

What Determines Bilateral Aid Distribution?
Evidence from Major Donors

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Abstract

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Many studies in international development demonstrate that foreign aid is not simply distributed according to the needs of developing countries. Bilateral Official Development Assistance allocation for example is often dictated by donor interests that are not directly connected to development. This paper uses regression analysis to identify the donor interests involved in bilateral aid distribution, or in other words, what factors matter to each donor country's aid allocation and how much each factor contributes to the amount a donor allocates. The sample consists of the four leading donors: the United States, Japan, United Kingdom, and Canada. Results show that U.S. aid is mainly dictated by global strategic concerns which can be hardly explained by the U.S.' political, economic, or regional interests, and Japan's aid allocation is largely driven by its preference for Asia and former colonies. Similarly, U.K. aid can be explained by preference for former colonies and political concerns. Canadian aid, on the other hand, primarily considers the humanitarian needs of recipient countries.

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I. INTRODUCTION

Foreign aid, specifically Official Development Assistance (ODA) has been an integral part of international cooperation, and has greatly contributed to the improvement of quality of life around the world. Despite the amazing pace of development in certain region like Asia, some development problems— such as the HIV/AIDS situation in Africa— have not met with much success. With today’s pace of development, some of the Millennium Development Goals (MDGs) are not likely to be achieved by the promised year of 2015. Therefore, not only multinational organizations but also governments of industrialized countries are now facing a great responsibility to improve their contribution for international development.

All industrialized countries without exception provide ODA to a wide variety of countries, but there are distinctly different characteristics in the aid distribution patterns of each donor country. The choice of recipient countries as well as the amount distributed to them differs greatly across donor countries, often reflecting economic, cultural, historical, and geo-political strategies of the respective donor country. Due to this interesting difference in donor behaviors, aid distribution has been one of the most popular topics among the international development community.

In this paper, I use regression analysis to identify the differences in donor interests behind bilateral ODA distribution. By using this statistical method, this paper analyzes what factors actually matter for aid allocation and how much each factor contributes to the amount a donor allocates. This study mainly uses 2003 data for all developing countries and several transition countries for which sufficient data is available. Four major bilateral aid donor countries, the United States, Japan, United Kingdom, and Canada, were selected as sample donor countries for three reasons: firstly because they

are the leading ODA donors, secondly because of data availability, and finally to secure regional, historical, and political variation in the donor sample.

Another purpose of this research is to verify popular views on bilateral donors' aid distribution practices often discussed in the development community. Japan's ODA, for example, is often severely criticized for prioritizing its own economic interests rather than that of developing countries. In contrast, the U.S. is often praised for providing more assistance to countries with high Basic Human Needs (BHN). Are these widespread perceptions of donor behavior held by non-economists consistent with empirical evidence? I analyze their accuracy using regression analysis.

Previous papers analyzing differences in aid flow and donor interests demonstrate that there are several determinants of aid allocation among both multilateral and bilateral donors. GDP per capita and population are variables most frequently identified as significantly important in both multilateral and bilateral aid distribution in the literature, but political interests, such as UN voting similarity, and economic interests, such as balance of payments, also seem to matter significantly for bilateral aid allocation. This paper incorporates only the key significant variables identified from previous analysis, as well as some original variables in order to estimate a comprehensive model of bilateral donor behavior.

The key finding in this paper is that the pattern of bilateral aid distribution can be mostly explained by donor interests rather than recipient countries' need. Each bilateral donor has a different set of determinants which is generally consistent with previous research. For example, U.S. aid is dictated by the U.S.'s global strategic concerns which can be hardly expressed econometrically, since there is no explicit relationship between preferred countries except their importance as global strongholds. Japanese aid is

mainly determined by colonial ties and strong preference for Asia and U.K. aid allocation is generally explained by colonial ties and British political concerns. Canadian aid distribution pattern is somewhat unique, because Canada primarily considers the humanitarian needs of recipient countries rather than its own economic or political well-being.

II. OVERVIEW OF OFFICIAL DEVELOPMENT ASSISTANCE (ODA)

According to Organization of Economic Cooperation and Development (OECD), ODA is defined as the transfer of resources on concessional terms from one country to another country so as to promote the development of the latter. ODA is conducted by a donor country's official agency with its national budget, and has to include at least 25 percent grant element for the promotion of economic development and welfare.

