Distributive Policies in Parliamentary Systems: State Aid Expenditure and Applications in the European Union[1]

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Abstract: *Why do some countries distribute state resources more than others? Why do some countries intervene more frequently in the economy than others? We test a battery of competing hypotheses on the intensity and frequency of use of distributive measures using all the applications to grant non-agricultural state aid logged by member states of the European Union in the 1999-2009 period and data on state aid expenditure by these member states in the 1999-2008 period. We employ the political-economy literature on the determinants of fiscal policy, especially of distributive fiscal measures. Aside from economic factors, preliminary findings suggest that countries with high cost-internalizing electoral systems intervene less intensively in the economy through state aid spending. Although, surprisingly, countries employing either candidate centered or open or free party list electoral systems display significantly lower state aid expenditure. Contrary to the results of recent studies (Persson, Roland, and Tabellini 2007), the type of government does not appear to play any role, independent of electoral institutions. We find instead supporting evidence for one of the Hallerberg, Strauch and von Hagen's (2009) expectations. At low level of intra-governmental conflict, the adoption of fiscal institutions that delegate power to the finance minister significantly lowers the intensity of state intervention. As far as the frequency of intervention is concerned, coalition majority and single party majority governments intervene less frequently in the economy or, in other words, minority government intervenes more frequently. Overall, the type of government is more important than the electoral institutions in explaining the frequency of state intervention.*

In this paper, we test a battery of competing hypotheses on the intensity and frequency of use of distributive measures using all the applications to grant non-agricultural state aid logged by member states of the European Union in the 1999-2009 period and data on state aid expenditure by these member states in the 1999-2008 period. We employ the political-economy literature on the determinants of fiscal policy, especially of distributive fiscal measures.
The next session evaluates whether state aid measures in the European Union can be considered distributive measures and, hence, whether the related literature can be employed. We then produce a list of several alternative hypotheses on the determinants of distributive fiscal measures. After a description of the data collected, we offer some preliminary results.

Is State Aid in the European Union a Distributive Policy?
According to Weingast, Shepsle, Johnsen (1981, 644), a 'distributive policy is a political decision that concentrates benefits in a specific geographic constituency and finances expenditures through generalized taxation ... what distinguishes a distributive policy is that benefits are geographically targeted'. What Weingast, Shepsle, Johnsen have in mind are, for instance, public works and rivers and harbors projects. In our view, state aid in the Europe Union (EU) fits this description.
The member states of the European Union can grant aid to sectors of their economy, on condition that they comply with EU law. According to Article 107 of the Treaty on the Functioning of the

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European Union (TFEU),[2] any aid granted by a member state or through state resources which distorts or threatens to distort competition is incompatible with EU law. The article then lists the types of aid that are, or may be, compatible with EU law. Several of these types of aid have a strong geographical dimension. Aid that may be compatible with EU law includes measures that promote the economic development of poorer areas or regions, that facilitate the development of certain economic areas and that promote the execution of an important public works. Since any state aid is financed by public funds and, in most cases, has a strong geographical dimension is therefore very close to Weingast, Shepsle, Johnsen's definition of distributive policy. A very attractive feature of employing data from the EU policy of state aid control is that member states are subject to same common policy, therefore controlling for several confounding factors.

EU State Aid Regulation

The regulation on state aid is based on Articles 107, 108 and 109 of the TFEU. As stated above Article 107 states which aid is compatible with the common market, while Articles 108 and 109 specify the institutions deciding on the compatibility of each aid measure with the common market and the institutions in charge of developing relevant regulations.

According to Article 108, any plan to grant new aid must be notified to the Commission which, as a result, starts an investigation to evaluate the compatibility of the proposed aid with the common market. At the end of this procedure, if the measure constitutes aid, the Commission decides whether to approve, conditionally approve or reject the proposed aid programme.[3] Besides, Treaty Article 108 also establishes that, in exceptional cases and in derogation with Treaty Article 107 and with the state aid regulation, a state can apply directly to the Council which must approve the measure, even if already granted, unanimously. If initiated, the Commission's investigation into this proposed measure is suspended. If the Council does not decide within three months, the investigation is resumed.

The procedure the Commission follows to take a decision has been recently codified in the Council Regulation 659/1999 of 22 March 1999, approved by the Council in accordance with Treaty Article 109. The standard procedure of the state aid regulation starts when a member state notifies a proposed aid. Once the Commission receives the notification, it proceeds to a "preliminary investigation" of the measure. If the Commission does not need additional information, it decides whether the measure is compatible with the common market within two months. Otherwise, if the Commission considers that the information provided by the member state is inadequate to take a decision, it initiates a procedure of "formal investigation". The Commission has to take a negative, positive or conditionally positive decision within eighteen months from the opening of the formal investigation.

This standard procedure concerns the notification of "new aid", that is any notified aid that the Commission evaluates for the first time. The Commission takes into consideration also other types of aid, such as "existing aid" (where the Commission has to review the compatibility of already authorized aid), "unlawful aid" (any aid put into effect without notifying the Commission), or cases of "misuse of aid" (approved measures that are incorrectly implemented).

In addition to Regulation 659/1999 and with a view to simplifying the procedure, the Council also adopted Regulation 994/98 of 7 May 1998, which enables the Commission to adopt the so called "block exemption regulations" and "de minimis regulations". Block exemption regulations are used by the Commission to specify categories of state aid which are compatible with Article 107 TFEU, exempting them form the requirement of notification and Commission approval. With de minimis regulations, the Commission set the thresholds under which the aid measure does not fall under the

[2] This is the new name given to the Treaty establishing the European Community since the Treaty of Lisbon entered into force on the first of December 2009.

[3] Approval can be given tacitly or it may take the form of a decision not to raise objections or the form of a positive decision, if necessary following modifications to the proposed aid. A conditional approval is a positive decision subject to conditions to make the measure compatible with EU law. Rejection (a negative decision) can be due to the incompatibility of the proposed measure with the common market law or to insufficient information provided.

obligation of notification[4]. It follows that a member state is allowed to grant aid that meets the conditions prescribed in these regulations without the obligation to notify formally the Commission. Besides, in response to the financial crisis related to the U.S. mortgage market, the Commission has allowed member states to grant certain categories of aid for a limited period (from the 17 December 2008 to the 31 December 2010) on condition that member states show, according to the Article 107 of TFEU, that the measures concerned are necessary, appropriate and proportionate to remedy a serious disturbance in the economy.

Political-economic Hypotheses on State Aid Expenditure and Applications

We employ here the literature on fiscal policy to develop hypotheses on the determinants of applications to grant aid logged by the member states of the European Union and of the expenditure in state aid.

Electoral and Partisan Models of Fiscal Policy and State Aid

Nordhaus (1975) models the incentives of pure office-seeking politicians, with backward-looking and short-sighted voters, that pursue expansionary fiscal policies as they approach a new election. Cukierman and Meltzer (1986) and Rogoff and Sibert (1988) show that this is likely to occur even if voters are not short-sighted, but as long as they are imperfectly informed about government performance. The electoral model suggests therefore the following expectation.

Hypothesis 1: *As a government approaches an election, state aid expenditure and applications increase*

The classical partisan theory of macroeconomic policy puts emphasis on the policy-seeking motivations of politicians (Hibbs 1977; Hibbs 1987). Because of the redistributive consequences of economic outcomes on key constituencies, left-wing governments are more inclined to pursue expansionary fiscal policies than right-wing governments. In other words, they trade off lower unemployment for higher inflation in a Philips curve-type of fashion. Cameron (1978) presented the first cross-country evidence of a significant positive relation between the growth of government revenues as a percentage of GDP and the share of left-wing electoral base of government parties, but Boix (2000) finds contradictory evidence of a direct partisan effect on debt-GDP ratio (see also de Haan and Sturm 1994).[5] The expectation can be formulated as follows.

Hypothesis 2: *As government composition moves to the left, state aid expenditure and applications increase.*

We employ here the terms left and right broadly. We will discuss later how best to choose the main conflict dimension underlying state aid policy and the operationalization of a government's preferences.[6]

Electoral Institutions and State Aid Expenditure and Applications

[4] The total amount of a "de minimis" aid has not to exceed 200 000 Euros over any period of three fiscal years, with the exception of the measures in the road transport sector that has not to be over 100 000 Euros.

[5] Garrett (1998: 80) finds that the interaction of left-labor power and trade openness positively affects the amount of subsidies to industry for the 1966-90 period, but the interaction between left-labor power and capital mobility is not significant.

[6] According to Alesina (1987), if voters can rationally anticipate government policies, the redistributive consequences of expansionary policies occur only in the short term and if government alternation is unexpected. The implication is that an expansionary fiscal policy is pursued by left-wing governments only at the beginning of their term of office (Alesina 1989; Alesina and Rosenthal 1995; Alesina, Roubini, and Cohen 1997). In other words, as government composition moves to the left, state aid expenditure and applications should increase at the beginning of the term of office. We will discuss the results from testing this expectation below.

The electoral and partisan models refer to fiscal policy in very broad term, but an expansionary fiscal measure can take the several forms. For instance, a government can confront an industrial crisis by granting a state aid to the company in economic distress, by increasing unemployment benefits or by investing active labor market policies. The impact of these measures on broad fiscal aggregates, such as budget deficits or debt, could be similar, but the politics behind these decisions differ considerably.

