek votes based on their personal reputations, or on party labels. In other words, it refers to the extent to which the electoral fates of the candidates of the same party are tied together (Bawn et al. 1999). Scholars identify various factors that encourage personal vote-seeking rather than relying on party labels, such as electoral systems, in particular, the ballot structure (Carey and Shugart 1995, Mainwaring 1991), presidentialism, and federalism (Boueck 2002). Party unity is high, for instance, if party leadership has control over which candidate gets to be on the party list and the candidates' ranking on the list. This increases the loyalty of the candidates to the party line (Bowler, Farrel and Katz 1999, 8). If, in contrast, voters can express their choice over individual candidates, as in an open list system, then party unity tends to be low. This creates intra-party competition and decreases the influence of party leaders on the individual candidates.

Seeking votes based on a personal reputation, in turn, influences how politicians attempt to appeal to voters. If politicians rely on the party label for reelection, distributive policies such as pork barrel projects or subsidies become less important and broad redistributive programs will dominate. In contrast, where individual politicians are relatively independent of the party and party labels have less meaning, individual politicians need to cultivate a personal reputation by offering locally targeted programs in order to differentiate themselves from other candidates. Such is the case, for instance, in the open list proportional system of Brazil or the pre-1994 Japanese single non-transferable vote system, where multiple candidates from the same party compete with one another in the same district (Cox and Thies 1998; Mainwaring 1991). Under such electoral systems that weaken party coherence, reliance on the party label does not suffice, and candidates must give voters reasons to vote for them rather than the other candidates of the same party (Cox and Thies 1998, 269). The lower the party unity in a country, then, the more incentives politicians have for cultivating a personal reputation with distributive policies, and the higher is the spending on subsidies.

H4: *The lower the unity of parties in a country, the higher is the level of subsidies.*

The argument of this paper, in brief, is that the extent of capital mobility and the electoral institutions and party politics in a country influence the level of subsidies the government offers. The more the country's economy is dominated by mobile asset holders and the higher the subsidy levels in neighboring countries, the higher will be the

level of subsidies. In addition, the smaller the district size and the lower the party unity, the higher will be the level of subsidies. In the rest of this paper, I explore these arguments empirically with data on subsidies in the European Union member states for the period 1992-2006.

In order to isolate the effects of the variables of interest, the analysis controls for some factors that previous research has found to be influential on subsidy levels. In particular, I include control variables for unemployment, trade openness and asset specificity in the EU member states for the time period. Zahariadis (1997, 342) argues that governments pay attention to unemployment levels in making their subsidy policies because unemployment can hurt their chances for reelection. Empirical evidence for the effects of unemployment on subsidy levels has been mixed. Blais et al. (1986) find that in the 1980s subsidies increased along with unemployment rates in OECD countries, while Zahariadis (1997, 351) does not find any systematic relationship between unemployment and subsidies across EU countries in the 1980s. Aydin (2007) finds a positive relationship between unemployment subsidies for the EU countries for the early 1990s.

There are two contrasting arguments in the literature on the impact of trade openness on subsidies. The compensation argument (Cameron 1978, Rodrik 1998, Ruggie 1982) suggests that trade openness would increase the demands for compensation by the losers of liberalization. A second line of argument suggests that increased openness will force domestic companies to adjust to international competition, and thus reduce their dependence on subsidies. Aydin (2007) finds that subsidy levels decrease with increases in the country's openness to trade.

