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**Abstract**

Using a panel of 22 OECD Development Assistance Committee countries over the 1979-2009 period, this paper examines the link between donor-political institutional features, particularly the fragmentation of executive power and the degree of competition in the legislative branch of government, and the share of tied aid in the aid budget of a donor. The empirical results show tied aid, both in levels and as a percentage of total aid, increases as the number of decision makers within the governing coalition increases and decreases as the proportion of excess seats a governing coalition holds above a simple majority increases.

**Keywords**
Official Development Assistance (ODA), tied aid, fragmented government, political economy

**JEL Codes**
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## I. Introduction

The preferences and domestic policies of donor countries influence aid allocations (Ruttan 1996, Feeny and Mcgillivray 2004, and Fleck and Kilby 2006). However, donors also face pressure from economic and political interest groups when determining the volume and allocation of aid (Lahiri and Raimondos-Moller 2000 and Round and Odedokun 2004). Lobbying is common in the awarding of aid contracts since foreign aid is big business for many firms (ActionAid International 2005). Faced with these pressures, political leaders seek to improve their political position by strategic uses of aid (Hopkins 2000).

This paper empirically examines the link between donor-political institutional features, particularly the fragmentation of the executive power and the degree of competition in the legislative branch of government, and the share of tied aid in the aid budget of a donor. This analysis fits in the larger aid allocation literature, which documents that donor economic and political characteristics matter for bilateral aid allocations, and extends this literature by documenting the role domestic political factors have in influencing the composition of aid. The empirical results show tied aid, both in levels and as a percentage of total aid, increases as the number of decision makers within the governing coalition increases and decreases as the proportion of excess seats a governing coalition holds above a simple majority increases.

Aid tying, or the restrictions placed by donors on recipients for how aid may be used, has become *abeunt studia in mores* among Development Assistance Committee (DAC) members, the largest donors of Official Development Assistance (ODA).[1] The amount of tied aid was 35 percent higher in 2009 than 1979 despite criticism from the aid community, suggesting donors receive utility from tied aid (Gounder 1999).[2] The aid literature generally cites commercial, political, and security reasons for why donors tie aid

[1] Since 1960, DAC countries have given 74.5 percent of total ODA.
[2] The 1969 Pearson Commission and the 2005 Paris Declaration on Aid Effectiveness are two examples.

(Jepma 1991). Commercial reasons include stimulating employment, bolstering exports, and improving balance of payments problems (Radelet 2006). Political reasons include satisfying strong lobbying groups (Lahiri and Raimondos-Moller 2000), "directing" the political relationship between donor and recipient (Dreher and Sturm 2006), and reforming the internal governing of aid recipients (World Bank 1998 and Hermes and Lensink 2001). Security reasons involve expanding foreign policy influence (Zimmerman 1993 and Schraeder et al. 1998) and fighting terrorism (Harrigan et al. 2006). In addition, supporters of aid tying argue tied aid increases public support for aid in donor countries (Senanayake 2010) and helps overcome unreliable local suppliers, weak legal systems, and poor infrastructure in recipient countries (Melito 2009).

The success of using tied aid in meeting the commercial and political designs of donors is mixed. Wagner (2003) and Nowak-Lehmann et al. (2008) show aid flows have a positive impact on donor exports but Tajoli (1999) finds that a donor's export shares are not correlated to the degree of aid tying and that tied aid may only be important to the exports of individual firms and sectors, not a country as a whole . Osei et al. (2004) find the real impact of tying on donors' exports is limited. Jepma (1991) and Clay et al. (2008) find no evidence that tied aid substantially increases donor country employment or significantly impacts a donor country's balance of payments, most likely because tied aid represents a small percentage of donor countries' exports. Dreher and Sturm (2006) report the impact of using foreign aid to persuade recipients to adopt donor preferences is inconclusive. While Sowa and White (1997) argue "well-designed and effectively managed" tied aid could be efficient, particularly if the recipient would not receive aid otherwise, this is unlikely since aid distribution is mired in "a sea of bureaucracy" that suppresses critical feedback and prevents the "identification of the best channel of resources for different objectives" (Easterly 2002).

Tied aid enables donors to prioritize their own commercial and political concerns above recipient interests, reduces the real worth of aid, and results in welfare losses for recipients when compared to unrestricted aid transfers (Osei 2003, Quartey 2005, and Clay et al. 2008). Jepma (1991) estimates that

tied aid increases the direct cost to aid recipients by an average of 15 to 30 percent while the excess costs of tying aid in the form of technical assistance or food aid is even higher (Williams et al. 2003 and Barrett and Maxwell 2005). Baffour (2004) finds a significant mark-up on the prices of tied aid imports compared to the prices of non-aid imports. Tied aid can undermine local institutional capacity (Aryeetey et al. 2003) and encourage recipients to have a 'lack of ownership' attitude towards aid (Clay et al. 2008).

Tied aid is more common in countries that use aid to promote their own objectives. Australia, Canada, France, and the United States tie a larger proportion of their aid budget than the DAC average. In contrast, the Nordic countries of Norway, Denmark, and Sweden, often considered in the aid literature as more altruistic, development-friendly, and less geostrategically-inclined donors tie a smaller proportion of their aid than the DAC average (Hendra 1987 and Gates and Hoeffler 2004).

## II. Literature Review

The aid allocation literature has documented how the economic and political interests of interest groups and legislators affect the volume and allocation of aid. Therien (2002), Fleck and Kilby (2006), and Milner and Tingley (2009) examine how the ideology of the donor country's government influences aid disbursement. Murshed and Sen (1995) develop a principal-agent model showing how competing interest groups lobbies aid agencies. Lahiri and Raimondos-Moller (2000) construct a political-economic model of foreign aid allocation where the donor government accepts political contributions from ethnic lobbying groups and then directs aid to the ethnic lobbying groups' country or countries of choice. Svensson (2000) describe how aid policy, like other economic policies, is determined by competing powerful social groups and shows that the expectation of aid may encourage rent dissipation while Lahiri and Raimondos-Moller (2004) explain how rent-seeking reduces the welfare of the poor in recipient countries. Villanger (2004) builds a "triadic" model where donors weigh competing companies' relationships with aid recipients and then decide how to disburse aid.