Weingast, Shepsle and Johnsen (1981) show that the incentives of politicians for adopting a given distributive measure increase with the number of electoral districts of a country. As this number increases, the district-specific costs of a measure diminish as they are shared with more districts through the mechanism of generalized taxation.[7] Politicians seeking re-election in any given district will therefore demand more distributive measures, giving rise to a common-pool problem. Weingast, Shepsle and Johnsen (1981) assume that legislators adopt measures unanimously, but Persson and Tabellini (1999, 2000) shows that the common pool problem arises also if the assembly decides by majority voting.[8] They model two pure office-seeking parties that offer a policy platform composed of a group-specific transfer payments and a public good, in addition to rents and a common tax rate. They show that the size of the transfer payment is higher, and the provision of the public good is lower, in a polity with three districts (where the groups coincide with the districts) than in one with a single district. The costs of a distributive program is lower in a three-district setting because the votes lost in non-marginal districts, due to lower public good provision, are not internalized by a party, but each district still contribute equally to the budget.[9] According to Persson and Tabellini, the electoral system is the key mechanism through which politicians internalize the cost of distributive policies. They provide indirect empirical evidence in support of the common-pool problem by showing that countries with majoritarian electoral systems spend less on broad social transfers (pensions and unemployment insurance) than countries that employ proportional electoral representation (Persson and Tabellini 2003, 169-79; 2004). Milesi-Ferretti, Perotti and Rostagno (2002) reach similar conclusions but they fail to find corroborating evidence in a more direct test (see also Clark 2002). We should therefore expect that state aid expenditure and applications to be higher in countries with electoral systems structuring political incentives so that the cross-district costs of distributive measures are not internalized. We formulate the expectation as follows.

Hypothesis 3: *In countries with low cost-internalizing electoral systems, state aid expenditure and applications increase*.

There is a strong association between a country's electoral system and the partisan composition of governments that are likely to form. The proportion of left-wing governments is much higher in countries with proportional electoral systems (Iversen and Soskice 2006). According to Rodden (2006), this can be explained by the higher geographic concentration of left support, which is a liability for parties in countries with majoritarian electoral system. Iversen and Soskice (2006) offers an alternative explanation based on the coalitional bargaining of groups with different income levels. Middle-income voters are more likely to vote for center-right parties in majoritarian systems. So, these countries display lower level of redistribution (see also Persson, Roland, and Tabellini 2007). The model proposed by Iversen and Soskice (2006) share many features with Persson and Tabellini's (1999, 2000) model, with one important exception. Parties are policy-seekers as in

[7] Having in mind public works, Weingast, Shepsle and Johnsen (1981) also add that some of the costs, such as district-specific real expenditures, are counted as benefits by a politician seeking re-election in a given district, further increasing the demand for distributive measures.

[8] Majority voting in the legislature is implied by Persson and Tabellini (1999). A party needs to win outright in case of a single district or to win two out of three districts.

[9] Lizzeri and Persico (2001) and Milesi-Ferretti, Perotti and Rostagno (2002) produce models with similar conclusions, at least to the extent that we should expect more policies with geographically concentrated benefits as the number of electoral districts increases.

Hibbs (1977). Iversen and Soskice (2006) find that left-of-center governments *and* countries employing proportional electoral systems produce more income redistribution. In other words, the theory of Iversen and Soskice (2006) generate the implications we have described above in hypotheses 2 and 3. Whether however we actually test these scholars' expectations is another matter especially because the redistributive implications of state aid are not evident.

Type of Governments and State Aid Expenditure and Applications

The type of government may also affect fiscal discipline and, therefore, the likelihood to grant state aid. Roubini and Sachs (1989) and Alesina and Perotti (1995) find that coalition governments experience greater difficulty of fiscal consolidation (cf., however, Edin and Ohlsson 1991; de Haan and Sturm 1997; 1994), while Franzese (2002) shows that an increase in the number of actors with the power to veto political decisions retard fiscal consolidation.

More recently, Persson, Roland and Tabellini (2007) have given preeminence to the type of government in office rather than the electoral rules. They argue that the common pool problem is more severe in coalition than in single party governments, resulting in more government spending.[10] Persson, Roland and Tabellini (2007) find the type of government plays a more significant role than the electoral system in affecting government spending. The fiscal consequences of electoral rules are therefore indirect. By affecting the size of the party system, along the lines of Duverger's (1964) law and hypothesis, they affect spending by shaping the size of the party system and the types of government that are likely to form. We derive therefore the following two expectations.

Hypothesis 4a: *Majority coalition governments display more state aid expenditure and applications*.

Hypothesis 4b: *Majority single party governments display less state aid expenditure and applications*.

Duverger's (1964) law and hypothesis states that majoritarian electoral systems tend to reduce the size of the party system, while proportional representation electoral rules favor multiparty systems. In homogeneous countries however, the electoral system is epiphenomenal.[11] It should not affect the size of the party system. If the type of government has an independent impact along the lines suggested by Persson, Roland and Tabellini (2007), we should expect coalition majority governments to display more state aid expenditure and applications in countries employing low cost-internalizing electoral systems, and single-party majority governments to display less state aid expenditure and applications in countries employing high cost-internalizing electoral systems. In a related study, Bawn and Rosenbluth (2006) show that the number of parties in government increases the size of the public sector. We will briefly consider this alternative specification in the empirical analysis below.

Fiscal Institutions and State Aid Expenditure and Applications

Hallerberg, Strauch and von Hagen (2009) have recently argued that two factors have to be considered when trying to explain fiscal discipline in parliamentary democracies. The first is the degree of intra-coalitional conflict or the government's range. In single party majority government, the range equals zero and it increases with the heterogeneity of the parties in government (or, for minority governments, in parliament). The second is the set of fiscal institutions present in a country. These can be summarized in two broad categories: delegation institutions that confer upon

[10] However, the key policy choice in Persson, Roland and Tabellini's (2007) model is a transfer – a local public good - to groups that are distributed in the same way across the electoral districts, rather than a geographically concentrated policy measure that benefit more groups within a given district.

[11] See Clark, Gilligan, and Golder (2006) for empirical evidence supporting Duverger's theory. Persson, Roland and Tabellini (2007) assume a heterogeneous country, divided in four groups.

the finance minister most of the important fiscal decisions, and contract institutions that facilitate intra-party agreements. According Hallerberg, Strauch and von Hagen (2009), governments with low range display more fiscal discipline if they operate under delegation institutions, while governments with high range are more successful if they operate under contract institutions. Fiscal laxity may therefore result if a government finds itself in situation that diverges from these two combinations, that is, if a homogeneous coalition, or single party majority government, takes decisions under contract-type fiscal institutions, or if a heterogeneous coalition operates under fiscal institutions that delegate powers to a finance minister. An environment conducive to fiscal laxity offers more opportunity to distribute resources; we have therefore the following implication.

Hypothesis 5a: *A low range government operating under contract fiscal institutions displays more state aid expenditure and applications*.

Hypothesis 5b: *A high range government operating under delegation fiscal institutions displays more state aid expenditure and applications*.

State aids are frequently urgent and unexpected measures adopted, say, to prevent a firm bankruptcy. The degree to which it is easy to change a budget, once adopted by the parliament, is likely to affect a governments' proclivity to grant state aids. We will also investigate whether more flexible institutions for the execution of the budget lead to more state aid expenditure and applications.

State Aid Applications and Expenditure in the European Union: Descriptive Statistics

We collected information both on the number of state aid applications and the total state aid expenditure for each member state and year. As far are applications are concerned, we have collected from the official online database of the European Commission[12] information on 3673 decisions on state aid applications that the Commission has taken from the 22nd of March 1999, when Regulation 659/1999 came into in force, until 31st of December 2009. The dataset covers all the state aid applications managed by the directorate-general on competition (88.5% of all cases) and the directorate-general on energy and transport (11.5%) of the Commission. It does not include 221 cases where the Commission has decided that the notified measure did not constitute aid, 56 cases of existing aid and 159 cases of notified aid with a pending Commission's decision.[13] As far as state aid expenditure is concerned, the data are available from a report of the European Commission called Scoreboard.[14] We have taken into account only the expenditure on industry and service from 1999 to 2008.[15] Data on both state aid applications and expenditure refer only to the measures granted under the Regulation 659/1999 procedure, excluding therefore state aid implemented in accordance with either the block exemption or the de minimis regulation. In addition, we have left out from our analysis any state aid granted in response to the recent 2007-2010 financial crisis.

In spite of the relatively constraining Regulation 659/1999, national governments have continued to intervene in the domestic economy using state aid. Figure 1 reveals that the number of state aid in the last decades has been fairly constant throughout this period. Aside from 1999, which applies to nine months only, there appears to be only a significant one-step increase linked to the 2004 enlargement. Figure 1 also indicates that 87.2% of the cases are notified by the member states, as required, but the remaining 12.8% is implemented illegally, that is without notification to the

[12] The database is available at http://ec.europa.eu/competition/elojade/isef/index.cfm. It has been accessed between the end of September 2009 and the end of January 2010.

[13] For these reasons, the number of state aid applications included in our dataset is slightly lower than the number reported in the European Commission Scoreboard. Additionally, we consider only the first application of a given state measure and disregard subsequent procedures associated with the same measure, which are instead double counted in the official database.