Finally, both Zahariadis (2001) and Alt et al (1999) argue that the specificity of assets, which refers to the ease by which companies can shift production from one sector of the economy to another, influences the levels of subsidies. The argument is that firms with highly specific assets have higher costs of switching production to a different sector in the face of competition, and thus they are likely to lobby more intensely for subsidies. Zahariadis (2001) finds support for this argument for the EU member states for the period 1990-3, and Alt et al. (1999) find support in the case of Norway in the early 1990s. I include control variables for unemployment, trade openness and asset specificity in the following analyses.[2]

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[2] Another possible control variable is the ideological leaning of the party in government, which is cited in the literature as a factor affecting subsidy levels. Theoretical claims and the empirical evidence from the EU countries on the impact of government ideology on subsidies have been mixed. Zahariadis (1997) argues that left governments are more likely to intervene in the economy, and finds that subsidy levels tend to be higher in EU member countries dominated by left governments in the period 1990-1993. Neven (1994), in contrast, argues that right governments tend to subsidize firms more, because subsidies primarily benefit businesses (rather than labor), which are among the constituency of the right parties. He finds support for this argument in his empirical study of EU members from 1981-1990. A recent paper with more up-to-date data suggests that the relationship between the ideological leaning of the government and subsidies is more complicated (Cao et al. 2007). Cao, Prakash and Ward (2007) explore the impact of government ideology and foreign competition on the governments' choice between subsidies—referred to as corporate welfare in that paper—and social welfare policies. They find that left governments, when faced with foreign economic competition prefer social welfare policies to corporate welfare, while governments that are not dominated by left parties, when faced with foreign competition, prefer corporate welfare to social welfare. Given the complex relationship of party ideology and subsidies, I do not include government ideology as a control variable in the analysis.

Measurement and Data

This paper examines the factors that influence level of government support to businesses in the form of subsidies, tax breaks, and other financial, fiscal and in-kind measures. My argument is that in formulating subsidy policies, governments are constrained by both capital mobility and the characteristics of the electoral system. I explore these arguments empirically with data on subsidies in the European Union member states from 1992 to 2006, which is collected by the European Commission and published in its yearly reports.[3] The dependent variable is the level of subsidies, which I measure as a percentage of government expenditure in each member state and year. This measure diverges from the typical way subsidy levels are measured in the literature on subsidies in the EU, which is as a percentage of GDP (Commission 2006; Neven 1994; Thomas 2000); however, it better reflects the trade-offs governments make between subsidies and other expenditures when formulating and funding subsidy policies.[4] The subsidy data are obtained from EU State Aid Scoreboard (Commission 2007), and the government expenditure data from the Eurostat National Accounts.

In order to explore the impact of mobility of capital on subsidies, I create a measure that captures the dominance in a region's economy of relatively mobile and immobile factors of production. Immobile factors are those that are tied to a specific location due to the nature of their production, such as capital in the agriculture, mining, and certain service industries such as hotels, restaurants, real estate, and government services. Mobile factors are those that can potentially move to another location, such as those in the manufacturing industries and some services such as finance (Bronfenbrenner 2000; Neumark et al. 2006, 7). I measure the dominance of mobile factors in a country's economy by taking the ratio of the country's GDP accounted for by mobile factors to that of immobile factors. I include manufacturing and financial sectors as mobile sectors, and agriculture, fishing, mining, utilities, construction, transport, wholesale and retail trade, hotels and restaurants, real estate, the government sector, healthcare and education as immobile sectors. I collect data on the share of GDP accounted for by mobile and immobile sectors in each EU member state from Eurostat National Accounts (Eurostat 2006) and take the ratio of production by mobile factors to immobile factors in that economy to calculate a score of immobility for each country and year. In order to test the argument about the effect of interstate competition on a country's subsidy policies, I calculate, for each country, the average of subsidy levels in all bordering countries.[5] I expect subsidy levels of a country to vary positively with those of its neighbors.

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[3] The empirical analysis includes countries that were members of the EU prior to the May 2004 enlargement. While the European Commission has started collecting data on subsidies in the 12 newer member states since 2000, due to gaps in the data on the independent variables, I do not include these countries in the analysis. The countries and the years that have been included in the study are as follows: Austria (1995-2005), Belgium (1992-2006), Denmark (1992-2005), Finland (1995-2006), France (1992-2006), Germany (1992-2006), Greece (1992-2004), Ireland (1992-2006), Italy (1992-2006), Luxembourg (1992-2005), the Netherlands (1992-2006), Portugal (1992-2004), Spain (1992-2004), Sweden (1995-2005), the UK (1992-2005).