ODA plays an essential role in development cooperation. The net ODA to developing countries from the set of major ODA donor countries, called Development Assistant Committee member countries, piled up to USD 69.0 billion in 2003, and 79.5 billion in 2004 (OECD). ODA can be bilateral or multilateral. Bilateral ODA, which accounts for 72 percent of the total ODA in 2003, flows from a donor country to a developing country through the official donor agency, and multilateral ODA flows to a donor country to an international organization such as U.N.

Figure 1 shows the composition of net official ODA (including both multilateral and bilateral ODA) in 2004 by leading bilateral donors. The U.S. provides the largest amount of USD 19.7 billion, which is a quarter of the total net ODA. Japan, France, U.K. and Germany provide approximately ten percent of the total ODA (exact amount for Japan, U.K. reported later in this section), then other smaller European countries as

well as Canada follow. The U.S. has been the single largest ODA donor since 2001 (Figure 2), due to the fast growth of its ODA and the continuous decline of Japan's ODA.

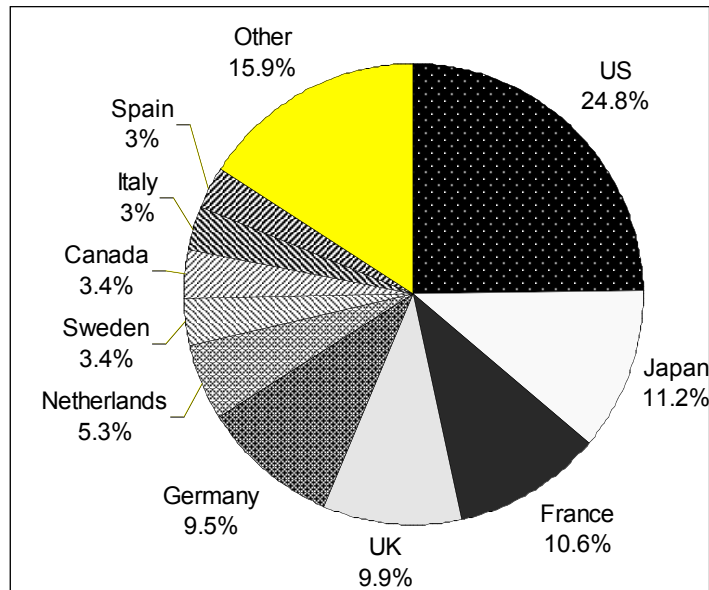


Figure 1. Net ODA in 2004

Source: OECD Website

Both the allocation pattern and the amount of bilateral ODA differ greatly across donor countries since each donor has different aid philosophy, policies, management systems, and allocation priorities. Although the primary goal of development assistance is to promote development and welfare of the developing nations, most bilateral donors consider their ODA a powerful diplomatic tool to shape political and often economic ties between countries.