[14] Scoreboard can be accessed at http://ec.europa.eu/competition/state_aid/studies_reports/expenditure.html

[15] The 2009 data on state aid expenditure are not available yet.

Commission or before a Commission's decision. These cases are notified to the Commission by private companies. Nevertheless, the proportion of notified aid has slightly increased over time. Only in Bulgaria, Cyprus and Estonia all the state aid measures have been correctly notified (see Figure 2). Note also that about a fifth of the cases originates in Germany, two thirds of the observations originate is just seven countries (Germany, Spain, Italy, France, United Kingdom, Netherlands and Poland). Part of the cross-country variance that we see in Figure 2 is due to the fact that member states that joined the European Union in 2004 and 2007 enter in the dataset five and seven years later respectively.

< FIGURES 1 TO 3 HERE >

Although the number of state aid applications has slightly increased, total state aid expenditure has diminished in the last decade. Figure 3 shows the trend of state aid expenditure, as a percentage of GDP, in the European Union. Whereas member states had spent on state aid about 0.55% of their gross domestic product in 1999, the figure lowered to 0.42% in 2008. Total expenditure has continuously decreased during this time period, with the exception of 2001 and 2002, probably as a consequence of the impact on the global economy of the September 11 terrorist attacks in the USA, and in 2008, most likely as a result of recent fiscal crisis. Although Figure 3 does not take into account special measures implemented in response to the crisis, member states have nevertheless intervened extensively in the economy to avoid bankruptcy and limit unemployment. Figure 4 illustrates the cross-country variance in state aid expenditure. Apart from Malta, which spends on average more than 2.5% of its GDP in state aid, member states spend on average less than 1% of their GDP.

Although total expenditure has decreased in the last decade, state aid represents a major public spending item. Germany, the largest state aid spender in the European Union, on average has spent more than 16 billion euros in state aid. France, Italy and Spain follow suit with about 7, 5 and 3 billion euros respectively. United Kingdom, Poland, Sweden, Denmark, Portugal, Netherlands have each spent on average more than 1 billion per year. Lithuania, Luxemburg, Latvia, Bulgaria and Estonia have instead spent less than 100 million euro per year.

Our objective is to explain both the frequency and the intensity of state intervention in the economy in a given country and year. The frequency is measured by the number of state aid applications,[16] while the intensity is gauged by the state aid expenditure, as a percentage of GDP. The observations are aggregated by country and year. The datasets cover 23 countries and the time period from 1999 to 2009, in case of applications, and from 1999 to 2008, in case of expenditure. The datasets are unbalanced panels because five countries have joined the European Union in 2004 and, therefore, we have no data prior to this year.[17] We have excluded Bulgaria and Romania because we have too few observations to perform a proper time-series cross-section analysis,[18] and Cyprus because it is a presidential democracy and some of the hypotheses are only relevant for parliamentary democracies.

The variance of these variables across time and member states is illustrated in the box plots of Figures 5 and 6. For both variables, cross-country variance is higher than the variance across time. Nevertheless, the number of applications displays more fluctuation over time than state aid expenditure over GDP. Malta is clearly an outlier in state aid expenditure.

< FIGURES 5 AND 6 HERE >

[16] The number of state aid applications includes only the measures notified by the member states. Any state aid that member states have not notified or is notified to the Commission by third parties is excluded. We may include these measures in subsequent analyses.

[17] We have data for the entire period for Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal Spain, Sweden and United Kingdom, and from 2004 onwards for the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

[18] Since we have just one observation for both Romania and Bulgaria, the panel would become highly unbalanced and we could not perform a time-series cross-section analysis. As soon as additional data are available, we will include these two countries in the model.

Explanatory variables

We employ a variable *Preelection* to test the electoral model (hypotheses 1). *Preelection* is calculated as suggested by Franzese (2002, 78). It takes the value of one in the year preceding an election in a given member state and zero in the other years. In the election year, the value is the weighted pre-election period of the year.[19] This variable should be positively associated with state aid expenditure and applications.

State aid policy is underpinned by the traditional left-right economic cleavage which pits market liberals against interventionists; those favoring a small state and low taxation against the supporters of public spending and intervention in the economic. To measure the positions of governments, we employ the "taxes v. spending" dimension used by Benoit and Laver (2006) and their expert surveys' data on party positions. The dimension ranges from 1 for a party that promotes raising taxes to increase public services to 20 for one that promotes cutting public services to cut taxes. *Government preference* is operationalized in two alternative ways. In the first measurement, we weighted the position of each government party along this dimension by the distribution of government portfolios held by each party. According this perspective, government parties negotiate along the different dimensions of public policy and a government position is a negotiated outcome, weighted by the relative importance of parties in government (Budge et al. 2001: 166). If however each government party acts as a veto player along a policy dimension (Tsebelis 1995, 2002), a government's position on whether to grant state aid is better gauged by the position of the government party that is most against rising taxing to finance public intervention. The second measurement equals therefore the position of the government party with the highest value along this dimension.[20] If a change of government has occurred in a given year, *Government preference* is the sum of the two (or more) governmental positions, weighted by the yearly share of time in office of each government.[21] This variable should be negatively associated with state aid expenditure and applications. We will present below only the results of the veto-based measure and discuss briefly the results of the alternative operationalization. The two measures yield similar results.

We have developed an *Internalization index* to measure the extent to which an electoral system structures the incentives to internalize the cross-district costs of distributive measures, in a given year and country. We have first computed the average district magnitude which, for majoritarian and proportional representation systems, is the result of the division of the number of assembly seats by the number of electoral districts, at the electoral tier at which votes are translated into seats. For (proportional) multi-tier systems and mixed systems, we have computed the magnitude of each tier by dividing the number of seats assigned or won at a given tier in a given election by the number of electoral districts at that tier. We have then summed the resulting tier-level values, weighted by the proportion of tier-level seats over the assembly size.[22] This (weighted) average

[19] More specifically, it is equal to (number of completed pre-election months /12) + (number of pre-election days in the incomplete month/total number of days in the incomplete month)/12.

[20] For minority governments, we computed these measures on the basis of the parliamentary support coalition, that is, the set of parliamentary parties expected to support government initiatives (Laver 2006:128). In addition to government parties, they include either those which supported the formal government investiture, those which offered external support or, as a last resort, those closest to the government parties on the economic left-right scale. Information on government composition, portfolios, parliamentary seats, external support and vote of investiture is taken from the political data yearbooks of the *European Journal of Political Research*.

[21] We have used the same procedure for all the independent variables with values that change in a given year.

[22] For instance, in the 2003 Estonian elections of the 101-seat Riigikogu, 74 seats were allocated at the 12 lower tier districts and the remaining 27 'compensation mandates' were assigned at the single nation-wide district. The average district magnitude was therefore [(74/12)*(74/101)]+ (27*27/101) = 11.74. In Sweden, there are 39 'adjustment' seats allocated nation-wide and 310 assigned to 29 districts, the magnitude is [(310/29)*(310/349)]+ (39*39/349) = 13.85. The weighting tends to increase the magnitude capturing more internalization of costs. We emphasize the importance of the tier at which votes are converted into seats because this is where costs are internalized. This can have important consequences. For instance, the allocation of the PR seats in Bulgaria, Italy and Germany is based on nation-wide results. Finally, in systems where bonus seats are assigned to the largest party (for instance in Greece since 2007), we deduct the number of bonus seats from the number of seats at the lowest tier and from the assembly size. This results in a lower magnitude value, therefore capturing the majoritarian effect of bonus seats. We use data only from the lower

district magnitude has a lower boundary of one and an upper boundary that is a function of the electoral rules and the size of the assembly. All else being equal, it increases with assembly size. Since we find no reasons to sustain that countries with larger assemblies are better at internalizing costs, we have normalized this measure of district magnitude by the assembly size (i.e. magnitude * 100/assembly size). The resulting *Internalization index* ranges from close to zero to 100.[23] Higher values imply more internationalization of costs and should be negatively associated with state aid expenditure and applications.

A variable predominantly based on the district magnitude does not capture other important features of an electoral system that may structures the incentives to internalize the cross-district costs of distributive measures. For instance, all other things being equal, in list proportional systems we should expect systematic differences in behavior if a party list is open or free, rather than closed. For instance, Edwards and Thames (2007) find supporting evidence of Carey and Shugart's (1995) conjecture that the effect of district magnitude on government spending should be conditioned by electoral incentives to cast personal votes. We will soon develop an appropriate variable to measure these incentives but, for the time being, we employ a variable *Candidate/Open list* that measures the percentage of assembly seats that are either candidate centered or are from an open or free party list, in a given year and country. We can plausibly expect that politicians elected in candidate centered or in open or free list systems to internalize less the cross-district costs of distributive measures and, therefore, to see higher state expenditure and applications.

We have produced two variables to measure the impact of the type on government: *Coalition majority* and *Single party majority*. They take the value of 1 if a country has experienced the relevant type of government throughout the entire year. If a change of government type has occurred, these variables equal the yearly share of time in office of the relevant type of government (see footnote 15). *Coalition majority* should be positively associated with state aid expenditure and applications, while *Single party majority* should be negatively associated.