[4] Furthermore, running the same regression analysis with subsidies as a percentage of GDP gives essentially similar findings. The magnitudes of the coefficients of the variables are different, however; the signs and significance of the coefficients are the same. The results are available from the author upon request.

[5] In the case of island states, or member states that do not share borders with other EU members, I take the geographically most proximate countries as neighbors.

Data on electoral politics in the EU member states are compiled from various sources. District magnitude refers to the number of legislators elected from a typical electoral district in the country, and is taken from *Database of Electoral Systems and the Personal Vote* (Johnson and Wallack 2008). Party unity refers to the extent to which the electoral fate of the candidate is tied to the party rather than her personal reputation. Following Carey and Shugart (1995) and Hix (2004), I emphasize the impact of the party leadership's control over the candidate's access to and ranking on the ballot in order to operationalize the party unity variable. For example, if party leadership controls both the nomination of the candidates for ballot lists and their rankings on the list, such as in the closed list systems of Belgium and the Netherlands, candidates are likely to show loyalty to the party leadership and the party line, and they have few incentives to create a personal reputation among the electorate. If, on the other hand, access to the ballot may be gained through winning a primary election, or collecting some signatures, such as in the open-list system of Finland, then party unity is low (Shugart 2001, 182).[6] Under these conditions, candidates' electoral fates are determined more strongly by their direct appeal to the voters rather than loyalty to their parties.

Party unity is operationalized here as an ordinal variable that captures the extent to which party leaders have control over the candidates' access to and their ranking on the ballot list. Party unity is low (coded as 1) in electoral systems in which party leadership does not control candidates' access to or ranking on the ballot. Thus, countries with open list, single transferable vote, alternative vote and other multi-member district plurality electoral systems have the value one on the party unity variable. Party unity is high (coded as 3) in countries in which party leadership has absolute control over candidates' access to and ranking on ballot lists. Closed-list systems are an example of this, as are single-member majority electoral systems or plurality systems with party endorsement of candidates, which in effect have closed 'lists' of one. Semi-open list proportional representation systems—in which parties have pre-ordered lists that can be disturbed by voters' preference votes—are assigned a score of two, if voters have a viable chance to disturb pre-ordered party list. Such systems are coded as having highly disciplined parties if voters have rarely been able to disturb the pre-ordered party lists.

The analysis includes three control variables discussed in the previous section, unemployment rate, trade openness and asset specificity. The unemployment rate is measured as a percentage of the civilian labor force, and the data are obtained from the Eurostat Database. Trade openness is measured as the sum of exports and imports as a percentage of GDP. Yearly export and import data are obtained from OECD Economic Outlook Database. Finally, asset specificity is measured by Research and Development (R&D) intensity, which refers to annual R&D expenditures by private actors as a percentage of the country's GDP. This follows Zahariadis (2001, 609-10) and Alt et al (1999), who associate R&D spending with physical or capital specificity.

Data on subsidy levels in the EU member states are available for the period 1992-2006; however, missing data on some of the other variables constrains the time period under study for some of the countries. The dataset contains 182 country-year observations. Table 1 summarizes the descriptive statistics of the dependent and the independent variables of the study.

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[6] In Finland, each prospective candidate must collect signatures from voters for nomination. Their nominating papers identify other candidates with whom they would like to form an alliance. Therefore, multiple lists can appear within the same party, and the party leadership does not have influence over who has access to ballot list and their ranking.