However, there is little research on the consequences of domestic political factors, particularly the internal governmental structure of the donor country, which this paper highlights, on aid allocation. Most DAC countries are parliamentary democracies with varying degrees of political power dispersion and size fragmentation within their governing structure. Therefore individual government decision makers, political parties, and governing coalitions have different abilities to influence policy, including aid distribution.

This paper most closely follows Round and Odedokun (2004) in extending the political economy literature of Roubini and Sachs (1989) and the 'common pool problem' literature of Weingast et al. (1981). Roubini and Sachs and the literature that follows emphasize how political competition through power dispersion and size fragmentation of the governing structure explains public sector expenditures, deficits, and debts. The literature following Weingast et al. describes the relationship between the number of decision makes and government expenditures. Individual groups, and indirectly the government decision makers who represent their interests in formulating public policy, benefit from targeted expenditures while the cost of those expenditures fall on a widespread population. Whereas the individual groups fully internalize the benefits of the expenditures, they only internalize a fraction of $1/n$ of the costs. Therefore, expenditures increase as the number of $n$ groups and their representatives increase.

Round and Odedokun (2004) extends the intuition of Robuini and Sachs and Weingast et al. to the aid allocation decision. Round and Odedokun test whether a greater lack of cohesion within government leads to a greater need to make more budgetary allocations for aid. They hypothesize that the greater the opposition a governing party faces, the higher the aid effort (i.e. the more aid is used to satisfy "the different and veto wielding interests"). Their empirical results show that the larger the number of parties forming the governing coalition, the higher the aid effort and as the number of parties forming the opposition increases, the easier it is for the government to ignore the opposition when allocating aid.

This paper differs from Round and Odedokun (2004) in two ways. First, whereas Round and Odedokun test whether fractionalization in government affects *how much* aid is allocated, this study tests

whether fractionalization in government influences the *type* of aid allocated (i.e. does a more fractionalized government lead to more or less tied aid). This paper also differs from Round and Odedokun by providing more precise definitions of government fractionalization in line with Perotti and Kontopoulos (1999) and Vokerink and De Haan (2001), two extensions of Roubini and Sachs (1989). These changes allow for a deeper picture of how donor-political institutional features influence the aid allocation process.

## III. Data and Estimation

### 3.1 Descriptions of data and variables

The paper uses a panel of 22 DAC countries from 1979 to 2009. Data is unavailable for each variable in every year so the number of observations in each regression depends on the choice of explanatory variables. A detailed variable description (Table 10) and summary statistics (Table 11) are provided in Appendix 1. The correlation matrix (Table 12) provided in Appendix 2 shows that while the political variables are measuring similar relationships (see below), they each provide a more nuanced definition of government fragmentation.

The basic specification of the empirical model is:

$$\text{Tied Aid}_{i,t} = \alpha_i + \beta_1 \text{ Total Aid}_{i,t} + \beta_2 \text{Political}_{i,t} + \beta_3 \text{Growth}_{i,t} + \beta_4 \text{Trade}_{i,t} + \eta_t + \varepsilon_{it} \quad (1)$$

where *i* and *t* are the country and year indices, respectively, $\alpha_i$ represents country fixed effects, and $\eta_t$ represents time effects. The dependent variable (Tied Aid) is total bilateral ODA commitments tied in constant 2008 USD millions.[3] The explanatory variables are broken into economic and political groupings. The economic variables (Total Aid, Growth, and Trade) are included as measurements

[3] Bilateral aid is used because aid is fungible (Boone 1996) and multilateral aid is difficult to tie. Therefore, bilateral aid is easier for the donor to control.

capturing the reaction function of policymakers.[4] Total Aid is total bilateral ODA commitments in constant 2008 USD millions and is included because Total Aid
and Tied Aid are positively correlated in a statistically significant way.[5] Growth is the annual growth rate of real GDP and is included because aid increases with a country's income (Round and Odedokun 2004 and Bertoli et al. 2008). Trade is the sum of exports and imports divided by GDP, and it is included because countries may give tied aid to improve their trade balance (Jepma 1991 and Bertoli et al. 2008).

The political explanatory variables follow Perotti and Kontopoulos (1999) and Volkerink and De Haan (2001) and are broken into two groups. First, the paper examines the impact of fragmentation of the executive power. Then, the position of government vis-à-vis legislative composition is analyzed.

Fragmentation of the executive power represents the number of decision makers. This is measured in two ways. First, the number of cabinet ministers (Spending Ministers), whose constituencies are groups benefitting directly from budget expenditures and acting as individual units with their own influence and demands on the budget process, is used. Spending Ministers is calculated as the number of full ministers in government at the end of each year, excluding the ministers of finance/budget or prime ministers because in theory they represent the "average" taxpayer instead of individual groups (Alesina and Perotti 1999).

The number of decision makers could also correspond to the number of political parties represented in the governing coalition since political parties are cohesive units representing the interests of specific groups. Therefore, two variables are used. The first is a count of the number of political parties with representation in the governing coalition (Coalition Parties). However, since Coalition Parties does

[4] As a robustness check, Percentage Tied Aid is used as the dependent variable so Total Aid is dropped as an independent variable. Percentage Tied Aid is total bilateral ODA commitments tied divided by total bilateral ODA commitments.