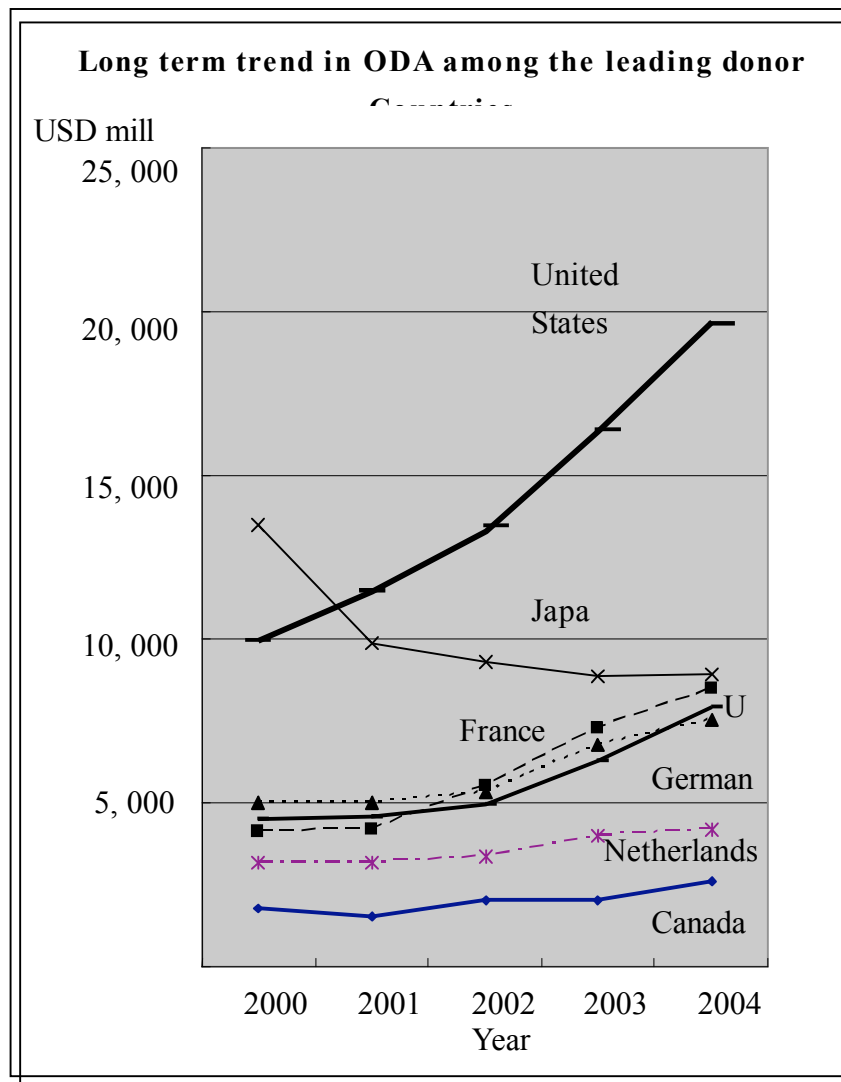


Figure 2. Long term trend in net ODA among the leading donor countries

Source: OECD Website

i. United States

The United States provides the largest amount of ODA, USD 19.7 billion.

Although the amount may seem large, its ODA to Gross National Income (GNI) ratio was only 0.17% in 2004, the lowest among developed donor countries. In the same year, relatively high share of 82% is allocated for bilateral ODA (see Figure 3).

One of the major characteristics of the U.S. ODA often discussed in the aid studies is that this aid is historically closely related to U.S.'s foreign policy, promoting

“freedom” in the world and securing democracy. This distribution pattern originates in the East-West confrontation during the Cold War, since the U.S. strategically provided hefty assistance to certain regions to protect their “freedom” from the communists (Nishigaki and Shimomura, p.127). Still today, promoting democratic governance is identified as a main aid policy in the very first chapter of the report “*Foreign Aid in the National Interest*” by U.S. Agency for International Development. The U.S.’s interests in democracy building can be also linked to their active political involvement in global peacemaking processes. This trend can be observed from the list of the major recipient countries of U.S. aid (Figure 3). Strategically located countries such as Iraq, Egypt, and Israel receive relatively greater amount of U.S. aid today. One critical argument about this particular trend is that the U.S. ODA distribution pattern might fluctuate greatly depending on the global and domestic political trends.

Another aid priority of the U.S. often mentioned is its strong commitment to fulfill Basic Human Needs (BHN) of developing regions. According to the *Development Co-operation Review of the United States* by OECD, the U.S. traditionally allocates a large and increasing amount of assistance in social infrastructure and services, namely education and health sectors. Strong foreign aid policies focused on eradication of targeted diseases such as HIV/AIDS and malaria and the establishment of basic education system are currently in effect, according to the USAID website. Hence the U.S. must have higher priority in providing more assistance to countries with low levels of education and health.

In addition to these characteristics, some scholars also mention that there is an increasing pressure to link ODA with commercial interests in order to improve the U.S. trade balance (Nishigaki and Shimomura, p131).

UNITED STATES

Gross Bilateral ODA, 2003-04 average, unless otherwise shown

Net ODA	2003	2004	Change 2003/04
Current (USD m)	16 320	19 705	20.7%
Constant (2003 USD m)	16 320	19 310	18.3%
ODA/GNI	0.15%	0.17%	
Bilateral share	90%	82%	
Net Official Aid (OA)			
Current (USD m)	1 471	1 605	9.1%

Top Ten Recipients of gross ODA/OA (USD million)	
1 Iraq	2 286
2 Congo, Dem. Rep.	804
3 Egypt	767
4 Russia (OA)	737
5 Jordan	666
6 Afghanistan	632
7 Pakistan	590
8 Colombia	536
9 Israel (OA)	525
10 Ethiopia	500