We use the data provided by Hallerberg, Strauch and von Hagen (2009) and, for eastern European member states, by Hallerberg and Yläoutinen (2010) to measure the fiscal institutions operating in a country. *Delegation* is an aggregated index taking into account the type of negotiations in the cabinets, the opportunity to amend the budget by the parliament and the opportunity to change the budget once it is adopted. *Contract* is an aggregated index measuring fiscal institutions facilitating intra-party agreements. *Government range* is instead the absolute difference among the extreme positions of government parties along Benoit and Laver's (2006) "taxes v. spending" dimension.[24] At a low *Government range*, the adoption of *Delegation* fiscal institutions should lower the amount of state aid expenditure and applications. Instead, at a high *Government range*, the adoption of *Contract* fiscal institutions should have this effect.

We control also for economic and institutional factors. As most studies on government spending (Bawn and Rosenbluth 2006; Edwards and Thames 2007; Garrett 1998; Milesi-Ferretti, Perotti, and Rostagno 2002; Persson, Roland, and Tabellini 2007; Persson and Tabellini 2004, 2003; Rodrik 1998), we include the lagged values of the gross domestic product (GDP) per capita, the real GDP growth rate, trade openness and government deficit.[25] In order to control of the size of the national economy, we include the lagged value of the gross domestic product in the regression on state aid applications. State aid expenditure and applications are expected to increase in countries that are

chamber in bicameral systems.

[23] Milesi-Ferretti, Perotti e Rostagno (2002) also use a variable that is based on the district magnitude, while Persson and Tabellini (2004, 1999, 2003: 155-86) rely solely on an indicator variable for majoritarian systems. We will also discuss the results from regressions with indicator variables for majoritarian and mixed electoral systems.

[24] We follows the same procedures employed for the second measure of *Government preferences* to identify parliamentary support parties in case of minority governments and if values change in a given year.

[25] Data have been provided by Eurostat. The GDP is measured in millions of purchasing power standard, trade openness is the sum of import and export over GDP, while the deficit is net borrowing over net lending as a percentage of GDP. There may be issues of endogeneity with the inclusion of *Deficit* variable as more state aid expenditure may increase government deficit. We will discuss the results excluding this variable.

poorer or more exposed to the international economy, and that face stricter financial constraints or economic downturns.

We finally control for supra- and subnational institutional factors that may affect state aid spending and applications. National governments may be more likely to grant a state aid and notify a measure if they face a Commission that is more tolerant toward state intervention and is, therefore, more likely to approve the measure. *Commission* measures the position of the competition commissioner along Benoit and Laver's (2006) "taxes v. spending" dimension, based on her partisan affiliation. This variable should be negatively associated with state aid expenditure and applications.[26] *Euro zone* is a second supranational control variable that takes the value of one for the time periods a country has joined the Economic and Monetary Union, and zero otherwise. In his study on the partisan impact on debt-GDP ratios, Boix (2000: 66) shows that partisan differences narrow in condition of full capital mobility. However, in line with the Mundell-Fleming model, Boix (2000: 64) also shows that, given full capital mobility, countries operating under a fixed exchange rate regime tend to loosen fiscal policy (see, for instance, also Keohane and Milner 1996). In the time period under analysis, our set of countries operates under full capital mobility and different exchange rate regimes. We may therefore expect more state aid expenditure and applications from the countries that have adopted the euro. No doubt, the growth and stability pact has been designed to prevent exactly this outcome (Savage 2007; Beetsma et al. 2007) and a few scholars argue that these fiscal rules can be effective, at least in the short term (for a review, see Hallerberg, Strauch, and von Hagen 2009: 17-9). As far as subnational institutional factors are concerned, we control for the degree of fiscal autonomy enjoyed by subnational authorities. *Subnational autonomy* is an index on subnational fiscal autonomy provided by Marks, Hooghe, and Schakel (2008). Descriptive statistics of the variables we employ in the analysis are illustrated in Table 1.

< TABLE 1 HERE >

Preliminary Results and Conclusions

For state aid expenditure, we employ ordinary least square regressions with standard errors that correct for panel heteroskedasticity and spatially correlated errors. Additionally, the dependent variable is regressed on its one-year lagged values to deal with serial correlation (Beck and Katz 1996; Beck and Katz 1995).[27] Regressing the dependent variable also on the lagged level of the co-integrating factors would provide a more valid statistically estimation (Franzese 2002, 82), but this is not feasible in our analysis because of the limited number of observations, compared to the number of independent variables. There are several arguments on the timing of each variable on state expenditure and the associated problems of endogeneity (see for instance Bawn and Rosenbluth 2006: 257-8) but, for the time being, we include only the one-year lagged values of the economic control variables and the current values of the other variables.[28]

The results on the determinants of the intensity of state intervention in the economy are presented in Table 2. We will discuss here only the statistical significance of the results and leave aside the substantive analysis.

< TABLE 2 HERE >

[26] The results from this variable should be treated carefully though because it is measured at a higher level of analysis. *Commission* varies only across time; it does not vary across countries.

[27] We still have to carry out Lagrange multiplier tests to check is the remaining errors are serially independent (see Beck and Katz 1996: 9). The coefficients of the lagged dependent variable do not appear close to 1, hence we can reject the possibility that a unit root exists. We also tried to run the regression also with country fixed effect, but they are not feasible due to strong collinearity. For a skeptical view on the use of fixed effects in these circumstances see Bawn and Rosenbluth (2006: 258).

[28] For instance, there may be an argument that electoral and fiscal institutions, as well as subnational fiscal autonomy, have a delayed impact on state aid expenditure and applications.

We do not find support for both the electoral and partisan models of state intervention. *Preelection* has both the wrong sign and fails to reach the nominal level of significance.[29] In models 1 to 3, the position of the most anti-taxation and spending government party appears to have a negative impact on state aid expenditure, as expected. This variable however falls below the conventional level of significance if we exclude the influential outliers of Malta. The results are equally unfruitful if we employ the preference measure based on the portfolio-weighted government party positions. *Internalization index* behaves as predicted. Countries with most cost-internalizing electoral systems display a significantly lower level of state aid expenditure.[30] Surprisingly, countries employing either candidate centered or open or free party list electoral systems display significantly lower state aid expenditure. This is indeed a surprising result. In the future we will consider other operationalizations of this variable, along the lines suggested by Edwards and Thames (2007) and Carey and Shugart (1995).

Two expectations put forward by Persson, Roland and Tabellini (2007) are not supported by the data.[31] If anything, *Coalition majority* is associated with less state aid expenditure and it is weakly significant if the *Internalization index* is replaced with two indicator variables, one for majoritarian and one for mixed electoral systems. The coefficient of *Single party majority* is not significantly different from zero. Opposite to what Persson, Roland and Tabellini (2007) have found, electoral institutions appear to dominate over government types.[32]

Finally, we find supporting evidence for one of the Hallerberg, Strauch and von Hagen's (2009) expectations on the impact of fiscal institutions on spending. At low level of intra-governmental conflict (low *Government range*), the adoption of *Delegation* fiscal institutions significantly lower the level of state aid expenditure. The marginal effect adopting delegation institutions across the existing values of government range is illustrated in Figure 7. This result is robust across the two different measures of government preferences. *Contract* fiscal institutions instead do not behave as expected.

< FIGURE 7 HERE >

As far as the control variables are concerned, there are two notable results. First, as the position of the Commissioner becomes more anti-taxation and spending we see an *increase* in state aid expenditure. This is indeed a surprising result which can be explained in two ways. First, *Commission* is a higher level variable and we should therefore employ a multi-level model to see if the results are robust. Second, it is plausible that *Commission* is actually endogenous to the level of state aid spending. A key objective of the Commission is to control state aid and it may be the case that an anti-spending commissioner is appointed to the competition portfolio when states tend to intervene more in the economy.[33] The second notable result is that member states with more financially autonomous subnational authorities display less state aid expenditure.

[29] We also find disconfirming evidence of the Alesina's (1987) contention that an expansionary fiscal policy is pursued by left-wing governments only at the beginning of their term of office (Alesina 1989; Alesina and Rosenthal 1995; Alesina, Roubini, and Cohen 1997). We included a variable *Term beginning* that takes the value of one in the year following an election in a given member state and zero in the other years. In the election year, the value is 1-*Preelection*. *Term beginning* is then interacted with the measures of government preferences. We find that state aid expenditure significantly decreases at the beginning of the term of office, regardless of a government's ideological position.

[30] If we replace the *Internalization index* with two indicator variables, one for majoritarian and one for mixed electoral systems, we find that, in models 4 to 6, they both significantly increase state aid expenditure, as expected.

[31] It is worth reiterating here that the Persson, Roland and Tabellini (2007), as well as other scholars such as Bawn and Rosenbluth (2006), are primarily interested in government spending, while here we look primarily at geographically concentrated distributive measures. Nevertheless, we think it is plausible to extend the conjectures of these studies to our object of interest. In future iterations, we will pay greater attention to these theoretical implications.

[32] A variable measuring the number of parties in government, replacing *Coalition majority* and *Single party majority*, is only significant and, unexpectedly, negative in model 1. Here, more parties in government reduce state aid expenditure, differing from the results reported in Bawn and Rosenbluth (2006).

[33] It may be appropriate also to control for the objectives of state aid measures. Even an anti-spending commissioner may support state intervention to correct market failures. A more thorough analysis of the appointment and preferences of competition commissioners is necessary here.