[5] Commitments rather than disbursements are used for three reasons. First, disbursements and commitments are highly correlated and estimation results are unlikely to be affected (Neumayer 2003). Second, donors have complete control of commitments (Berthelemy and Tichit 2004). Lastly the data availability of commitments is greater than disbursements.

not consider the size of the political parties, the effective number of political parties in the governing coalition, or Effective Coalition Parties, is employed. This variable is defined as:

$$\text{Effective Coalition Parties} = 1 / \sum_{i=1}^{n} p_i^2 \quad (2)$$

where $p_i$ denotes the share of ministers from party *i* as a proportion of the total number of ministers and *n* is the number of coalition parties. This variable measures competition within the governing coalition and is the inverse of a Herfindahl-index.

Three variables are considered to measure the position of government vis-à-vis legislative composition. The first is the excess number of seats (Excess Seats) held by the governing coalition and is defined as the number of seats above those needed for a simple majority, scaled to the number of seats needed for a simple majority:[6]

$$\text{Excess Seats} = (\text{\# of seats above simple majority}) / (\text{simple majority}) \quad (3)$$

The second is the number of political parties with representation in government (Represented Parties). A political party has representation in government if it has a voting member in the legislative branch. Like Coalition Parties, Represented Parties does not consider the size of the various parties in the governing coalition so the effective number of parties in the legislative branch (Effective Represented Parties) is used. The variable is defined as:

$$\text{Effective Represented Parties} = 1 / \sum_{i=1}^{n} p_i^2 \quad (4)$$

where $p_i$ denotes the share of ministers from party *i* as a proportion of the total number of ministers and *n* is the number of parties in the legislative branch. This variable measures competition in the legislative branch of government and is the inverse of a Herfindahl-index.

**3.2 Methodology**

The paper uses Least Squares Dummy Variable (LSDV) estimations with fixed country and time effects as specified by the Hausman test and clustered standard errors at the country level to reduce idiosyncratic

[6] ES is not collected for the United States because the bicameral system makes it difficult to determine the excess number of seats if the legislative chambers are controlled by different parties.

disturbances across countries through time. The basic model is estimated with and without a lagged dependent variable because the allocation of aid is partly determined by history (Svensson 2003) but is also volatile and uncertain (Pallage and Robe 2001 and Arellano et al. 2009). However, using LSDV estimation with a lagged dependent variable generates biased estimates (Nickell 1981). The question is what size $T$ is needed before the dynamic bias can be ignored.

In large $T$ panels dynamic bias is less of a problem because a shock to the country's fixed effect declines with time and becomes insignificant while the correlation of the lagged dependent variable with the error term becomes insignificant (Roodman 2006). Following Kiviet (1995), Judson and Owen (1999) conclude a paper with $T \geq 30$ should use LSDV because the small bias of using an OLS estimator of a dynamic model is preferred to the loss of precision of other estimation techniques and the small bias that may be present will not be large enough to change the signs of the coefficients. This paper has $T$=31 so it satisfies the conditions where dynamic bias dissipates and the estimates are consistent since $N$ is fixed and $T$ goes to infinity.

**IV. Results for the basic model**

This paper follows previous literature where the effects of fragmentation of the executive power and the government's position vis-à-vis legislative composition are estimated separately.[7] The first model analyzes fragmentation of the executive power (Table 1). Columns 1 and 3 exclude lagged tied aid while columns 2 and 4 include it.

**[Insert Table 1]**

Columns 1 and 2 include Spending Ministers and Coalition Parties. Spending Ministers is statistically significant in both specifications, at the 1 percent level when lagged tied aid is excluded and at the 10 percent level when included. One additional spending minister increases tied aid between $35.77 and $112.91 million, a 3.8 to 12.1 percent increase from the mean value of tied aid. Coalition Parties is only

[7] See Appendix 3 for the results of the standard model when all the basic political variables (Spending Ministers, Coalition Parties, Excess Seats, and Represented Parties) are included in the same regression.

statistically significant when lagged tied aid is excluded and only at the 10 percent level. An additional political party in the governing coalition increases tied aid by $116.95 million, a 12.5 percent increase from the mean value of tied aid.

Columns 3 and 4 include Effective Coalition Parties. Spending Ministers is statistically significant at the 5 percent level when lagged tied aid is excluded and the 10 percent level when included. One additional spending minster increases tied aid between $37.26 and $116.39 million, a 3.9 to 12.4 percent increase. Effective Coalition Parties is not statistically significant at conventional levels in either specification.

The positive coefficient for Spending Ministers provides evidence that as the number of constituencies increase, the more aid is tied. Since spending ministers act as an individual unit bringing their own demands or indirectly the demands of their constituency to the overall spending demands of the executive branch, tied aid may be used as a way to solidify power, particularly to strategic constituencies with strong political interests. The positive coefficient of Coalition Parties suggests that a government with more constituencies to satisfy ties more aid than a government with less constituency pressure, perhaps to protect its own political power since a loss of a coalition partner sometimes means the difference between being in or out of power. These results are broadly in line with Round and Odedokun (2004) who find the more fractionalized a government is the more aid is used as a way to buy political support and Perotti and Kontopoulos (1999) and Volkerink and De Haan (2001) who show that greater fractionalization in government affects fiscal policy outcomes, of which aid is a part.

The second model analyzes the impact of the government's position vis-à-vis legislative composition on tied aid (Table 2). Columns 1 and 3 exclude include lagged tied aid while columns 2 and 4 include it.

**[Insert Table 2]**

Columns 1 and 2 include Excess Seats and Represented Parties. Excess Seats is statistically significant at the 5 percent level in both specifications. An increase in the proportion of excess seats above the simple

majority decreases tied aid between $3.39 and $7.97 million, a 0.35 to 0.85 percent decrease from the mean valued of tied aid. The negative coefficient suggests that as the excess number of seats above the majority increases, a governing coalition can afford to "lose" some votes and still maintain its political power, reducing the incentive to "buy" votes with tied aid. Again, this result is broadly in line with Round and Odedokun (2004) who suggests the smaller a threat the opposition is to the governing coalition "the easier it seems for the government to ignore the interest of opposition" in aid allocation. Represented Parties is statistically insignificant at conventional levels in either specification.