Source: OECD, DAC.
<http://www.oecd.org/dac>

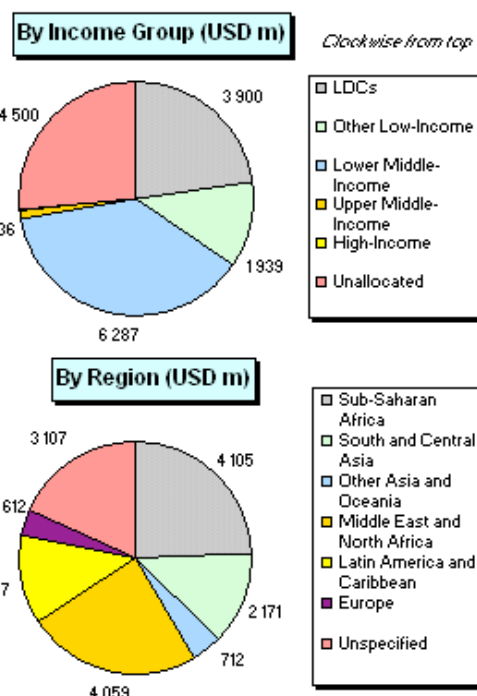


Figure 3. United States ODA

ii. Japan

Japan's ODA as well as its ODA to GNI ratio has been declining since the beginning of 1990s, partly due to the prolonged recession (Earthscan, p.54). Japan dropped down to the second largest donor five years ago, and the difference with the top donor, U.S. continues to widen. In 2004, 66% of the total ODA was allocated for bilateral aid.

Characteristics of Japan's ODA frequently cited are strong regional preference and economic interests. In fact such preference for Asian countries is clearly indicated in its ODA Charter provided by the Ministry of Foreign Affairs of Japan. The charter describes Japan's priority region as "Asia, a region with close relationship to Japan and which can have a major impact on Japan's stability and prosperity" (MOFA). Most of

the top recipients of Japan's ODA shown in the Figure 4 are located in Asia, and about 61 percent of ODA is allocated for Asian countries (OECD). This geographical distribution of Japan's ODA has been the same historically, and it is likely to continue in the future (Nishigaki and Shinomura, p.213). The main cause of this pattern is of course geographical proximity as well as Japan's strong historical ties to other Asian countries during the World War II.

Japan's ODA is also frequently characterized as prioritizing its economic well-being rather than that of the developing country by allocating ODA in a way that benefits Japanese business activities abroad. This sort of development assistance is called tied aid, that is, it requires the involvement of corporations from the donor country. According to Arnold Padilla, a researcher at IBON foundation in the Philippines, although Japan's average tied aid ratio is less than most of the other donor countries, there is an increasing domestic pressure to re-tie Japan's ODA and Japanese corporations abroad due to the recession (as in fact, Japan's ODA amount is declining mostly due to this pressure). In addition, the large percentage of Japan's ODA is spent for the infrastructure development, where many Japanese businesses can participate and profit (*The Reality of Aid*, p.57). Therefore, it is reasonable to assume Japan's ODA has some commercial interests.

Partially due to the characteristic discussed above, Japan is also frequently criticized for not working toward poverty elimination. Akio Takayanagi from the Japanese NGO Center for International Cooperation writes in "*The Reality of Aid*" that despite the Japanese government's reconfirmation of their commitment to the improvement of BHN, actual allocation to sectors such as education, health, population, and water stays quite low (p. 57). Japan's mainstream ODA is still targeted towards

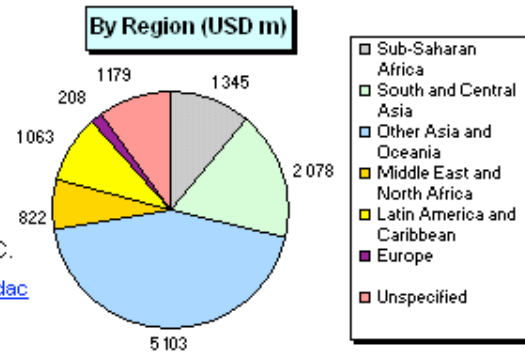
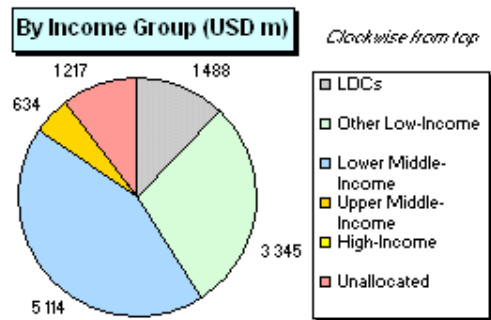
economic infrastructure rather than poverty elimination. Hence Japan often gets severely criticized for insufficient effort in BHN improvement.

