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What factors motivate foreign aid allocation?

A comparison of the aid allocation patterns of multilateral and bilateral donors

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Abstract

Aid allocation patterns have been measured and observed for over four decades and it has been noticed that the aid is allocated differently based on different factors like what kind of donor it is and how they measure the need for aid before donating it. In this study two set of regressions were run and in the first set of regressions, we compare aggregate aid flows from multilateral organizations and bilateral donors respectively, and in our second set we compare aid from five individual bilateral donors. Our study found that there were significant differences in what variables affected aid allocation in both our comparison between multilateral and bilateral donors, as well as in our comparison of different individual donors.

Keywords:

Bilateral, multilateral, aid allocation, donor, maximizing poverty reduction, economic development

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1. Introduction

In recent years, a great amount of aid has been given to different countries in need. Even though much aid is being provided, scholars argue that the aid is not necessarily allocated to the countries who need it the most, namely the poorest countries (Alesina and Dollar, 2000; Alesina and Dollar, 2002; Mavrotas and Villanger, 2006). The allocation of aid to recipient countries seems to be motivated by other factors than need or even poverty reduction. Previous studies conducted by Alesina and Dollar, 2000; Alesina and Dollar 2002; and Hoeffler and Outram, 2011 mentions that other factors than poverty reduction and development motivate some donors to allocate aid to recipient countries. The observed factors in the previous studies conducted by the same scholars are representing donor's self-interest. A study conducted by Alesina and Dollar in 2000 argues that depending on whether the aid is from a bilateral donor or multilateral donor the motivation for donation differs (Alesina and Dollar, 2000) Bilateral aid is when the aid is provided by one country to another. Almost seventy percent of the total aid provided during 2016 was bilateral (Quazi et al., 2019). Multilateral donors are more than one state or donor, for example the UN or the World Bank providing aid to one country (Quazi et al., 2019).

This is an important and interesting subject in the field of economic development according to many scholars such as (Collier and Dollar, 2002; Alesina and Dollar, 2000; and Hoeffler and Outram, 2011) that have been investigating the allocation of aid and how it could be more effective and why we still have not been solving the equation of poverty and poverty reduction even if we are giving away millions of dollars every year in form of aid all around the world. The same scholars have also been trying to map out who gives aid to whom and what the real interest behind the aid donation is and how it differs between donors.

During 2016 it was stated by the Organization for Economic Cooperation and Development (OECD) that only thirty percent of the total aid was multilateral. The UN and the World Bank are two of the largest multilateral donors today. The aid provided has been donated as foreign aid from a committee established by OECD, called the Development Assistance Committee (DAC) in form of Official Development Assistance (ODA) in order to support developing countries out of

poverty. This uneven distribution between multilateral and bilateral aid donation has been the same since the 1990's. The view on how effective different forms of foreign aid is, is divided in the literature of economic development (Quazi et al., 2019).

Previous researchers have also been investigating in whether or not the poorest countries are the ones receiving the aid from different donors and if there is a pattern in who gives aid to whom and why. There have been presented from the researchers mentioned before that some donors have more than just poverty reduction in mind when allocating aid to the recipient country. There could be other factors such as political interest in the country needing aid. It is concluded in the research of Alesina and Dollar from 2000 that there is a significant difference in aid allocation between bilateral and multilateral donors.

1.1 The aim of this study

In this study the aim is to compare the aid allocation patterns of multilateral and bilateral donors. More specifically we investigate if the two donor groups differ regarding the extent to which their aid allocation is determined by recipient need, recipient merit and donor historical interest.

1.2 Disposition

This study starts with a presentation of the previous literature and research of importance for aid. Later, in the section of theoretical framework the initial theory for our study will be presented. Followed by a section with what gap this study will address and our contribution to the existing literature against the background of the theoretical framework. Moving on, the section Data and Methodology will present the relevant and important data collected for this study and the Methods used in the study. The Results part is the section where all our results are presented and explained in text and tables. The last part of the study is the Discussion and Conclusion part, the results are discussed and analyzed in that section, followed by a conclusion.

2. Previous Literature and the theoretical framework

2.1 Previous Literature

The literature on foreign aid can be divided into two parts. One studies the effects of foreign aid on the receiving countries; the other investigates the determinants of foreign aid. The allocation of aid is believed by some scholars to be dependent on not only need and merit but also self-interest. It has been noted that it is not always the poorest countries that receive aid in order to reduce poverty (Briggs, R. 2016). This however is divided between whether the aid is allocated by a bilateral or multilateral donor (Hoeffler and Outram, 2011).

Different allocation patterns often mirror different interest for donors (Gates and Hoeffler 2004). According to Mavrotas and Villanger, 2006 the Nordic countries are usually seen as one group of bilateral donors who are often allocating aid in line with how aid is supposed to be allocated in order to lower poverty. The authors go on to argue that by comparing different aid donors it is the multilateral aid donors that are the most efficient for the recipient countries. The bilateral donors who allocate aid to recipient countries for other reasons than poverty reduction is damaging the developing countries.