Columns 3 and 4 include Effective Represented Parties. Excess Seats is statistically significant in both specifications, at the 10 percent level when lagged tied aid is excluded and at the 5 percent level when included. An increase in the proportion of excess seats above the simple majority decreases tied aid between $3.21 and $5.23 million, a 0.34 to 0.55 percent decrease. Effective Represented Parties is only statistically significant at the 5 percent level when lagged tied aid is excluded. The positive coefficient suggests that as the number of meaningful political parties with representation in the legislative branch increases, the governing coalition has some incentive to appease political rivals through tied aid. Again, this result is broadly in line with Round and Odedokun (2004) with regards to aid effort and Perotti and Kontopoulos (1999) and Volkerink and De Haan (2001) with regards to fiscal policy outcomes.

## V. Sensitivity Analyses

This section includes three sensitivity tests. The first follows Perotti and Kontopoulos (1999) who argue governments with different political or institutional characteristics react differently to changes in economic variables. Therefore, the political variables of interest are interacted with economic growth. The second sensitivity test collapses the yearly panel into five-year averages to analyze long term trends and smooth out business cycles and international shocks, which may affect aid allocation decisions.[8] The third sensitivity test uses Percentage Tied Aid as a dependent variable instead of Tied Aid since the increase in

[8] The year 1979 was dropped because it contained the fewest observations. Keeping 1979 and dropping 2009 did not alter the results.

tied aid may only be a result of an increase in overall aid. The results confirm that as fractionalization of government increases, tied aid increases and as the threat to the governing coalition decreases, tied aid decreases.

As above, the first model analyzes fragmentation of the executive power, including the economic growth interaction variables (Table 3). Columns 1 and 3 exclude lagged tied aid and columns 2 and 4 include it.

**[Insert Table 3]**

Columns 1 and 2 include Spending Ministers and Coalition Parties. Spending Ministers is statistically significant in both specifications, at the 5 percent level when lagged tied aid is excluded and at the 10 percent level when included. One additional spending minister increases tied aid between $34.95 and $111.56 million, a 3.7 to 11.9 percent increase from the mean value of tied aid, a similar magnitude to the basic model.[9] Coalition Parties is statistically significant at the 10 percent level in both specifications. An additional political party in the governing coalition increases tied aid between $29.71 million and $119.71 million, a 3.2 to 12.8 percent increase, a similar result to the basic model.

Columns 3 and 4 include Effective Coalition Parties. The inclusion of the interaction variables did not change the results from the basic model in statistical significance or coefficient size. Spending Ministers is statistically significant in both specifications, at the 5 percent level when lagged tied aid is excluded and at the 10 percent level when included while Effective Coalition Parties remains statistically insignificant. One additional spending minister increases tied aid between $35.48 million and $114.94 million, a 3.8 to 12.3 percent increase.

[9] Following Wooldridge (2006), the political variables are evaluated at the mean value of Growth, a more meaningful value of GDP growth than zero. Therefore, the coefficients in the text require an adjustment from the coefficients in the tables. For example, to calculate the $34.95 million value of Spending Ministers in the text, the coefficient of Spending Ministers*Growth is multiplied by the mean value of Growth and added to the coefficient of Spending Ministers (Table 3). With rounding,, (2.37 x 2.47) + (29.09) = 34.95.

The second model analyzes the impact of the government's position vis-à-vis legislative composition on tied aid, including the economic growth interaction variables (Table 4). Columns 1 and 3 exclude lagged tied aid and columns 2 and 4 include it.

**[Insert Table 4]**

Columns 1 and 2 include Excess Seats and Represented Parties. Excess Seats is statistically significant at the 5 percent level in both specifications and around the same magnitude as the basic model. An increase in the proportion of excess seats above the simple majority decreases tied aid between $3.31 million and $7.99 million, a 0.35 to 0.85 percent decrease. Represented Parties is again statistically insignificant in either specification.

Columns 3 and 4 include Effective Represented Parties. The results mirror the results of the basic model. Excess Seats is statistically significant in both models. An increase in the proportion of excess seats above the simple majority decreases tied aid between $3.23 and $5.24 million, a 0.35 and 0.55 percent decreases. Effective Represented Parties is statistically significant at the 5 percent level but only when lagged tied aid is included. An increase in the effective number of political parties with representation in government increases tied aid by $229.12 million, a 24.5 percent increase.

The second sensitivity test analyzes long term trends in changes to tied aid (Table 5).

**[Insert Table 5]**

Lagged tied aid is excluded because the model is averaged over 5 years. The results do not alter the basic results much. In the model analyzing fragmentation of the executive power, the coefficient for Spending Ministers is positive and statistically significant at the 1 percent level in all specifications. The coefficient for Coalition Parties is positive and statistically significant at the 5 percent level in the basic specification (column1) and at the 10 percent level when all political variables are included (column 5). Effective Coalition Parties is again statistically insignificant.

In the model measuring the impact of the government's position vis-à-vis legislative composition, the coefficients for Excess Seats are negative and statistically significant at the 5 percent level in the

basic specification (column 3) and when all political variables are included (column 5). Represented Parties is statistically significant for the first time but only when all political variables are included. While statistically fragile, the negative coefficient on Represented Parties supports Round and Odedokun's (2004) findings that the more fragmented the opposition is, the easier it is for the government to ignore the opposition in aid allocation.

The last sensitivity test uses Percentage Aid as the dependent variable instead of Tied Aid. The first model analyzes fragmentation of the executive power without the economic growth interaction variables (Table 6).