Table 1: Descriptive Statistics for Variables in the Model

Variable	Minimum Value	Maximum Value	Mean	Median
Subsidy levels	0.2	4.6	1.1	1.1
Mobility	0.2	0.64	0.37	0.36
Interstate competition (logged)	6.23	10.43	8.36	8.5
District magnitude	1	150	19.4	10.1
Party unity	1	3	N/A	mode=3
Trade openness	35.9	289.2	90.63	69.65
Unemployment	2.0	19.5	7.8	7.9
R&D intensity	0.04	2.37	0.82	0.77

Discussion of Findings

The dependent variable in this study is the level of subsidies as a percentage of government expenditures. As the data are expressed in percentages, the range of the data is bounded (0, 100), and the variance across expected values is not constant. Furthermore, most of the values for the variable subsidies as a percentage of government expenditure are clustered between 0 and 1. For these reasons, I transform the percentages using the logistic transformation to provide an unbounded scale on the dependent variable subsidy levels, and run an OLS regression.

Table 2 presents the results of regressing the level of subsidies on capital mobility, interstate competition, district magnitude, party unity, and the control variables unemployment and trade openness. All coefficients are statistically significant and have signs in the expected direction. The regression coefficients suggest that the dominance of mobile assets in the economy, interstate competition and unemployment rate have a positive effect on subsidy levels, while district magnitude, party unity and economic openness have a negative effect on subsidy levels. Since the dependent variable is log transformed, it is not advisable to interpret the magnitude of the coefficients directly. Instead, I illustrate the impact of the independent variables on the dependent variable with plausible scenarios by holding all other variables at their mean or median values and changing the value of the variable of interest.

Table 2: Factors that influence subsidy levels in the EU member states, 1992-2006.

Variable	*Coefficient*	*Standard Error*
Mobility	2.7	0.75
Interstate competition	0.17	0.07
District Magnitude	-0.003	0.001
Party unity	-0.09	0.05
Unemployment	0.009	0.01
Trade openness	-0.006	0.001
R&D intensity	-0.35	0.1

N= 182	Adjusted R^2 = 0.26

The results of the regression analysis suggest that capital mobility has the expected impact on subsidy levels. The dominance of mobile assets in a country's economy has a large and positive impact on the level of subsidies, which suggests that the more that the economy is dominated by mobile assets, the higher are the subsidy levels. Figure 3 demonstrates the impact of asset mobility on the level of subsidies as a percentage of government expenditures. For this simulation, I hold all variables except mobility at their mean or median values. Under these conditions, a country with an economy dominated by mobile assets, such as Greece, spends about 0.6 % of government spending on subsidies, while a country with a highly mobile economy, such as Ireland spends an additional one percent, or about 1.6% of total government expenditure on subsidies.
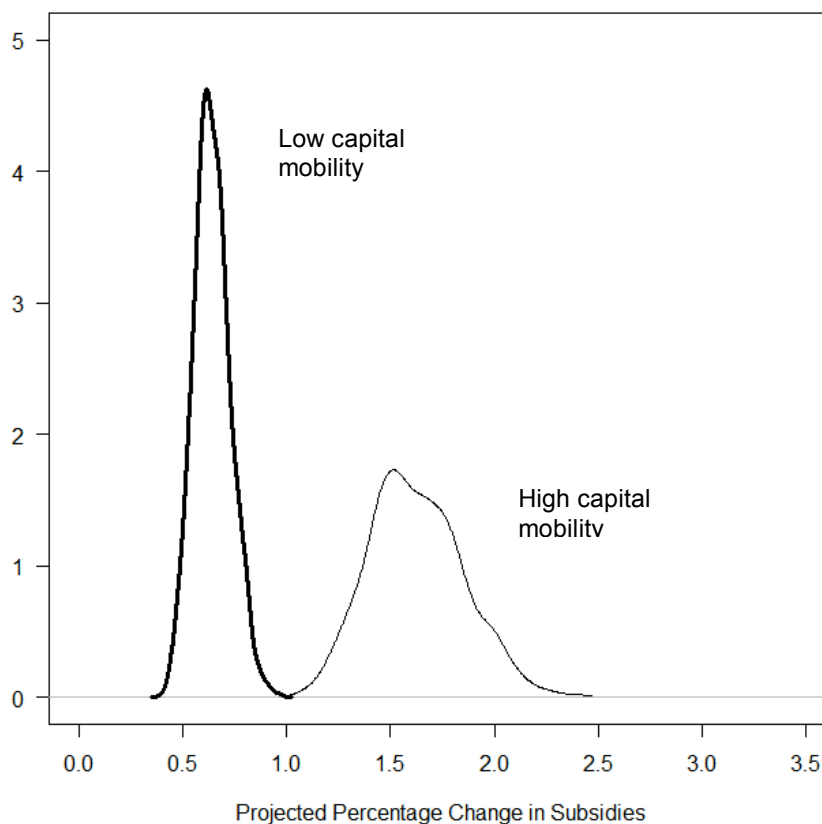
Figure 3: The impact of capital mobility on the level of subsidies in the EU member states. An EU member whose economy is dominated by highly mobile assets will spend more than twice as much (1.6% of government expenditures) on subsidies compared to a member whose economy is dominated by immobile assets (0.6% of government expenditures).