JAPAN

Net ODA	2003	2004	Change 2003/04
Current (USD m)	8 880	8 906	0.3%
Constant (2003 USD m)	8 880	8 498	-4.3%
In Yen (billion)	1 029	963	-6.5%
ODA/GNI	0.20%	0.19%	
Bilateral share	71%	66%	
Net Official Aid (OA)			
Current (USD m)	- 219	121	-155.0%

Top Ten Recipients of gross ODA/OA (USD million)	
1 China	1 441
2 Indonesia	867
3 Philippines	801
4 Thailand	723
5 India	704
6 Viet Nam	590
7 Ghana	525
8 Iraq	333
9 Malaysia	306
10 Sri Lanka	297

Gross Bilateral ODA, 2003-04 average, unless otherwise shown



Source: OECD, DAC.
<http://www.oecd.org/dac>

Figure 4 Japan's ODA

iii. United Kingdom

Providing USD 7.8 billion of foreign aid, British ODA is significantly smaller in size compared to the U.S. and Japan. Similar to many of the other European donors, British ODA is well known to have strong emphasis on former colonies and commonwealth countries that have achieved independence, even though such a regional priority is not officially promoted. Most of the countries listed on the top ten recipients of U.K. ODA are the countries with strong historical ties (Figure 5).

The U.K. is often praised for allocating great amount of ODA to the Least

Developed Countries (LDCs) in sub-Saharan Africa, so it might seem reasonable to think U.K. has greater interests in tackling the issues of poverty alleviation. In fact, U.K. has allocated almost 44 % of its total ODA to the Least Developed Countries (see Figure 5). However, such distribution outcome can be considered a consequence of its preference for former colonies since many colonies happen to be located in sub-Saharan Africa. In fact, U.K. does not seem to allocate much towards African countries which are former colonies of other European countries (Nishigaki and Shinomura, p.134).

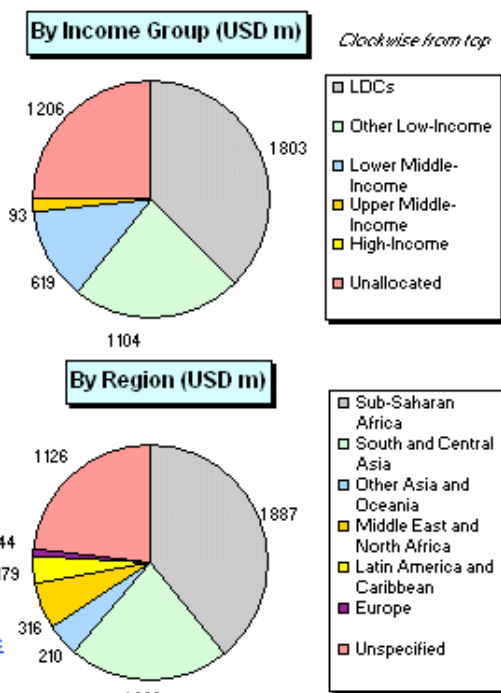
Another characteristic of British ODA may be its great emphasis on basic social services, similar to U.S. According to *the Development Co-operation Review of the United Kingdom* by OECD, U.K. allocated ten percent of its ODA to the basic education, basic health, and basic population programs, which is much higher than the

UNITED KINGDOM

Total ODA	2003	2004	Change 2003/04
Current (USD m)	6 282	7 883	25.5%
Constant (2003 USD m)	6 282	6 879	9.5%
In Pounds Sterling (million)	3 847	4 302	11.8%
ODA/GNI	0.34%	0.36%	
Bilateral share	61%	68%	
Total Official Aid (OA)			
Current (USD m)	698	834	19.5%

Top Ten Recipients of gross ODA/OA (USD million)	
1 India	419
2 Bangladesh	267
3 Tanzania	265
4 Iraq	228
5 Ghana	200
6 Zambia	174
7 Congo, Dem. Rep.	162
8 Afghanistan	161
9 Malawi	115
10 South Africa	112

Gross Bilateral ODA, 2003-04 average, unless otherwise shown



Source: OECD, DAC.
<http://www.oecd.org/dac>

Figure 5. United Kingdom ODA

DAC countries average of five percent. Therefore, U.K. might have interests in offering more assistance to the countries in need of basic social services.

iv. Canada

Compared to the other three donor countries, Canada has relatively less political, economic or historical ties to developing countries due to its smaller economic and political presence in the world. Moreover, the amount of Canadian ODA is relatively small (USD 2.6 billion in 2004), so it is possible that Canada does not consider or practice ODA as a powerful diplomatic tool as much as other donors do. Therefore, Canada's allocation pattern is often considered "good" in the sense that it is responsive to the factors that make aid more effective for poverty alleviation, rather than factors that favor Canada's political or economic environment. I included Canada in the sample donor countries to observe a distribution pattern relatively free from strategic foreign policy considerations.