**[Insert Table 6]**

The results confirm the positive and statistically significant coefficients for Spending Ministers. One additional spending minister increases the percentage of tied aid between 0.88 and 1.92 percent, a 2.7 to 5.9 percent increase from the mean value of percentage tied aid, percentage changes that fall within the range of the basic model. Coalition Parties and Effective Coalition Parties are not statistically significant, further highlighting that statistical significance for these variables is largely dependent on model specification.

The second model analyzes the impact of the government's position vis-à-vis legislative composition on tied aid excluding the economic growth interaction variables (Table 7).

**[Insert Table 7]**

The results confirm the negative and statistically significant coefficients for Excess Seats. An increase in the proportion of excess seats above the simple majority decreases tied aid between 10.78 and 17.57 percent. Represented Parties and Effective Represented Parties are statistically insignificant, again highlighting the fragility of the basic model results for these two variables.

The models with Percentage Aid are also regressed with the economic growth interaction variables. The model analyzes fragmentation of the executive power confirms the importance of Spending Ministers on tied aid allocation (Table 8)

**[Insert Table 8]**

Spending Ministers is statistically significant at the 1 percent level when regressed with Coalition Parties (column 1) or Effective Coalition Parties (column 3), when lagged tied aid is excluded. When lagged tied aid is included, Spending Ministers is statistically significant at the 10 percent level when Coalition Parties is included (column 2) and at the 5 percent level when Effective Coalition Parties is included (column 4). One additional spending minister increases tied aid between 0.85 and 1.88 percent, similar results to earlier specifications.

When the government's position vis-à-vis legislative composition is analyzed, the importance of Excess Seats on tied aid allocation is affirmed (Table 9).

**[Insert Table 9]**

Excess Seats is statistically significant at the 5 percent level in each specification except when it is regressed with Represented Parties and lagged Tied Aid (Excess Seats is statistically significant at the 10 percent level in this specification). An increase in the proportion of excess seats above the simple majority decreases tied aid between 10.79 and 17.60 percent. These results are similar to earlier specifications.

## VI. Conclusion

Tying bilateral aid is common, despite its questionable value to donor and recipient. This paper examines the link between donor-political institutional features and tied aid and extends the foreign aid literature by documenting the role domestic political factors have in influencing the composition of a country's aid budget. The institutional factors considered are the fragmentation of the executive power and the position of government vis-à-vis legislative composition.

The empirical results of the model measuring the fragmentation of the executive power show that as the number of decision makers within the government coalition increases, as measured by the number of spending ministers, the more aid is tied, both in levels and as a percentage of total aid. The model

measuring the position of government vis-à-vis legislative composition provides evidence that a more comfortable margin in terms of the government coalitions' strength, as measured by the excess number of seats held by the governing coalition above the simple majority, the less aid is tied, both in levels and as a percentage of total aid. The results are robust when the basic models are extended to account for how these institutional characteristics react to changes in economic variables and when longer time trends are considered. These results suggest that aid is used for political self-interest and that reducing tied aid, when compared to political security, is of second order importance to governing coalitions.

The results are not surprising since political pressure and rent seeking are realities in aid allocation decisions. While these realities make it difficult for practical aid reform to eliminate tied aid, two political reforms are possible. The first is to limit the number of spending ministers, since the empirical results show tied aid increases as the number of spending ministers increases. A second and perhaps more easily implemented reform is to set clear and public benchmarks that must be met for aid to be tied. This reform would directly limit the amount of aid that is tied because such benchmarks would place the burden of proof to tie aid on interest groups to justify the practice in public rather than private lobbying, thus increasing accountability.

While other reforms are possible, such as the complete elimination of tied aid (i.e. Great Britain and Ireland), almost any reform is likely to encounter resistance. However, by making aid distribution less politicized through binding and credible constraints, the incentives for aid donors at the margin may shift from satisfying their own political considerations to the true needs of the aid recipients. If donors are truly serious about using aid to promote economic growth and social development in recipient countries, such reforms should be welcomed.

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**Table 1: Size Fragmentation**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Tied Aid** | | 0.69<br>(0.08)*** | | 0.69<br>(0.08)*** |
| **Total Aid** | 0.15<br>(0.07)** | 0.08<br>(0.02)*** | 0.16<br>(0.07)** | 0.09<br>(0.02)*** |
| **Spending Ministers** | 112.91<br>(39.83)*** | 35.77<br>(18.07)* | 116.39<br>(41.56)** | 37.26<br>(19.69)* |
| **Coalition Parties** | 116.95<br>(64.55)* | 28.07<br>(17.85) | | |
| **Effective Coalition Parties** | | | 83.69<br>(104.22) | -13.15<br>(30.18) |
| **Growth** | 16.03<br>(31.55) | 33.05<br>(15.15) | 12.77<br>(30.79) | 32.23<br>(14.59) |
| **Trade** | 13.02<br>(9.79) | 2.43<br>(3.41) | 12.71<br>(10.38) | 2.18<br>(3.59) |
| Number of countries | 22 | 22 | 22 | 22 |
| Number of observations | 532 | 481 | 532 | 481 |
| R-squared (within) | 0.45 | 0.76 | 0.44 | 0.76 |

Notes: The dependent variable is Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 2: Government's Position vis-à-vis Legislative Composition**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Tied Aid** | | 0.78<br>(0.03)*** | | 0.78<br>(0.03)*** |
| **Total Aid** | 0.23<br>(0.13)* | 0.08<br>(0.03)** | 0.23<br>(0.13)* | 0.08<br>(0.03)** |
| **Excess Seats** | -7.97<br>(3.31)** | -3.29<br>(1.39)** | -5.23<br>(2.65)* | -3.21<br>(1.34)** |
| **Represented Parties** | -62.66<br>(72.15) | -6.42<br>(13.09) | | |
| **Effective Represented Parties** | | | 229.02<br>(98.66)** | -0.31<br>(28.73) |
| **Growth** | 36311<br>(35.67) | 30.79<br>(11.67)** | 26.46<br>(38.21) | 30.36<br>(11.32)** |
| **Trade** | 12.02<br>(8.78) | 3.50<br>(2.38) | 13.05<br>(9.53) | 3.66<br>(2.37) |
| Number of countries | 21 | 21 | 21 | 21 |
| Number of observations | 511 | 463 | 511 | 463 |
| R-squared (within) | 0.49 | 0.86 | 0.50 | 0.86 |