The pattern of aid allocation has changed recently, and multilateral donors have become more selective in their aid provision. After the later 80's, multilateral donors' selectivity is focused on the economic governance in the recipient country. However bilateral aid is not necessarily based on good governance. According to Dollar and Levine, there might be a relationship between good governance and bilateral aid but the statistical significance is not different from zero in their study from 2006.

Issues regarding aid allocation have for a long time got attention in the literature of economic development. Studies reveals that more than one third of the aid provided from the United States went to Egypt and Israel alone for what is believed to be political reasons (Hoeffler and Outram, 2011). The authors move on to argue that the biggest proportion of aid is allocated to some countries as a strategy rather than acknowledging the need for aid from the recipient countries. In the study the Nordic countries are in one group, they have an allocation pattern of providing aid to the

poorest countries. They also encourage the countries with sustainable policies and institutions (Hoeffler and Outram, 2011).

Hoeffler and Outram (2011) note that countries such as Israel and Egypt received a large amount of aid after the World War II. The issue is not the fact that they received a large amount of aid but how the aid was allocated. Their study from 2011 shows that 40 percent of the bilateral aid in the US goes to Israel and Egypt. There is a detectable track showing that just like the US aid, the Japanese aid has disproportionately been allocated to Asian countries. Vietnam and Indonesia are two countries that receive much of the Japanese aid. It is noted that France and the UK are systematically providing a disproportionate share of their foreign aid to their former colonies. Hoeffler and Outram argue that statistics show that Iraq and Afghanistan got to the top ten recipients for foreign aid from the US, followed by a military intervention in both countries (Hoeffler and Outram, 2011).

Gates and Hoeffler presented a similar study in 2004 regarding the strategic behavior that donors have and how that changes the whole system of aid allocation. They also mention in their studies how the allocation strategy affects the recipient countries. The Millennium Development Goals and now the Sustainable Development Goals are affected by the selectivity that multilateral or bilateral donors may practice when allocating aid in the name of poverty reduction (Mavrotas and Villanger, 2006).

Earlier in a study conducted by Alesina and Dollar in 2000 they argue for the fact that bilateral donors are donating to recipient countries with more care about strategic factors than the development need of aid. More recent studies by Berthélemy (2006) and Dollar and Levin (2006) reveal that donors are more likely to provide aid according to their own political and economic interest rather than the need for development and poverty reduction in the recipient countries (Collier and Dollar 2000). In 2004 Jean-Claude Berthélemy conducted a research on what interests bilateral and multilateral aid donors have, he also concluded that bilateral donors usually have some sort of self-interest when deciding where the aid goes and it is not always to the poorest countries (Berthélemy and Tichit, 2004).

Studies conducted previously by scholars (Hoeffler and Outram, 2011; Alesina and Dollar, 2000; Dollar and Levine, 2006) have used variables such as: trade openness,

democracy, civil liberties, colonial status, direct foreign investment, initial income and population when studying the recipient countries governmental situation and comparing it with optimal aid allocation model in order to trace the allocation pattern of aid and expose the interest of different donors.

This study will use a subset of these variables, this since we do not want to make this study very similar to the previous ones. We still want to use the variables that represents poverty and good policy in countries since we use the poverty-efficient allocation model and both poverty and policy is argued to be very important factors for the model. We use variables that we fit into two categories; Need and Merit. Need represents variables that can imply a measurement of the poverty level in the countries and Merit represents variables that will be used as a measure of how well the policy implementation is This will be discussed more in the Data section.

2.2 Theoretical framework; Maximizing Poverty Reduction

The theoretical framework is formed by previous literature from this field of study. The initial model for this study was provided by Collier and Dollar's study from 2002. The study presents a model called the **Aid-efficient allocation model** which details how aid should be optimally allocated in order to minimize poverty.

Collier and Dollar create an objective function subject to a constraint function for the donors to determine which type of recipient should receive aid in order to maximize poverty reduction.

Maximize Poverty Reduction model:

$$\sum_i G_i \alpha_i h_i N_i$$

Subject to: $\sum_i A_i y_i N_i = \bar{a} \quad A_i \geq 0$

Where G_i is the growth rate, a_i is the elasticity of poverty reduction with respect to income, h_i is a measure of poverty (for example headcount poverty), N_i is population, A_i is aid/GDP, y_i is income per capita, and \bar{a} is the total amount of aid.

The authors argue that the actual allocation of aid differs from the poverty efficient allocation. In poverty efficient allocation aid is disproportionately provided to countries in poverty with good policies and institutions that can use the aid in an effective way for growth and address poverty reduction. This model was formed in order to clarify what the optimal allocation of aid was supposed to be like from a poverty reduction point of view.