As expected, state aid expenditure policy is strongly affected by the economic dynamics. It is significantly higher in countries that are poorer, are more exposed to the international economy, and face an economic downturn. Higher budget deficits however do not appear to constraint spending. Undoubtedly, there is an endogeneity issue operating here. Finally, as already Figure 6 indicated, the significant impact of the lagged values of state aid expenditure indicates cross-country variation is higher than across time, within each country.

For state aid applications, we employ a (negative binomial) count model with the lagged level of applications to control for trends in the frequency of state intervention. In addition to the variables used for the expenditure models, we add the logarithm of the one-year lagged GDP to account for the fact that larger economies are likely to file more applications and intervene more frequently in the economy. Here too, we include for the time being only the one-year lagged values of the economic control variables and the current values of the other variables. The results on the determinants of the frequency of state intervention in the economy are presented in Table 3. Again, we will discuss here only the statistical significance of the results and leave aside the substantive analysis.

< TABLE 3 HERE >

Both the electoral and partisan models do not yield significant results, and the same applies to electoral institutions.[34] The most interesting and robust result is that coalition majority and single party majority governments intervene less frequently in the economy. This corroborates our expectations with regard to single party majority governments, but it is the opposite of what we expected as far as coalition majority governments are concerned. In other words, minority government intervenes more frequently.[35] This is a surprising result since at least some minority governments may be caretaker and we should not expect more frequent intervention in the economy. Overall, the type of government is more important than the electoral institutions in explaining the frequency, but not the intensity, of state intervention in the economy. The remaining institutional variables, fiscal institutions and subnational autonomy, do not appear to have a significant impact on the frequency of state intervention, as well as the position of the competition commissioner and membership of the economic and monetary union.

As expected, governments of larger and poorer economies intervene more frequently, but evidence of the latter effect is relatively weak. The other economic variables do not appear to have an impact of the frequency of intervention. Finally, as for state aid expenditure, cross-country variation is higher than across time.

In conclusion, countries with most cost-internalizing electoral systems intervene less intensively in the economy through state aid spending. Although, surprisingly, countries employing either candidate centered or open or free party list electoral systems display significantly lower state aid expenditure. Opposite to what Persson, Roland and Tabellini (2007) have found, the type of government does not appear to play any role, independent of electoral institutions. We find instead supporting evidence for one of the Hallerberg, Strauch and von Hagen's (2009) expectations. At low level of intra-governmental conflict, the adoption of fiscal institutions that delegate power to the finance minister significantly lowers the intensity of state intervention. As far as the frequency of intervention is concerned, coalition majority and single party majority governments intervene less frequently in the economy or, in other words, minority government intervenes more frequently. Overall, the type of government is more important than the electoral institutions in explaining the frequency of state intervention.

[34] The inclusion of a *Term beginning* variable, interacted with government positions, does not yield significant results either. The two alternative measures of *Government preference* produce the same results. Similarly, the replacement of the *Internalization index* with two indicator variables, one for majoritarian and one for mixed electoral systems, does not make any difference.

[35] The importance of the majority status is confirmed by the fact that, if we replace *Coalition majority* and *Single party majority* with a variable measuring the number of parties in government, this variable does not significantly affect the frequency of state intervention.

Table 1: Descriptive Statistics

	N	mean	sd	min	max
Dependent variables					
State aid applications	219	14.30	14.52	0.00	74.00
State aid expenditure / GDP	195	0.48	0.44	0.07	3.36
Electoral and partisan variables					
Preelection	219	0.39	0.44	0.00	1.00
Government preference (veto party)	219	11.46	2.70	5.80	16.66
Electoral institutions					
Internalization index	219	16.87	27.82	0.15	100.00
Candidate/ Open list	219	80.87	33.21	0.00	100.00
Government types					
Coalition majority	219	0.62	0.47	0.00	1.00
Single party majority	219	0.17	0.37	0.00	1.00
Fiscal institutions					
Delegation	213	0.62	0.13	0.27	0.87
Contract	213	0.70	0.14	0.19	1.00
Government range	219	4.76	3.80	0.00	12.59
Control variables					
GDP $_{t-1}$	219	495209	603011	6472	2379808
GDP per capita $_{t-1}$	219	23504	9191	9000	69300
GDP growth $_{t-1}$	219	3.48	2.66	-4.60	12.20
Trade openness $_{t-1}$	217	108.31	56.07	47.09	321.04
Deficit $_{t-1}$	217	-1.11	2.98	-9.80	6.80
Commission	219	12.56	4.65	7.27	16.77
Euro zone	219	0.62	0.49	0.00	1.00
Subnational autonomy	219	1.46	1.69	0.00	5.00

Table 2: Determinants of State Aid Expenditure in the EU. 1999-2008

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	coef	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**
Constant	0.489***	0.092	0.428***	0.106	0.428***	0.113	0.650***	0.193	0.861***	0.200	0.833***	0.215
Preelection	-0.022	0.033	-0.013	0.031	-0.013	0.033	-0.005	0.025	-0.004	0.025	-0.005	0.025
Government preference (veto)	-0.013**	0.006	-0.012**	0.005	-0.012**	0.005	0.001	0.004	0.000	0.003	-0.000	0.003
Internalization index	-0.001**	0.000	-0.001*	0.001	-0.001*	0.001	-0.001**	0.001	-0.001***	0.001	-0.001***	0.001
Candidate/Open list	-0.001*	0.001	-0.001**	0.001	-0.001**	0.000	-0.002***	0.000	-0.001***	0.000	-0.002***	0.000
Coalition majority	-0.062	0.044			-0.002	0.058	-0.058	0.047	-0.056	0.048	-0.055	0.048
Single party majority			0.129	0.082	0.128	0.100	-0.074	0.061	-0.030	0.057	-0.021	0.065
Government range							-0.015	0.028	-0.044**	0.019	-0.039	0.029
Delegation							-0.342**	0.135	-0.717***	0.233	-0.749***	0.240
Contract							0.072	0.224	0.120	0.162	0.193	0.210
Government range x Contract							0.013	0.036			-0.011	0.037
Government range x Delegation									0.064**	0.029	0.070**	0.029
Commission	0.016***	0.004	0.016***	0.004	0.016***	0.004	0.011***	0.003	0.011***	0.003	0.011***	0.003
Subnational autonomy	-0.023***	0.007	-0.017*	0.009	-0.017*	0.009	-0.017**	0.008	-0.017**	0.008	-0.016**	0.008
Euro zone	0.011	0.054	-0.010	0.046	-0.010	0.042	-0.034	0.027	-0.043	0.028	-0.043	0.028
State aid expenditure $_{t-1}$/GDP $_{t-1}$	0.730***	0.097	0.738***	0.094	0.737***	0.102	0.512***	0.066	0.486***	0.065	0.486***	0.065

GDP $_{t-1}$	-0.000***	0.000	-0.000***	0.000	-0.000***	0.000	-0.000***	0.000	-0.000**	0.000	-0.000**	0.000
GDP growth $_{t-1}$	-0.052***	0.008	-0.050***	0.008	-0.050***	0.008	-0.026***	0.008	-0.028***	0.008	-0.028***	0.008
Trade openness $_{t-1}$	0.003***	0.000	0.003***	0.000	0.003***	0.000	0.001**	0.000	0.001**	0.000	0.001**	0.000
Deficit $_{t-1}$	-0.009	0.006	-0.005	0.008	-0.005	0.008	-0.004	0.007	-0.004	0.007	-0.004	0.007
N	193		193		193		188		188		188	
r2	0.790		0.795		0.795		0.718		0.724		0.724	
chi2	678.935		780.355		787.609		364.563		588.392		627.510	

note: *** p<0.01, ** p<0.05, * p<0.1

Dependent variable: State aid expenditure over GDP.

OLS regressions with panel corrected standard errors. Unbalanced panel. missing observations treated with pairwise selection