Notes: The dependent variable is Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 3: Size Fragmentation with Growth Interaction**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Tied Aid** | | 0.69<br>(0.08)*** | | 0.70<br>(0.08)*** |
| **Total Aid** | 0.15<br>(0.07)** | 0.08<br>(0.02)*** | 0.15<br>(0.07)** | 0.09<br>(0.02)*** |
| **Spending Ministers** | 102.28<br>(42.35)** | 29.09<br>(20.18) | 105.94<br>(43.86)** | 31.08<br>(21.37) |
| **Coalition Parties** | 114.99<br>(76.08) | 26.85<br>(25.62) | | |
| **Effective Coalition Parties** | | | 87.35<br>(121.86) | 3.63<br>(48.57) |
| **Growth** | -48.71<br>(49.83) | -7.60<br>(46.67) | -46.94<br>(44.10) | 16.65<br>(56.83) |
| **Trade** | 13.05<br>(9.73) | 2.28<br>(3.40) | 12.71<br>(10.29) | 1.91<br>(3.57) |
| **Spending Ministers*Growth** | 3.76<br>(1.97)* | 2.37<br>(2.05) | 3.65<br>(1.89)* | 1.78<br>(2.12) |
| **Coalition Parties*Growth** | 1.92<br>(10.03) | 1.16<br>(5.81) | | |
| **Effective Coalition Parties*Growth** | | | 0.86<br>(16.21) | -6.54<br>(11.02) |
| Number of countries | 22 | 22 | 22 | 22 |
| Number of observations | 532 | 481 | 532 | 481 |
| R-squared (within) | 0.45 | 0.76 | 0.44 | 0.76 |

Notes: The dependent variable is Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 4: Government's Position vis-à-vis Legislative Composition with Growth Interaction**

**s**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Tied Aid** | | 0.78<br>(0.03)*** | | 0.78<br>(0.03)*** |
| **Total Aid** | 0.23<br>(0.13)* | 0.08<br>(0.03)** | 0.23<br>(0.13)* | 0.08<br>(0.03)** |
| **Excess Seats** | -6.76<br>(3.49)* | -2.46<br>(1.29)* | -4.24<br>(3.30) | -2.73<br>(1.28)** |
| **Represented Parties** | -71.95<br>(80.77) | -11.92<br>(14.41) | | |
| **Effective Represented Parties** | | | 230.49<br>(94.73)** | 5.71<br>(31.53) |
| **Growth** | 6.02<br>(74.09) | 11.54<br>(26.26) | 32.38<br>(40.68) | 45.03<br>(15.69)*** |
| **Trade** | 12.13<br>(8.86) | 3.50<br>(2.38) | 13.09<br>(9.58) | 3.62<br>(2.38) |
| **Excess Seats*Growth** | -0.50<br>(0.68) | -0.35<br>(0.26) | -0.41<br>(0.65) | -0.21<br>(0.24) |
| **Represented Parties*Growth** | 4.76<br>(6.70) | 3.08<br>(3.32) | | |
| **Effective Represented Parties*Growth** | | | -0.56<br>(6.78) | -3.47<br>(4.25) |
| Number of countries | 21 | 21 | 21 | 21 |
| Number of observations | 511 | 463 | 511 | 463 |
| R-squared (within) | 0.50 | 0.86 | 0.50 | 0.86 |

Notes: The dependent variable is Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 5: Five Year Averages**

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **Total Aid** | 0.13<br>(0.08) | 0.13<br>(0.08) | 0.24<br>(0.14)* | 0.25<br>(0.10) | 0.17<br>(0.12) |
| **Spending Ministers** | 167.57<br>(60.74)*** | 183.13<br>(67.86)*** | | | 154.91<br>(47.36)*** |
| **Coalition Parties** | 237.01<br>(99.26)** | | | | 206.35<br>(100.22)* |
| **Effective Coalition Parties** | | 151.86<br>(192.20) | | | |
| **Excess Seats** | | | -1303.12<br>(566.31)** | -809.52<br>(535.96) | -1381.58<br>(538.16)** |
| **Represented Parties** | | | -165.79<br>(115.29) | | -187.29<br>(86.70)** |
| **Effective Represented Parties** | | | | 187.74<br>(144.93) | |
| **Growth** | 137.71<br>(74.27)* | 140.73<br>(70.18)* | 240.89<br>(101.99)** | 180.11<br>(89.68)* | 212.52<br>(83.28)** |
| **Trade** | 4.92<br>(5.42) | 4.07<br>(6.23) | 6.52<br>(4.12) | 10.11<br>(5.29)* | 2.69<br>(4.19) |
| Number of countries | 22 | 22 | 21 | 21 | 21 |
| Number of observations | 116 | 116 | 111 | 111 | 111 |
| R-squared (within) | 0.54 | 0.51 | 0.57 | 0.55 | 0.65 |