The study concludes that growth can be controlled by the donors through their allocation of aid and with growth the poverty will usually reduce in countries with low income, this is what the authors call Maximizing Poverty Reduction. In order for this to happen aid should be allocated to the countries with good policies and high rate of poverty. High rate of poverty seems to be a self-explanatory indicator of need for aid in order to reduce poverty. However, the second indicator for receiving aid is highlighted in this study to be good policy. Good policy is needed for aid to have a positive impact with respect to the fact that the actual distribution of income within the aid recipient countries cannot be affected by the donors. Therefore, the allocation of aid to countries with sufficient policies that can manage to distribute the income well in order to maximize poverty reduction is crucial according to this assumption. Another assumption that Collier and Dollar issues is that the elasticity of poverty assumes to be the same in all countries with respect to income (Collier and Dollar, 2002). This assumption simplifies the fact that there is a lot of diversification issues and differences across countries. This assumption has been receiving a counter from Bourignon in 2004 when he conducted a study which presented among other factors that the elasticity of poverty is not constant in all countries but depending on the income distribution within the country (Bourignon, 2004)

2.3 Our contribution to the existing literature

Against this background this study will investigate how aid allocation differs between multilateral and bilateral donors, as well as between different individual bilateral donors in regard to the factors mentioned by previous scholars.

This research is conducted with hopes to expose how the allocation of aid differs for bilateral and multilateral donors in comparison with the when using a set of independent variables and updated data. In this way we hope to expose the motives behind the aid allocation to recipient countries. Just as Hoeffler and Outram mentions in their study from 2011, for some donors' development does not seem to be the goal in the allocation of aid provision.

The poverty-efficient allocation model formed by Paul Collier and David Dollar in 2002, will be used as a theoretical framework when observing the different allocation patterns of donors. Since most of the data conducted by the previous literature are from the late 1990s, our study will provide updated and more recent data to the existing literature.

3. Data and Methodology

In order to investigate the differences in aid allocation patterns, we will run regressions on aid data for the period 2000-2013 investigating the explanatory power of a set of variables related to the quality of governance in a recipient country. In our first set of regressions, we compare aggregate aid flows from multilateral organizations and bilateral donors respectively, and in our second set we compare aid from five individual bilateral donors.

We compile 7 different panel datasets on aid flows from different donors or donor groups to various recipient countries over 14 years. Specifically, one dataset focuses on aggregate aid flows from multilateral organizations and one on aggregate aid flows from bilateral donors, whereas the remaining five datasets focus on the aid flows from one bilateral donor at the time, namely on the aid from Sweden, Germany,

Spain, the United Kingdom, and the United States. In this chapter, we will go over the data and methodology in detail.

3.1 Data

Aid Data

Our dependent variable captures the amount of aid committed from the respective donors/donor groups by recipient country and year. We chose the logged current commitment amount per capita in USD collected from Aiddata.com, which we deem a reliable source. OECD defines commitment amount as “A firm obligation, expressed in writing and backed by the necessary funds, undertaken by an official donor to provide specified assistance to a recipient country or multilateral organization” (Oecd.org, 2019). This differs from disbursement amount, which is the actual amount donated/loaned at a certain time. We felt that commitment amount was the superior variable as it can take years for the commitment amounts to be fully disbursed, in which time our explanatory variables might have changed. An inherent risk in using commitment amount is that while it is a firm obligation, there are still cases where donors do not follow through on their commitment. Regardless of this we still opted for commitment amount over disbursement amount.

We have restricted our research to official development assistance (ODA) flows for ease of comparison with previous literature. To qualify as ODA, a flow must meet certain criteria: the donation must be focused on development (as opposed to commercial interest), and it must have concessional terms -- if it's a loan, the grant element must be at least 25% (theOECD, 2020).

Furthermore, certain countries do not rely upon the definitions of the OECD-DAC development finance categories, which means that information regarding the development intent and concessionally of the project is incomplete (Dreher et al., 2015). We do not count these flows as ODAs, and thus certain bilateral donors, such as China, are excluded from our research.

Quality of Government Data

The Quality of Government (QoG) institute at the University of Gothenburg has compiled extensive datasets on select values and indices related to quality of government from a variety of publicly available sources. In order to estimate what factors, determine the allocation of aid we merged our aid data with data from the QoG-institute, thereby adding explanatory variables to each recipient-year combination. We split our explanatory variables into three different groups; need, merit, and historical interest. These variable sets are chosen to represent the vectors discussed in the aforementioned poverty-efficient allocation model for aid (“Need” & “Good Policy”), as well as a third variable detailing the historical relationship between donor & recipient.

Need

To determine how different donors, value a country’s need for foreign aid, we investigate three variables: Real GDP per capita, HDI, and population. Real GDP per capita captures poverty in our recipient, if aid is allocated according to recipient need, there should be a negative relationship between Real GDP and our dependent variable. HDI is included in the model to capture different dimensions of poverty that are not captured by Real GDP per capita, such as life expectancy. We added population as a need variable, although it is also an important control variable.