Table 3. Determinants of State Aid Applications in the EU, 1999-2009

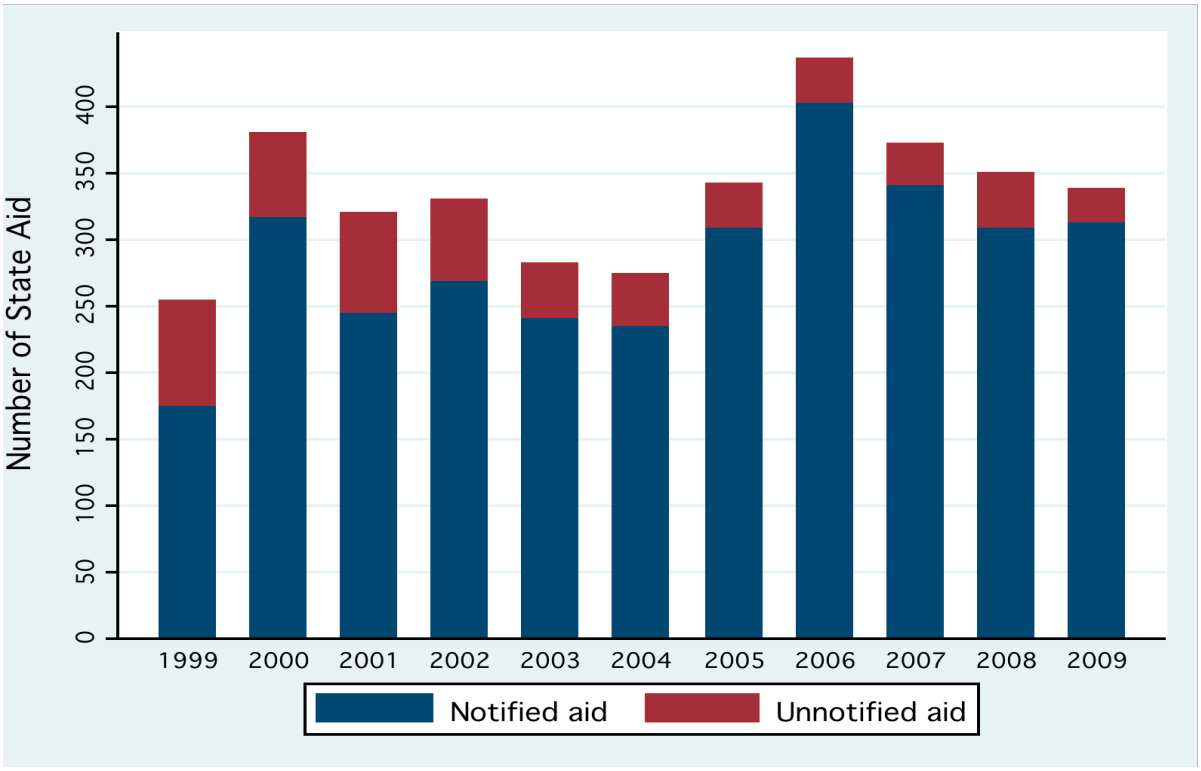
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	coef	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**
Constant	-4.088***	0.724	-3.908***	0.718	-4.092***	0.717	-4.134***	0.909	-4.434***	0.848	-4.138***	0.913
Preelection	0.092	0.081	0.088	0.080	0.069	0.080	0.070	0.081	0.060	0.080	0.070	0.081
Government preference (veto)	0.013	0.012	0.008	0.012	0.013	0.012	0.019	0.013	0.017	0.013	0.019	0.014
Internalization index	0.002*	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.001	0.001
Candidate/Open list	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.002
Coalition majority	-0.071	0.098			-0.252**	0.115	-0.275**	0.117	-0.276**	0.117	-0.274**	0.117
Single party majority			-0.226**	0.115	-0.390***	0.136	-0.486***	0.160	-0.417**	0.167	-0.481***	0.183
Government range							-0.077	0.073	-0.036	0.065	-0.079	0.081
Delegation							-0.315	0.453	-0.600	0.795	-0.353	0.845
Contract							-0.457	0.777	0.194	0.395	-0.442	0.827
Government range x Contract							0.097	0.098			0.095	0.108
Government range x Delegation									0.048	0.103	0.006	0.114
Commission	0.009	0.009	0.006	0.009	0.006	0.008	0.004	0.009	0.005	0.009	0.004	0.009
Subnational autonomy	0.043	0.029	0.031	0.029	0.021	0.029	0.006	0.031	0.014	0.030	0.006	0.031
Euro zone	0.144	0.109	0.075	0.099	0.171	0.107	0.146	0.112	0.148	0.112	0.145	0.113
Number of applications $_{t-1}$	0.013***	0.003	0.013***	0.003	0.014***	0.003	0.012***	0.003	0.012***	0.003	0.012***	0.003
GDP (ln) $_{t-1}$	0.502***	0.057	0.500***	0.057	0.513***	0.057	0.556***	0.064	0.561***	0.069	0.558***	0.069
GDP $_{t-1}$	-0.000***	0.000	-0.000**	0.000	-0.000**	0.000	-0.000	0.000	-0.000*	0.000	-0.000	0.000
GDP growth $_{t-1}$	0.004	0.020	0.011	0.019	0.006	0.019	0.012	0.021	0.010	0.020	0.012	0.021
Trade openness $_{t-1}$	0.000	0.002	-0.001	0.002	-0.000	0.001	-0.001	0.002	-0.000	0.002	-0.001	0.002
Deficit $_{t-1}$	0.002	0.017	-0.006	0.017	-0.010	0.017	-0.014	0.018	-0.009	0.017	-0.014	0.018
/lnalpha	-1.855***	0.165	-1.882***	0.166	-1.926***	0.169	-1.953***	0.172	-1.954***	0.172	-1.954***	0.172
N	217		217		217		211		211		211	
Log-likelihood	-659.33		-657.68		-655.31		-643.72		-644.10		-643.72	

note: *** p<0.01, ** p<0.05, * p<0.1

Dependent variable: Number of state aid applications.

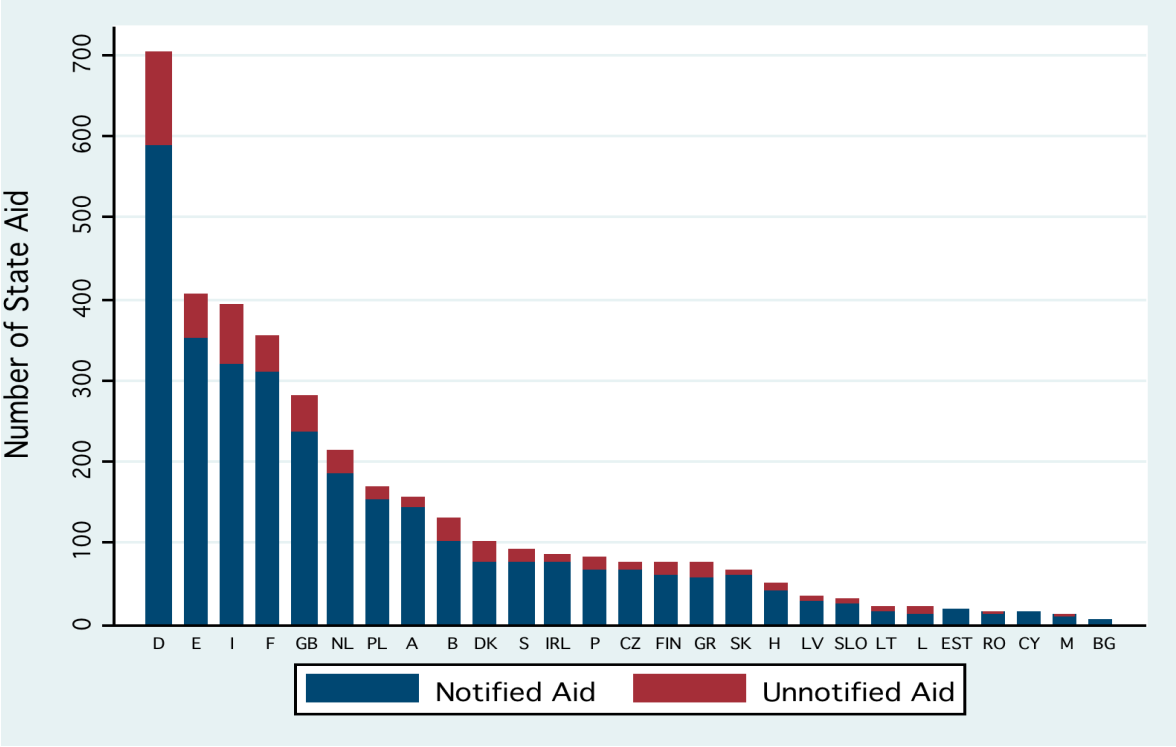
Negative binomial regressions

Figure 1 – Number of notified and unnotified state aid applications, per year



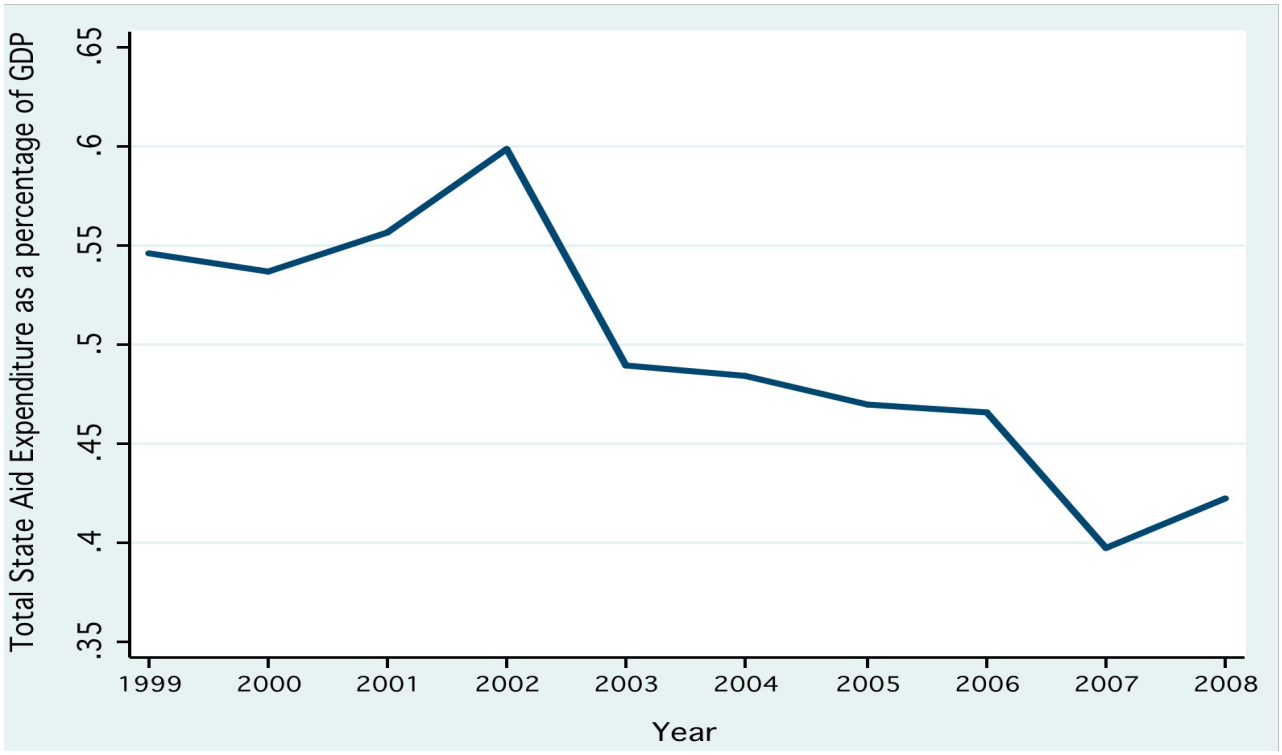
Source: Personal computations on data available on the website of the European Commission, N = 3673