Capital mobility also influences subsidy levels indirectly through generating interstate competition. The variable interstate competition has a positive and statistically significant coefficient. A country such as Austria—which borders countries with high subsidy levels—spends 1.1% of government expenditures on subsidies, or twice as much as a country in a less competitive neighborhood, such as Sweden, which spends 0.7%, holding all other variables constant at their means or medians.

The regression results lend support to my argument linking institutions with subsidy policy outcomes. Small district magnitudes and low party unity, as expected, increase politicians' incentives to provide distributive policies in order to build a personal reputation, and therefore, are associated with higher levels of subsidies. While the institutional variables district magnitude and party cohesion both have negative and statistically significant coefficients, the coefficient for district magnitude is very small. The model predicts that a country with average district magnitude of 20 would spend 0.1 percent less on subsidies to industrial firms compared to a country with an average district magnitude of 1. Party unity also has a negative impact on subsidy levels. A country that has incoherent political parties—where party leadership does not control

nominations to the party ballot list—will spend 1.1 percent on subsidies, while a country with cohesive political parties will spend about 0.9 percent of its government expenditures on subsidies.

Figure 4 illustrates the impact of the four variables of interest—dominance of immobile assets in the economy, interstate competition, district magnitude and party unity—on the dependent variable, level of subsidies. The graphs show that institutional variables have less influence on subsidy levels when compared to the direct and indirect effect of capital mobility. Nonetheless, the results of the regression analysis confirm that domestic political institutions influence subsidy policies by shaping how politicians will respond to domestic demands for subsidies. Where institutions generate incentives for politicians to build a personal reputation, such as in countries with single member districts or where party leadership does not control nominations to the ballot, we are likely to see higher levels of subsidies.
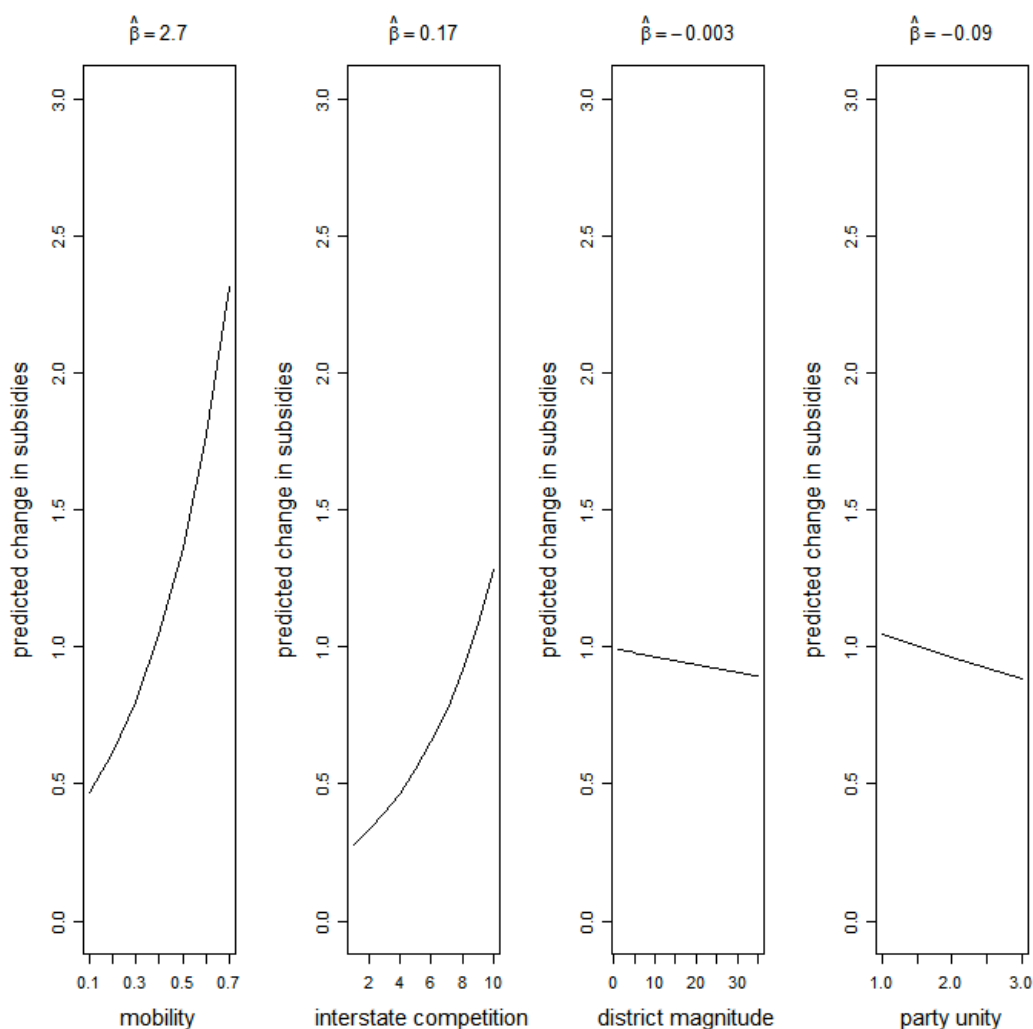

Figure 4: The impact of the variables dominance of mobile assets in the economy, interstate competition, district magnitude and party unity on subsidy levels.