The optimal aid allocation model uses a variable called the income elasticity of headcount poverty and more importantly assumes this variable is constant across all countries. Bourgignon (2004) highlighted the issue of constant income elasticity and argues that it is in part based on income distribution within the recipient country (among other factors). To address this issue, our model uses different poverty measures than most other previous literature in that we use Real GDP per capita and HDI instead of more straight-forward poverty measures such as the poverty headcount ratio. Using only Real GDP per capita is not without its faults as it operates under the assumption that economic growth reduces poverty, thus we add HDI as a complementary measurement of poverty.

It is worth noting that there is an inherent trade-off between need and merit variables in this model, as for example high values of Real GDP per capita or HDI can be

perceived by donors as a high degree of merit. This may lead to misleading results, where for example a need variable such as Real GDP has a positive relationship with allocated aid.

Merit

These variables serve a variety of different purposes for our donors. In part, allocating aid based on recipient merit helps to incentivize developing countries to adopt reliable policies. Another reason for donors to investigate recipient merit is to make sure that the country receiving aid is able to put the money to good use, and that in a second step, the aid is allocated to suitable endeavours inside the recipient country.

In order to test if donors incentivize developing countries to adopt reliable policies, we investigated an index of democratization focused on political participation and competition (Vanhanen, 2019). Higher values of the democratization index indicate a more democratic country.

Second, in order to test if donors take into account the possibility that the allocated aid may be misused in the recipient country, we used a political corruption index measuring overall political corruption in all public sectors (including judiciary, legislative, and executive). The political corruption index runs from 0 to 1 where higher levels of the index corresponds to a higher level of corruption.

Lastly, we wanted to examine if the allocated aid is used for purposes that promote development in the recipient country, thus our final merit variable is the country's school enrollment in percent. However, there are methodological problems with using this variable. The trade-off between need and merit is apparent in all three of our merit variables but perhaps most prevalent in school enrollment because of its close connection to HDI, since the calculation of HDI includes measurements for mean years of schooling and expected years of schooling.

Historical Interest

In addition to our need and merit variables, we added a dummy variable for colonial origin when comparing different bilateral donors. The variable takes the value 1 if

the recipient is a former colony of the donor and is meant to capture the effect of historical relationships between donor and recipient.

Choice of bilateral donors

Investigating bilateral donors as an aggregate group is likely to hide significant heterogeneity between donors, it is unrealistic to assume that all bilateral donors allocate aid according to the same principles. This is why we also investigate different individual cases. When comparing different bilateral donors, we decided to limit our research to 5 countries.

As stated in our previous literature section, Nordic countries typically have a good track record when it comes to allocating aid based on recipient need and merit. In our research, Sweden is chosen as representative of the Nordic countries. Germany was chosen because we wanted another European country with foreign policy comparable to Sweden that a) was not Nordic, and b) was not a previous colonial power. Spain and the UK both have a vast number of previous colonies, and the US was chosen because of their status as an economic superpower. We feel it is important to stress that all of these countries are European with the exception of the US which might affect the generalizability of our study. In other words, we might see different patterns among bilateral donors that are not part of the western world.

3.2 Methodology

Estimation Method

First, we compare multilateral and bilateral donors, creating one dataset on the aid flows from each type of donor, where we estimate the following regression equation:

$$\ln Aid_{ijt} = \beta_0 + \beta_1 need_{i(t-1)} + \beta_2 merit_{i(t-1)} + y_t + \varepsilon_t$$

Where $\ln Aid_{ijt}$ is the logged amount of aid allocated (as proxied by commitment amount) from donor group j to recipient country i in year t . Need is a vector of the three need variables discussed above, and the merit vector captures the merit variables presented. y_t stands for year-fixed effects, and ε_t is our stochastic error term.

We lag our explanatory variables by one year under the assumption that foreign aid allocation policy doesn't immediately react to changes in our explanatory variables. This pooled OLS regression is useful for estimating variation across recipient countries.

We add year-fixed effects to control for any variation in our dependent variable that happens over time. We felt that this was an important control in our research as there is evidence of an increasing time trend in total ODA allocation, at least for the member countries of the DAC (Oecd.org, 2020).

In our second set of regressions we introduce recipient-fixed effects. By introducing these fixed effects, we aim to control for systematic differences in the recipient countries that do not vary over time, while still having an effect on our dependent variable. Adding both types of fixed effects to our regressions means we are investigating changes in year-to-year aid allocation, and as such we do not expect our explanatory variables to hold a lot of statistical power, but we still employ the regressions as a robustness check.

Second, we compare different bilateral donors, where we create a separate dataset for each country and estimate the following regression equation:

$$\ln Aid_{ijt} = \beta_0 + \beta_1 need_{i(t-1)} + \beta_2 merit_{i(t-1)} + \beta_3 historical_i + y_t + \varepsilon_t$$

This regression equation is identical to the one we use when comparing multilateral and bilateral donors with the exception that we add our historical interest variable and that here, j refers to individual donor countries. We run two different regressions for each country here as well, one with only year-fixed effects, and one with both year-fixed effects and recipient-fixed effects.