Notes: The dependent variable is Tied Aid. The yearly panel is collapsed into 5 year averages. The regressions cover years 1980 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 6: Size Fragmentation with Percentage Aid**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Percentage Tied Aid** | | 0.56<br>(0.08)*** | | 0.56<br>(0.08)*** |
| **Spending Ministers** | 1.91<br>(0.48)*** | 0.89<br>(0.46)* | 1.92<br>(0.46)*** | 0.88<br>(0.44)* |
| **Coalition Parties** | -0.46<br>(0.99) | -0.61<br>(0.57) | | |
| **Effective Coalition Parties** | | | -1.24<br>(2.01) | -1.03<br>(1.08) |
| **Growth** | -1.14<br>(0.53)** | 0.19<br>(0.12) | -1.14<br>(0.53)** | 0.19<br>(0.49) |
| **Trade** | 0.16<br>(0.18) | 0.04<br>(0.12) | 0.16<br>(0.89) | 0.04<br>(0.12) |
| Number of countries | 22 | 22 | 22 | 22 |
| Number of observations | 532 | 481 | 532 | 481 |
| R-squared (within) | 0.49 | 0.67 | 0.49 | 0.67 |

Notes: The dependent variable is Percentage Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** - 1%, ** = 5%, and * = 10% significance level

**Table 7: Government's Position vis-à-vis Legislative Composition with Percentage Aid**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Percentage Tied Aid** | | 0.56<br>(0.08)*** | | 0.56<br>(0.09)*** |
| **Excess Seats** | -16.09<br>(7.71)** | -10.78<br>(5.25)** | -17.57<br>(8.57)** | -12.13<br>(5.75)** |
| **Represented Parties** | 0.24<br>(0.88) | -0.13<br>(0.40) | | |
| **Effective Represented Parties** | | | -1.34<br>(2.51) | -1.49<br>(1.28) |
| **Growth** | -0.85<br>(0.57) | 0.32<br>(0.51) | -0.81<br>(0.59) | 0.34<br>(0.53) |
| **Trade** | 0.19<br>(0.20) | 0.06<br>(0.130 | 0.19<br>(0.19) | 0.06<br>(0.12) |
| Number of countries | 21 | 21 | 21 | 21 |
| Number of observations | 511 | 463 | 511 | 463 |
| R-squared (within) | 0.49 | 0.68 | 0.49 | 0.68 |

Notes: The dependent variable is Percentage Tied Aid.The regressions cover years 1979 - 2009 and include counry fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 8: Size Fragmentation with Growth Interaction and Percentage Aid**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Percentage Tied Aid** | | 0.56<br>(0.08)*** | | 0.56<br>(0.08)*** |
| **Spending Ministers** | 1.60<br>(0.68)** | 0.65<br>(0.44) | 1.63<br>(0.66)** | 0.65<br>(0.41) |
| **Coalition Parties** | -0.50<br>(1.00) | -0.74<br>(0.68) | | |
| **Effective Coalition Parties** | | | -1.24<br>(1.74) | -1.06<br>(1.14) |
| **Growth** | -2.99<br>(1.66)* | -1.38<br>(1.20) | -2.91<br>(1.75) | -1.20<br>(1.12) |
| **Trade** | 0.16<br>(0.18) | 0.04<br>(0.11) | 0.16<br>(0.18) | 0.04<br>(0.11) |
| **Spending Ministers*Growth** | 0.11<br>-0.1 | 0.09<br>(0.06) | 0.10<br>(0.11) | 0.08<br>(0.06) |
| **Coalition Parties*Growth** | 0.05<br>(0.27) | 0.08<br>(0.14) | | |
| **Effective Coalition Parties*Growth** | | | 0.07<br>(0.37) | 0.06<br>(0.17) |
| Number of countries | 22 | 22 | 22 | 21 |
| Number of observations | 532 | 481 | 532 | 481 |
| R-squared (within) | 0.49 | 0.68 | 0.49 | 0.68 |

Notes: The dependent variable is Percentage Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

**Table 9: Government's Position vis-à-vis Legislative Composition with Growth Interaction and Percentage Aid**

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Lagged Percentage Tied Aid** | | 0.56<br>(0.08)*** | | 0.56<br>(0.09)*** |
| **Excess Seats** | -15.25<br>(9.14) | -10.21<br>(6.52) | -16.77<br>(10.41) | -11.79<br>(7.08) |
| **Represented Parties** | 0.20<br>(1.02) | -0.21<br>(0.54) | | |
| **Effective Represented Parties** | | 0.04<br>(0.14) | -1.52<br>(2.64) | -1.64<br>(1.30) |
| **Growth** | -0.97<br>(1.71) | 0.02<br>(1.05) | -1.14<br>(1.15) | 0.02<br>(0.69) |
| **Trade** | 0.19<br>(0.20) | 0.06<br>(0.13) | 0.19<br>(0.19) | 0.07<br>(0.12) |
| **Excess Seats*Growth** | -0.34<br>(1.69) | -0.23<br>(1.30) | -0.34<br>(1.88) | -0.14<br>(1.19) |
| **Represented Parties*Growth** | 0.02<br>(0.20) | 0.04<br>(0.14) | | |
| **Effective Represented Parties*Growth** | | | 0.10<br>(0.23) | 0.09<br>(0.11) |
| Number of countries | 21 | 21 | 21 | 21 |
| Number of observations | 521 | 463 | 511 | 463 |
| R-squared (within) | 0.50 | 0.68 | 0.50 | 0.68 |

Notes: The dependent variable is Percentage Tied Aid. The regressions cover years 1979 - 2009 and include country fixed effects and year dummies. Robust standard errors clustered at the country level are in parentheses. *** = 1%, ** = 5%, and * = 10% significance level