The control variables also produce interesting results. Figure 5 illustrates the impact of the control variables trade openness and R&D intensity on the level of subsidies as a percentage of government expenditure, holding all other variables constant at their mean or median values. Trade openness has a negative but small impact on subsidy levels: more open economies have lower levels of subsidies. As countries liberalize trade, they tend to spend less on subsidies. R&D intensity, which measures the degree of asset specificity in the economy, has a substantial negative impact on subsidy levels: a 1% increase in R&D intensity increases the level of subsidies by 0.3 percent. The negative impact of asset specificity on subsidies goes against Zahariadis (2001) and Alt et al (1999), who argue that owners of more specific assets will lobby more intensely for, and receive more subsidies. The results here suggest that controlling for the impact of geographical mobility of capital, trade openness and political institutions, the higher the specificity of assets in an economy, the lower is the level of subsidies. These different empirical findings point to the need for a better understanding of how different types of firm mobility - across economic sectors and across geographical borders - are related and how they influence the demands of economic actors.
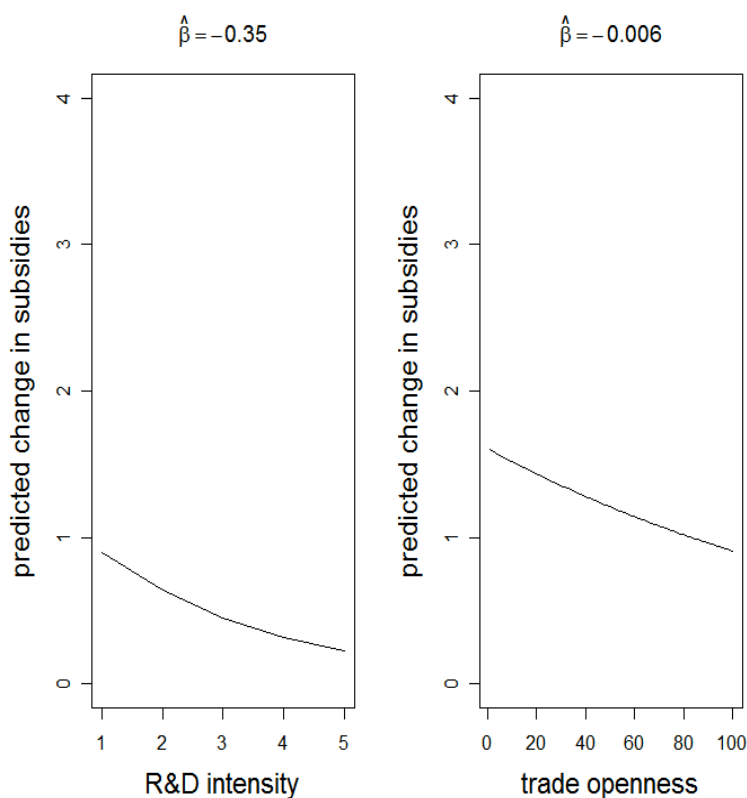

Figure 5: The impact of control variables R&D intensity and trade openness on the level of subsidies.

Lastly, the coefficient for unemployment is small and positive, but is not statistically significant in this model. It is surprising that unemployment rates do not have an impact on subsidy levels given that protecting jobs is one of the main reasons

politicians cite when subsidizing industry. As Anderson and Wassmer put it "after all, who has not heard the three reasons most often cited by politicians to justify a local economic development incentive program: jobs, jobs, jobs" (2000, 1-2). Politicians show concern with employment losses especially when large companies are on the brink of closure such as in the case of French government with Alstom in 2003 (Dombey 2003). However, systematic evidence on the EU member states does not confirm that higher unemployment rates are associated with higher subsidy levels. This is, in fact, in line with some of the research on state economic development policies in the US, which find no clear evidence linking economic decline to higher subsidy levels in the states (Peters and Fisher 2004).