Methodological Issues

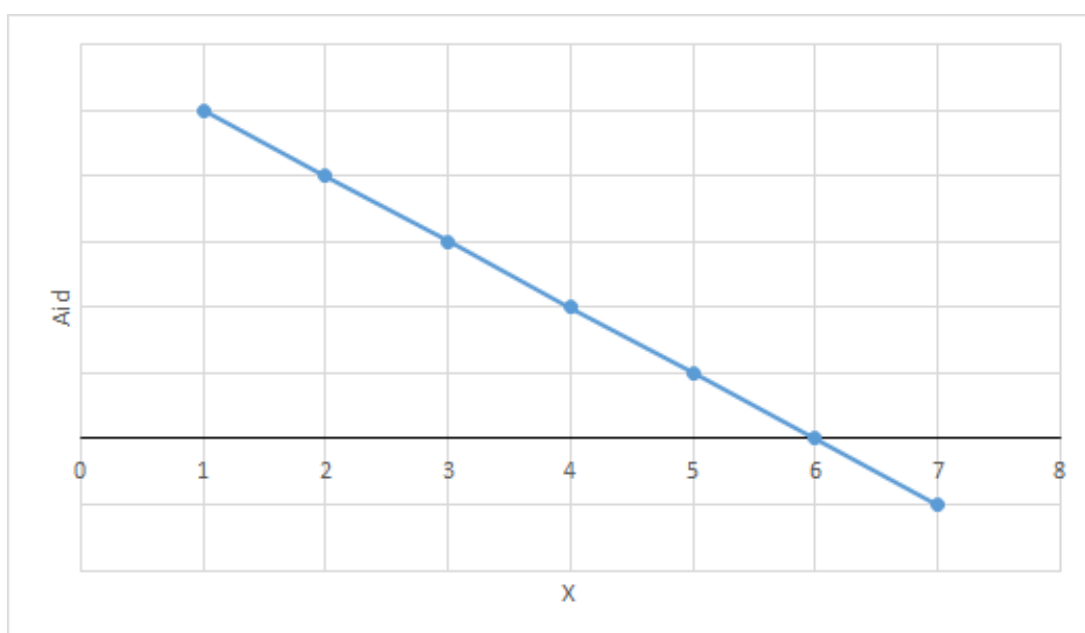
As with most studies in foreign aid allocation we face a significant problem in our data in that not all donors give aid to all countries. We have opted to remove all observations where the aid variable is zero, which gives rise to a sample selection

problem. McGillivray, Mark (2002) discusses this issue in great detail and argues that if our regression equation is estimated with the following equation:

$$Aid = \beta_0 + \beta_1 X_1 + \varepsilon_i$$

Where *Aid* is the total aid allocated, β_0 is the vertical intercept, β_1 is a slope coefficient (less than 0), X_1 is our explanatory variables and ε_i is our error term. Then exceeding a certain value of X_1 (in the below example figure if $X_1 \geq 6$), means that no aid will be allocated to that recipient. In other words, our sample selection technique may systematically remove observations based on the value of their explanatory variables.

They further state that by excluding observations where aid is zero, we cannot claim that the expected value of the error term is zero, and thus the model violates the exogeneity assumption of OLS ($\varepsilon_i | X_1 = 0$)



Another selection option is to include both recipients' non-recipients of aid in our regression but this option is not flawless either as there are no negative values of aid allocation. This would lead to the regression line being too flat, and overestimating t-ratios.

Hoeffler argues that a number of studies have applied the Tobit estimator to account for these errors, and that another alternative estimation method would be two-stage estimators, where you first estimate the selection decision and then the allocation decision. However, they did not find that using a Tobit estimator resulted in any significant differences from OLS, or that ignoring the selection process resulted in any significant bias (Hoeffler, Outram) (2011). With respect to these results and the time constraint of our study, we decided to apply the original method, i.e. removing all observations where the aid variable is zero.

In addition to our sample selection problem, we also want to briefly touch the possibility of omitted variable bias and reverse causality. It is not unlikely to assume that aid allocation may be driven by factors that are not included in this model, such as natural resources, or UN voting allegiance. Unfortunately, we did not include these variables due to data availability and time constraints.

The possibility of reverse causality cannot be excluded either as receiving aid hopefully lowers the recipient country's need and helps them build sustainable institutions, to help lessen this issue (along with other reasons) we employ lags on all of our explanatory variables.

Finally, we want to emphasize that with these issues in mind, our results are not to be interpreted as causal effects, rather an investigation into which factors hold the largest explanatory power for allocated aid.

4. Results

Differences between multilateral and bilateral donors

In our first set of regressions we compare multilateral and bilateral donors using a pooled OLS regression with year-fixed effects, in our second set of regressions we add recipient-fixed effects. The column "Multilateral Year-fixed" presents the results of our initial regression on our dataset on multilateral donors, and "Bilateral Year-fixed" presents the results on our dataset of bilateral donors. Our regressions

with both year-fixed effects and recipient-fixed presents are presented in the columns “Multilateral FE” and “Bilateral FE”.