Figure 2 – Number of notified and unnotified state aid applications, per country



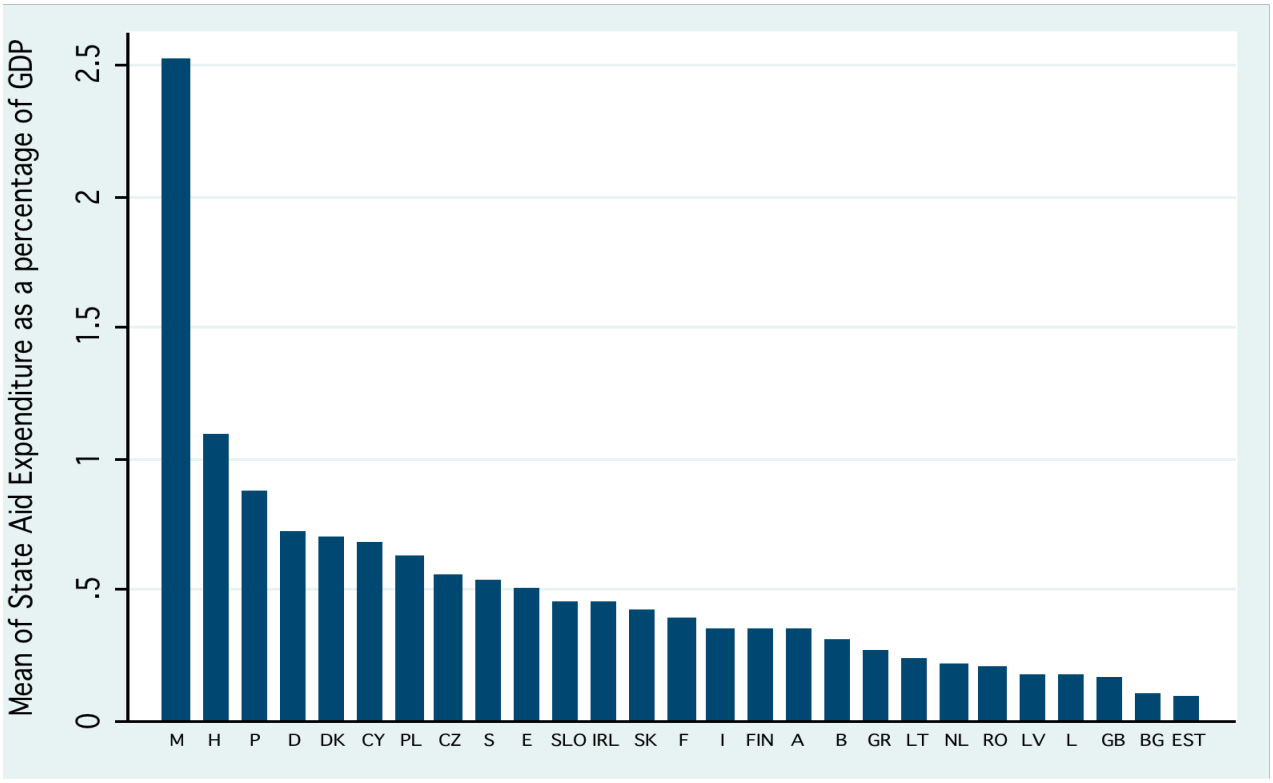
Source: Personal computations on data available on the website of the European Commission, N = 3673