Conclusion

Subsidies are currently the topic of heated academic and policy discussions. Are subsidies effective in bringing investment into the jurisdiction and creating jobs and increasing the tax base? Or are they a waste of taxpayers' money? Do countries race to the bottom as they offer increasingly more generous subsidies to attract investment? These are among the many questions discussed at national and international forums as subsidies become widespread industrial policy tools. While economists, lawyers, urban and regional policy scholars, and policy makers have long explored some of these questions, research in political science is only recently catching up with the growing significance of subsidies. This paper contributes to a small but growing body of research on subsidies in political science by exploring the factors that influence governments' subsidy policy decisions. It does so by drawing on the insights of research on electoral institutions and economic policies, and extending these insights to explore how institutions affect subsidy policies. The paper investigates how domestic political institutions on the one hand, and the impact of capital mobility on the other, shape subsidy policy-making in industrialized democracies.

My argument is that mobile capital, due to its credible threat of exit, has increased bargaining power vis-à-vis governments, and is thus in a good position to demand and obtain subsidies. Governments of developed countries still have room to move in formulating subsidy policies however, since domestic institutions mediate politicians' responses to the demands from mobile asset owners. Domestic institutions that give politicians incentives to build a personal reputation to appeal to voters, such as small district magnitudes and undisciplined parties, will increase the likelihood of governments to offer narrow benefits such as subsidies. Large district magnitudes and disciplined parties, in contrast, encourage politicians to appeal to broad segments of society by offering redistributive programs rather than particularistic benefits like subsidies. Therefore, in countries in which electoral institutions encourage politicians to rely on party labels rather than build personal reputations, politicians will have fewer incentives to conform to pressures of mobile capital, and subsidies will be less prevalent.