In our regression for Multilateral donors with only year-fixed effects, we can infer that Real GDP per capita and population both have a significant negative relationship with aid per capita for multilateral donors. The negative relationship between Real GDP per capita and aid per capita implies that richer countries receive less aid from multilateral donors. In regard to population, remember that our explanatory variable is in per capita terms, so the negative coefficient on population implies that countries with a higher population receive less aid per capita. HDI is insignificant in this regression, which may be caused by the variable’s close correlation with Real GDP per capita and school enrollment.

As for the merit variables, our democratization index has a positive coefficient, and the political corruption index has a negative coefficient. Remember the directionality of these variables, as higher values of the democratization index indicate a more democratic country, and higher levels of the political corruption index indicate a more politically corrupt country. Hence, these parameters imply that multilateral organizations allocate more aid to democratic countries, and less aid to politically corrupt countries.

The results for our bilateral donors are shown in the next column. In this regression, Real GDP per capita, HDI and population all have negative correlations with aid per capita. This differs from the multilateral donors where HDI was not significant at all.

The merit variables differ as well, as the democratization index is not significant for bilateral donors but on the other hand, the corruption parameter is larger for bilateral donors. While the results regarding the corruption parameter are interesting, we want to emphasize that comparing the size of coefficients between different regressions is problematic. School enrollment is significant with our bilateral donors, however only at $\alpha = 0,10$

Because of the democratization index's insignificance with bilateral donors, and the fact that school enrollment is only significant at $\alpha = 0,10$, these results are in line with the aforementioned Dollar and Levin study from 2006 which concluded that multilateral aid as opposed to bilateral aid is more selective when it comes to good governance. Looking at R-squared, the model has a similar explanatory power for both groups of donors.

In the next columns we have added recipient-fixed effects. In these regressions, HDI and the democratization index are significant for both types of donors. Which implies that these variables are taken into heavy consideration on a year-to-year basis for both types of donors. An interesting result is that the democratization index is insignificant for our bilateral donors when we only apply year-fixed effects, but significant when we add recipient-fixed effects as well. The regression for multilateral donors has an R-squared of 10,9% whereas the regression for bilateral donors only has 2,6%.

Table 1: Comparing aid flows from multilateral and bilateral donors

| Regressions | Multilateral Year-fixed | Bilateral Year-fixed | Multilateral FE | Bilateral FE | |
|-----------------------------------|----------------------------|----------------------------|-------------------------|-------------------------|------------------------------|
| Dependent Variable | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | |
| Real GDP per capita (t-1) | -5.43e-05*** (5.47e-06) | -6.14e-05*** (6.82e-06) | 1.10e-05 (7.41e-06) | 1.31e-06 (8.53e-06) | *=0,1 **=0,05 ***=0,01 |
| HDI (t-1) | 0.659 (0.548) | -1.299** (0.582) | -1.994* (1.031) | -1.912* (1.081) | |
| Population (t-1) | -2.39e-09*** (3.65e-10) | -2.89e-09*** (3.85e-10) | -7.00e-10 (7.00e-10) | 2.48e-10 (6.94e-10) | |
| Democratization (t-1) | 0.0162** (0.00684) | -0.0103 (0.00719) | 0.0208** (0.00903) | 0.0187** (0.00885) | |
| Political Corruption (t-1) | -0.563** (0.230) | -1.149*** (0.243) | 0.465 (0.410) | -0.441 (0.409) | |
| School Enrollment (t-1) | -0.00121 (0.00395) | 0.00692* (0.00412) | -0.00357 (0.00683) | 0.00724 (0.00674) | |
| Constant | 3.102*** (0.397) | 5.280*** (0.360) | 3.286*** (0.767) | 4.048*** (0.773) | |
| Observations | 1104 | 1061 | 1104 | 1061 | |
| R-squared | 0,203 | 0,193 | 0,109 | 0,026 | |
| Number of years | 14 | 14 | 14 | 14 | |
| Number of recipients | 0 | 0 | 136 | 136 | |
| Year-fixed effects | Yes | Yes | Yes | Yes | |
| Recipient-fixed effects | No | No | Yes | Yes | |

Differences between bilateral donors

In this section we discuss differences between the individual donors that we decided to evaluate. The columns “Country X Year-fixed” shows the results of our regressions with only year-fixed effects, and the columns “Country X FE” shows the results of our regressions with both year-fixed effects and recipient-fixed effects.

In our regressions with only year-fixed effects, Real GDP per capita has a significant negative relationship with all of our donors’ aid allocation patterns except for the UK. The insignificant relationship for the UK was very surprising to us but it may indicate that in line with previous research, their aid allocation pattern is more focused on historical relationships than reducing poverty.

HDI has significant negative coefficient for Spain and the UK, and a positive coefficient for Germany. The positive coefficient for Germany may be evidence of our earlier statement regarding the trade-off between need and merit variables, where Germany might view HDI as a merit variable, and allocate their aid accordingly. Population has a negative coefficient for all of our countries with varying degrees of significance.