# Appendix 1

**Table 10: Variable Description and Sources**

| Variable | Description | Source |
|---|---|---|
| Tied Aid* | Total bilateral Official Development Assistance commitments tied (constant 2008 USD millions, i.e. 14 = $14 million). | OECD's online database (DAC Table 7b Tying Status of Bilateral ODA) |
| Total Aid | Total bilateral Official Development Assistance commitments (constant 2008 USD millions, i.e. 14 = $14 million). | OECD's online database (DAC Table 7b Tying Status of Bilateral ODA) |
| Percentage Tied Aid | Total bilateral Official Development Assistance commitments tied divided by total bilateral Official Development Assistance commitments (measured as a percentage). | OEDD's online database (DAC Table 7b Tying Status of Bilateral ODA) and author calculation. |
| Spending Ministers | Number of full ministers in the governing coalition (i.e. the cabinet) at the end of each year, excluding the ministers of finance/budget (measured in levels, i.e. 1 minister = 1). | *Europa World Year Book (various editions)* |
| Coalition Parties | Number of political parties represented in the governing coalition (measured in levels, i.e. 1 party = 1). | *Europa World Year Book (various editions)* |
| Effective Coalition Parties | The effective number of political parties in the governing coaltion, measured as the inverse of the share of spending ministers from party *i* as a proportion of the total number of spending ministers in the cabinet. For example, if a cabinet has 10 members, 5 from party A and 5 from party B, Effective Coalition Parties = 1 / [(.5)^2 + (.5)^2] = 2. | *Europa World Year Book (various editions)* and author calculation |
| Excess Seats | The number of seats above the simple majority divided by the the simple majority (measured as a percentage). For example, if a parliament has 100 seats, the simple majority is 51. If party X has 53 seats, Excess Seats = 3.92%. | *Europa World Year Book (various editions)* and author calculation |
| Represented Parties | Number of political parties with representation in government (i.e. holds a voting seat in the legislative branch), measured in levels ( i.e. 1 party = 1). | *Europa World Year Book (various editions)* |
| Effective Represented Parties | The effective number of political parties with representation in government, measured as the inverse of the share of legislators from party *i* as a proportion of the total number of legislators in the legislative branch. For example, if a parliment has 100 members, 45 from party A and 55 from party B, Effective Represented Parties = 1 / [(.45)^2 + (.55)^2] = 1.98. | *Europa World Year Book (various editions)* and author calculation |
| Growth | The annual growth rate of real Gross Domestic Product (measured as a percentage). | World Development Indicators: World Bank |
| Trade | The sum of exports and imports of goods and services divided by Gross Domestic Products (measured as a percentage). | World Development Indicators: World Bank |

* The OECD does not include administrative costs and technical cooperation in the aggregate tied aid figures.

**Table 11: Summary Statistics**

| Variable | Mean | Std. Dev. | Minimum | Maximum | Observations |
|---|---|---|---|---|---|
| **Tied Aid** | 936.84 | 1682.77 | 0 | 9597.18 | 534 |
| **Total Aid** | 3084.7 | 4644.02 | 29.93 | 32734.13 | 556 |
| **Percentage Total Aid** | 32.39 | 27.52 | 0 | 100 | 534 |
| **Spending Ministers** | 15.62 | 4.39 | 5 | 31 | 682 |
| **Coalition Parties** | 2.32 | 1.45 | 1 | 8 | 682 |
| **Effecitve Coalition Parties** | 1.92 | 1.08 | 1 | 6.31 | 682 |
| **Excess Seats** | 11.59 | 21.55 | -49.39 | 71.29 | 651 |
| **Represented Parties** | 7.33 | 3.12 | 2 | 19 | 682 |
| **Effective Represented Parties** | 3.52 | 1.42 | 1.69 | 9.05 | 682 |
| **Growth** | 2.47 | 2.36 | -8.02 | 11.49 | 681 |
| **Trade** | 73.84 | 46.74 | 16.01 | 326.76 | 681 |

Note: Percentage Total Aid, Excess seats, Growth, Trade are in percentages (i.e. 71.29 = 71.29%)

**Appendix 2**

**Table 12: Political Variables Correlation Matrix**

| | Spending Ministers | Coalition Parties | Effective Coalition Parties | Excess Seats | Represented Parties | Effective Represented Parties |
|---|---|---|---|---|---|---|
| **Spending Ministers** | 1 | | | | | |
| **Coalition Parties** | -0.09** | 1 | | | | |
| **Effective Coalition Parties** | -0.17*** | 0.84*** | 1 | | | |
| **Excess Seats** | -0.40*** | 0.28*** | 0.34*** | 1 | | |
| **Represented Parties** | -0.04 | 0.50*** | 0.51*** | 0.17*** | 1 | |
| **Effective Represented Parties** | -0.26*** | 0.63*** | 0.71*** | 0.12*** | 0.59*** | 1 |

*** =1%, ** =5%, * =10% significance level

**Appendix 3**

**Table 13: All Political Variables**

| Variable | 1 | 2 |
|---|---|---|
| **Lagged Tied Aid** | | 0.75<br>(0.004)*** |
| **Total Aid** | 0.19<br>(0.11)* | 0.08<br>(0.03)** |
| **Spending Ministers** | 114.48<br>(39.53)*** | 29.29<br>(14.63)* |
| **Coalition Parties** | 137.36<br>(43.22)*** | 28.02<br>(14.22)* |
| **Excess Seats** | -10.22<br>(3.63)*** | -3.87<br>(1.64)** |
| **Represented Parties** | -99.24<br>(49.12)* | -16.12<br>(-17.92) |
| **Growth** | 28.91<br>(30.60) | 28.02<br>(10.57)** |
| **Trade** | 13.13<br>(7.67)* | 4.37<br>(2.22)* |
| **Constant** | -1343.56<br>(611.34)** | -624.69<br>(342.69)* |
| Number of countries | 21 | 21 |
| Number of observations | 511 | 463 |
| R-squared (within) | 0.57 | 0.87 |

Notes: The dependent variable is Tied Aid. Columns 1 and 2 use the yearly panel and cover the years 1979 - 2009. All regressions include country fixed effects and year dummies. Robust standard errors clustered at the country level are included in parentheses. *** = 1%, ** = 5%, and * = 10% significance levels