I test these arguments on the effect of capital mobility and domestic institutions on subsidy policies with data on government support to industry in the EU member states in the period 1992-2006. The regression results confirm my arguments about the impact of capital mobility and domestic political institutions. Higher capital mobility is associated with higher levels of subsidies. Capital mobility influences subsidies policies through two mechanisms: first, by increasing the bargaining power of the mobile asset owners, and second, by generating competition among neighboring states. The results of

the regression analysis on data from the EU member states lend support to both of these arguments. Member states with a larger share of immobile assets in their economy have lower subsidy levels compared to economies with a large share of mobile asset owners. Furthermore, member states that border other states with high subsidy levels disburse more subsidies, thus giving support to my argument that interstate competition increases a governments' likelihood of providing subsidies.

The results also lend support to my argument on the impact of domestic political institutions on subsidy policies. Large district magnitudes and highly disciplined parties are both associated with lower levels of subsidies, giving support to the argument that where politicians can rely on their political party label to get reelected, they refrain from offering particularistic benefits such as subsidies. This suggests that governments in countries with such institutions have more room to move in formulating subsidy policies even when there are strong pressures from mobile capital owners, because their strategies for getting reelected do not coincide with the demands of mobile capital. In counties with small district magnitudes and low party discipline, however, political institutions and pressures of capital mobility reinforce each other in terms of the incentives they generate for politicians to offer subsidies.

The findings of this research have implications for the literature on subsidies. Existing research on subsidies has so far not focused extensively on the role of domestic political institutions in shaping policies. Verdier (1995) initially linked subsidies to electoral politics and more recently, Zahariadis (2005) put these arguments to test in explaining industrial policy of the OECD countries. Park and Jensen (2007) have also examined the impact of electoral politics on agricultural support policies. We still do not have a theoretical framework; however, to examine which institutions influence subsidy policy choices. Empirical research on the topic has also been limited. This paper attempts to generate a theoretical basis for understanding subsidies policies by drawing on the political economy literature on electoral institutions and economic policies, and tests these arguments with the most extensive data available to date on subsidies. The arguments and findings thus make a valuable contribution to our understanding of the politics of subsidies. In addition, the paper contributes to the literature on globalization by empirically examining the effect of mobility, both directly and indirectly, on subsidy policies.

The findings of the paper also have implications for policy discussions on subsidies. Subsidy competition is an issue of concern for both subnational governments in federations and for states in the international system. In the United States, for instance, state governments spent an estimated $26.4 billion in subsidies to attract investment in 1996 (Thomas 2003, 987). By 2002, the estimated figure was $40 to $50 billion (Peters and Fisher 2004). Initiatives to prevent subsidy competition among the fifty state governments have not been successful so far, and the competition is intensifying (Burstein and Rolnick 1995; Markusen 2007; Chi and Hofman 2000). Similarly, in international trade agreements agricultural and industrial subsidies have been thorny negotiation issues, as evidenced by the lengthy negotiations on subsidies in the US-Canada Free Trade Agreement and the breakdown of the Doha round of negotiations of the WTO over the issue of agricultural subsidies.

Frequently, negotiations at federal, regional and international levels for agreements on subsidies are hampered by the very different interests of the governments at the negotiating table. The obstacles to agreements can be better understood and perhaps resolved if we gain a better understanding of the domestic political dynamics that shape

governments' positions on subsidies. This paper shows that domestic political institutions, along with capital mobility, have a systematic impact on governments' subsidy policy preferences. Any agreement that seeks to limit the use of subsidies has to take into account this domestic institutional context in order to provide a solution that can be sustainable in the long run.

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