As for our merit variables, the democratization index has a negative relationship with aid allocation for Spain ($\alpha = 0,01$), and a positive relationship for the UK ($\alpha = 0,10$). The negative coefficient for Spain means that they allocate less aid to countries with a higher degree of democratization and may be further evidence of the trade-off donors face between need and merit when allocating aid. Interestingly, the democratization index is insignificant for the other countries, which lends further credence to the idea that the relationship between bilateral aid and good governance is fairly weak.

The political corruption index has a negative coefficient for Sweden, Spain, and the US, implying that these countries give less aid to countries with higher degrees of political corruption. School enrollment differs in terms of the sign of the coefficient. It has a negative coefficient for Sweden and the UK, and a positive coefficient for Spain.

As expected, our colonial history variable varies greatly between the countries, between zero for Germany and Sweden (because there are no former German or Swedish colonies in our dataset, the dummy variable is omitted), a non-significant coefficient for the US, and a strong positive coefficient for the UK and Spain. We feel that it is important to emphasize that the number of former colonies belonging to a certain recipient will have a large effect on the statistical significance. We have added a table which shows the percentage of recipients that are former colonies of the donor in their respective dataset.

Table 2: Comparing colony shares between bilateral donors

| Donor | Ex-Colony share |
|--------------|------------------------|
| Sweden | 0% |
| Germany | 0% |
| Spain | 19,32% |
| UK | 34,51% |
| US | 2,47% |

When adding recipient-fixed effects, the only significant need variables are Real GDP per capita and HDI for the UK and US, however Real GDP per capita is positive for the UK. Since we are looking at year-to-year differences in these regressions, then (operating under the assumption that receiving aid has a positive effect on Real GDP per capita), the positive relationship may be caused by the UK's penchant for allocating aid to their former colonies. That is, changes in what countries receive aid may move slower in the UK than in other bilateral donors.

When it comes to our merit variables, the political corruption index has a large negative coefficient for Sweden and the US, and the democratization index has a positive coefficient for the US.

Interestingly, while these results speak for Sweden having a good track-record on a year-to-year basis, we find that not only do the political corruption index carry significance for the US, but also the democratization index, Real GDP per capita, and

HDI. These results imply that the US allocation pattern is more in line with the optimal aid allocation model than all other bilateral donors, at least when including both fixed effects.

Table 3 – Comparing aid flows from bilateral donors

| Regressions | Sweden Year-Fixed | Germany Year-fixed | Spain Year-Fixed | UK Year-Fixed | US Year-Fixed | Sweden FE | Germany FE | Spain FE | UK FE | US FE | |
|-----------------------------------|----------------------------|----------------------------|----------------------------|--------------------------|----------------------------|-------------------------|------------------------|-------------------------|---------------------------|---------------------------|----------------------------------|
| Dependent Variable | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | IAmountpercapita | |
| Real GDP per capita (t-1) | -0.000176*** (2.98e-05) | -4.62e-05*** (6.72e-06) | -3.82e-05*** (1.17e-05) | -1.97e-05 (2.11e-05) | -6.51e-05*** (8.35e-06) | -4.29e-05 (3.29e-05) | 1.52e-06 (6.34e-06) | -1.39e-05 (1.19e-05) | 0.000150*** (3.01e-05) | -1.91e-05** (8.50e-06) | *=0,1 **=0,05 ***=0,0 1 |
| HDI (t-1) | -0.487 (1.171) | 1.490*** (0.523) | -2.292*** (0.777) | -2.324*** (0.887) | -0.322 (0.605) | -2.152 (1.728) | -0.461 (0.753) | -1.301 (1.170) | -6.473*** (1.839) | -4.557*** (0.901) | |
| Population (t-1) | -3.28e-09*** (5.16e-10) | -1.75e-09*** (3.38e-10) | -2.86e-09*** (4.69e-10) | -8.30e-10* (4.27e-10) | -3.13e-09*** (3.88e-10) | -2.30e-10 (8.18e-10) | 7.76e-11 (4.83e-10) | -2.12e-10 (7.26e-10) | 2.90e-10 (9.09e-10) | 2.39e-10 (5.76e-10) | |
| Democratization (t-1) | 0.00641 (0.0112) | -0.0103 (0.00655) | -0.0258*** (0.00976) | 0.0173* (0.00920) | -0.00775 (0.00759) | 0.00414 (0.0117) | 0.000337 (0.00633) | 0.00581 (0.0101) | 0.00446 (0.0128) | 0.0158** (0.00772) | |
| Political Corruption (t-1) | -1.827*** (0.384) | -0.223 (0.216) | -1.555*** (0.310) | -0.00924 (0.328) | -0.636** (0.250) | -1.600*** (0.483) | -0.166 (0.275) | -0.343 (0.428) | 0.559 (0.527) | -1.174*** (0.333) | |
| School Enrollment (t-1) | -0.0192*** (0.00607) | -0.00427 (0.00368) | 0.0127** (0.00535) | -0.00842* (0.00495) | -0.00342 (0.00420) | -0.00488 (0.00833) | 0.00287 (0.00477) | 0.0109 (0.00758) | 0.00196 (0.00981) | 0.00198 (0.00570) | |
| Ex-colony of donor | - | - | 2.997*** (0.178) | 2.212*** (0.153) | -0.416 (0.523) | - | - | - | - | - | |
| Constant | 0.954 (0.595) | 0.201 (0.319) | 0.581 (0.468) | -0.114 (0.539) | 2.440*** (0.368) | 0.434 (1.012) | 0.299 (0.550) | 0.857 (1.119) | 1.443 (1.117) | 4.733*** (0.635) | |
| Observations | 808 | 1,021 | 929 | 842 | 1,018 | 808 | 1,021 | 929 | 842 | 1,018 | |
| R-squared | 0.179 | 0.080 | 0.305 | 0.285 | 0.157 | 0.080 | 0.095 | 0.821 | 0.110 | 0.100 | |
| Number of years | 13 | 13 | 13 | 13 | 14 | 13 | 13 | 13 | 13 | 14 | |
| Number of recipients | | | | | | 116 | 130 | 124 | 121 | 130 | |
| Year-fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Recipient-fixed effects | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes | |

5. Discussion & Conclusion

5.1 Discussion

In our theoretical framework, we presented Collier and Dollar's poverty-efficient aid allocation model where the authors state that in order to maximize poverty reduction, aid needs to be allocated to countries with a high rate of poverty and good policy.

Our first comparison shows that both multilateral organizations and bilateral organizations allocate less aid to countries with a high Real GDP per capita. Comparing merit variables (proxy for good governance), we found that they carry less statistical significance with bilateral donors than they do with multilateral organizations. In line with previous studies, these results indicate that multilateral organizations follow Collier and Dollar's optimal aid allocation model more closely than bilateral donors do. However, the comparatively larger size of the negative relationship between political corruption and aid per capita with bilateral donors may negate this statement. While we cannot infer that bilateral donors place a higher value on combating corruption than multilateral donors, we feel that these results merit further study.

Our second comparison shows that there are significant differences in aid allocation patterns between bilateral donors in our model. What we found most interesting in the results with only year-fixed effects is the way our merit variables differ. Our results imply that some bilateral donors hold democratization in a very high regard, whereas other bilateral donors such as Sweden seemingly focus their aid on countries with a low degree of corruption. Germany on the other hand has no significant merit variables at all. Consequently, viewing bilateral donors as a homogenous group would be ill advised. Furthermore, we found that historical relationships play a big part in the aid allocation pattern of our former European colonial powers.

While we have briefly touched on the difficulties in comparing sizes of coefficients between regressions, we still find that Sweden, our representative for the Nordic countries has a very large negative relationship between corruption and aid

allocation. Indicating that in line with previous literature, they may stand out in terms of aid allocation based on merit from our aggregate view of bilateral donors.

However, the bilateral donors' reluctance to allocate aid to countries with high levels of corruption may not be completely benevolent, rather out of worry that their investment will not be targeted towards their own interests.

Furthermore, while the fact that our past European colonial powers allocate their aid to former colonies can imply favoritism, this does not have to be the case. Another possible explanation would be that allocation patterns may be seldom reformed due to institutionalism.

When adding both year-fixed effects and recipient-fixed effects, the US surprisingly stands out from the other bilateral donors as they seem to follow the optimal aid allocation model quite closely.

5.2 Conclusion

Previous literature on aid allocation has found that poverty reduction may not be the sole reason behind aid allocation policy in some cases, and that many bilateral donors allocate aid based on political or economic interest.

In this study, we want to understand what variables drive aid allocation policy in multilateral and bilateral donors. We realize that bilateral donors are not a homogenous group, so we also investigate a set of individual bilateral donors in order to find discernable patterns in what determines their aid allocation. We do this by setting up a number of proxy variables detailing the recipient country's need for foreign aid, as well as unique proxy variables for how well the recipient country will be able to use the foreign aid (merit). In addition to these variables, we also look at how historical relationships shape the aid allocation in individual bilateral donors. We run two types of regressions, one with only year-fixed effects, and one with year-fixed and recipient-fixed effects.

We found that according to our model there were significant differences in what variables affected aid allocation in both our comparison between multilateral and bilateral donors, as well as our comparison of different individual donors.

Specifically, in line with previous literature we found that multilateral aid follows our version of the poverty-efficient aid allocation more than bilateral donors do.

In our comparison of different bilateral donors, we found the most variation in the way they value our merit variables. Furthermore, in line with previous literature we found that Sweden (our proxy for Nordic countries) may have an allocation policy that more closely resembles the optimal aid allocation model than most other bilateral donors, and that historical relationships seemingly play a big role in shaping the allocation pattern of our former European colonial powers.

Surprisingly, when adding recipient-fixed effects, we found that the US allocation pattern stood out from all other bilateral donors as it seemingly followed our version of the optimal aid allocation model quite closely, even though we did not expect any significant variables at all with the added strain on our model.

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