Figure 3 – Total State Aid Expenditure as a percentage of the GDP, per year



Source: European Commission Scoreboard

Figure 4 – Mean of State Aid Expenditure as a percentage of the GDP, per country



Source: European Commission Scoreboard

Figure 5a – State aid applications per member state, 1999-2009

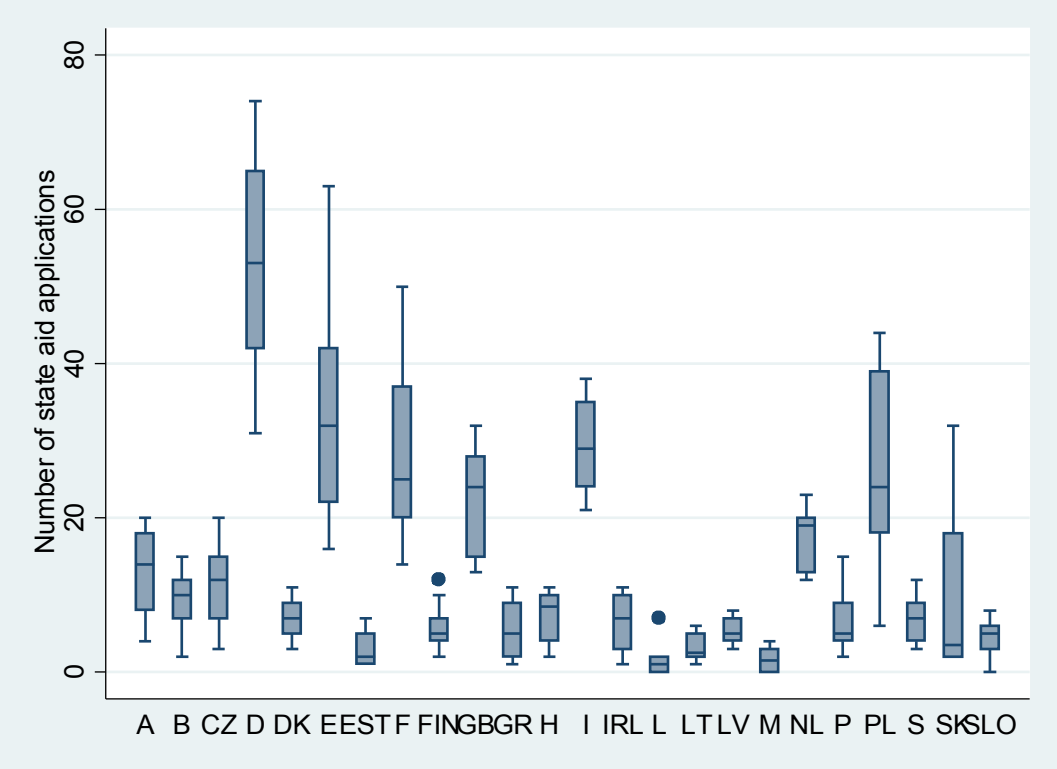


Figure 5b – State aid applications per year, 1999-2009

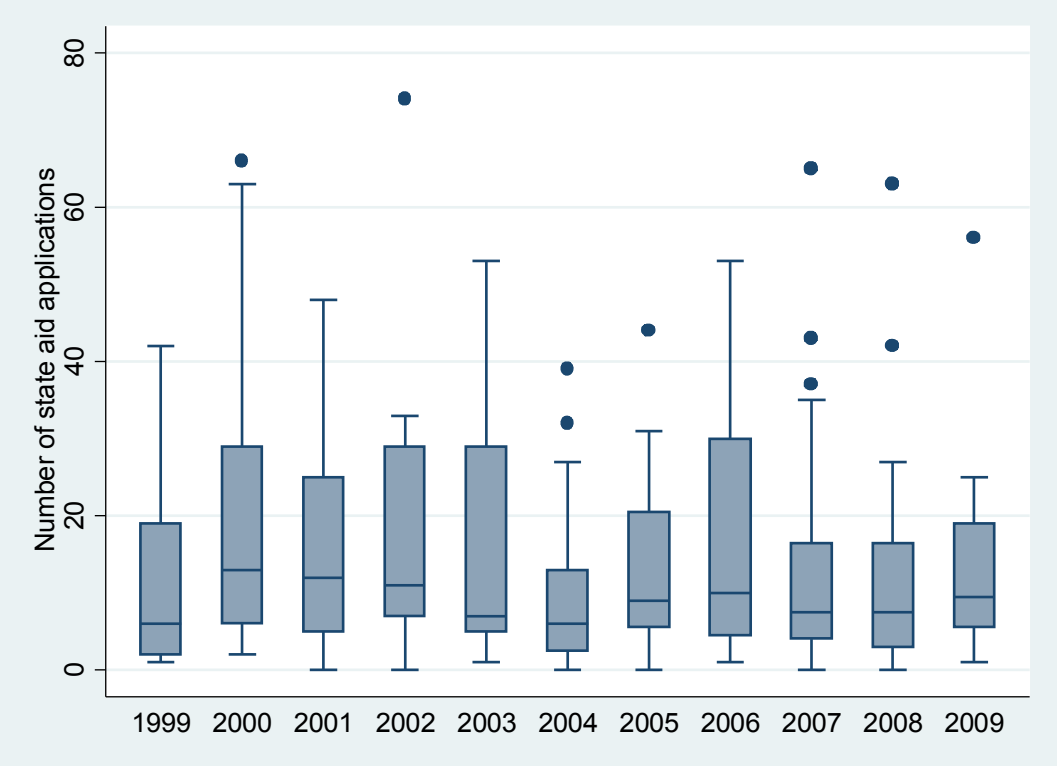


Figure 6a – State aid expenditure per member state, 1999-2008

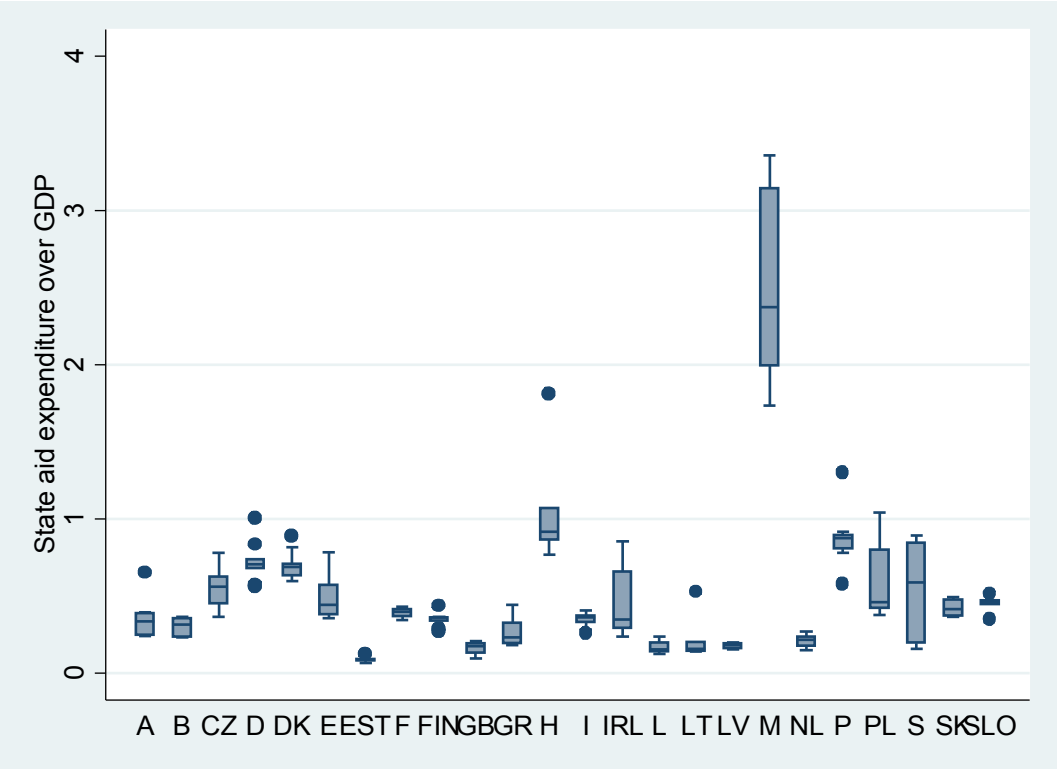


Figure 6b – State aid expenditure per year, 1999-2008

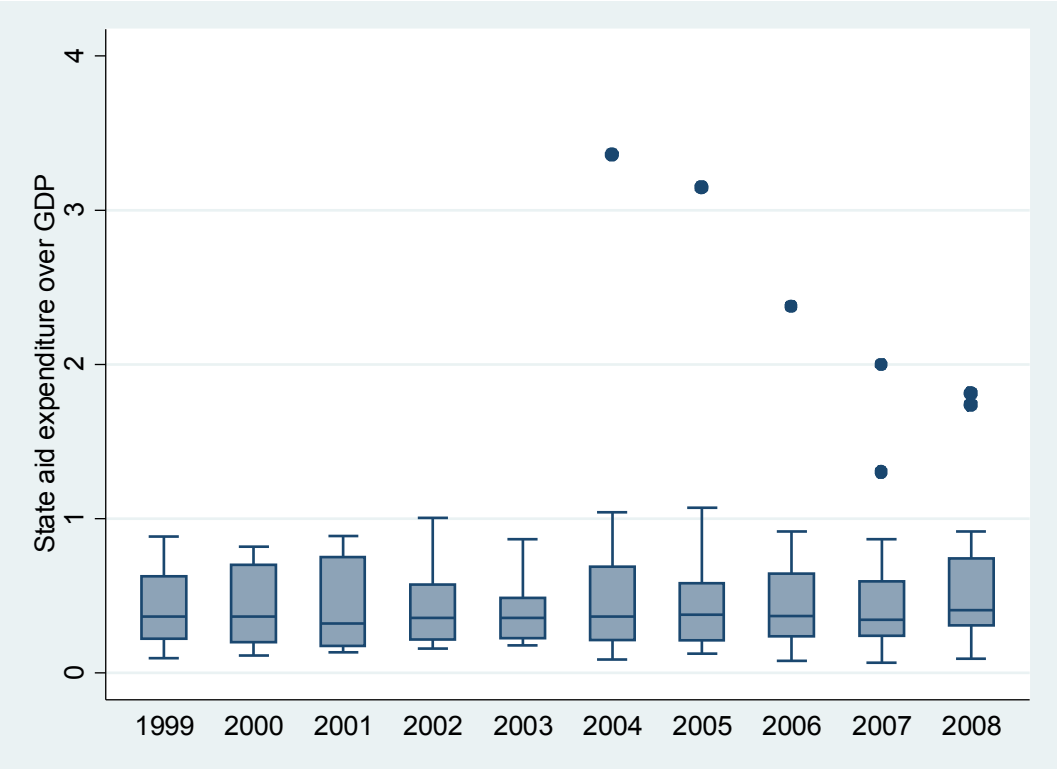
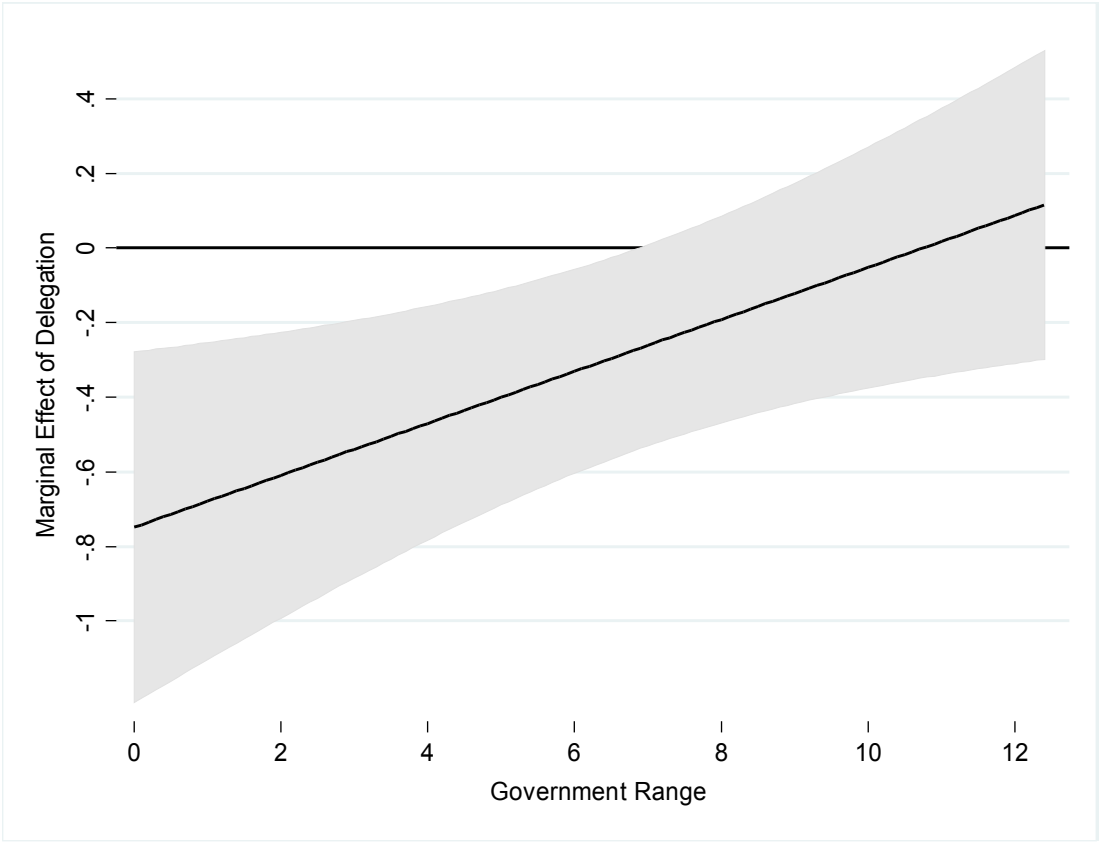


Figure 7 – Marginal effects of adopting delegation fiscal institutions on state aid expenditure



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