However, some regional priorities are strictly instructed by Canadian International Development Agency. African countries are more likely to be prioritized because of their least progress in development (OECD, Review of Canada). In addition, Canadian aid program reflects "trinity of mixed motives", according to Macdonald and Hodinott (2004). The three motives for aid distribution of Canada include humanitarian, political, and commercial considerations. Thus, while Canada is relatively free from biases, they do have distinct priorities in their bilateral aid distribution.

CANADA

Net ODA	2003	2004	Change 2003/04
Current (USD m)	2 031	2 599	28.0%
Constant (2003 USD m)	2 031	2 334	14.9%
In Canadian Dollars (million)	2 843	3 382	18.9%
ODA/GNI	0.24%	0.27%	
Bilateral share	66%	77%	

Top Ten Recipients of gross ODA/OA (USD million)	
1 Afghanistan	65
2 Iraq	60
3 Poland (OA)	55
4 Ethiopia	49
5 Congo, Dem. Rep.	47
6 Bangladesh	44
7 China	37
8 Mali	35
9 Ghana	35
10 Tanzania	34

Source: OECD, DAC.
<http://www.oecd.org/dac>

Gross Bilateral ODA, 2003-04 average, unless otherwise shown

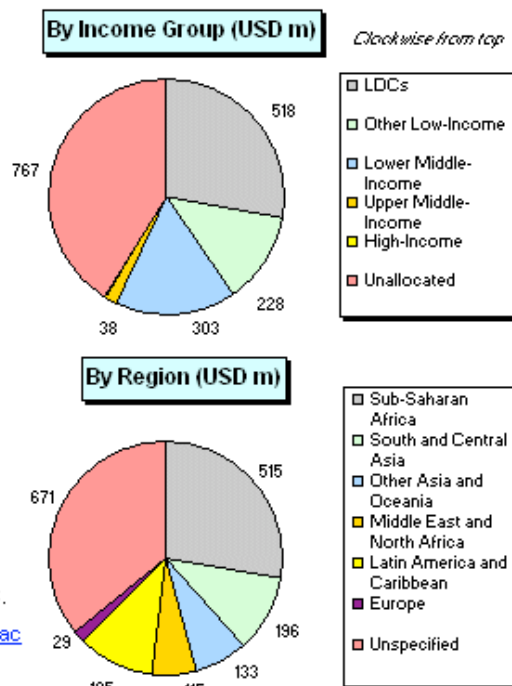


Figure 6. Canada ODA

III. REVIEW OF EMPIRICAL STUDIES

The literature on foreign aid can be categorized into two types. One discusses the effectiveness of aid and the other studies aid allocation. This study focuses on the latter: what factors do donors prioritize in bilateral aid distribution and to what degree?

The fact that determinants of multilateral and bilateral aid are completely different and bilateral aid is far more likely to be affected by donor's strategic interests, which are not necessarily related to humanitarian need of the recipient countries, is demonstrated by some early contribution to the aid literature. For example, McKinlay and Little (1977, 1978) constructed multiple regression models, each one composed of a group of variables that capture a range of donor interests such as 'overseas economic interests', 'security interests', 'power political interests', 'political stability and democracy' and

also variables that capture the genuine need of recipient countries. They found the bilateral aid allocation pattern can be explained significantly better by donor interests than recipient needs. In their analysis of individual donors, U.S. aid distribution was found to be explained mainly by ‘power political interests’ and ‘security interests’, and U.K. aid was found to be explained by political interests, historical interests, antagonism to Communism (during 1960-70), and preference for countries with multi-party democratic regimes.

Using a similar ‘donor interest’ model, Maizels and Nissanke (1984) meticulously analyzed the allocation practices of the five principal donors: U.S., France, Germany, Japan, and Britain. They analyzed three types of donor interests: (i) political/security interests, measured by the extent of arms transfers, (ii) investment interests measured by stock of private direct investment, and (iii) trade interest, incorporated via a dummy variable on whether a recipient country exports strategic materials. U.S. aid allocation was again found to be closely associated with political/security interests, Japanese aid responded to regional interest in Asia and trading interest, and British aid was explained well by trading interests.

Alesina and Dollar (2000), the authors of “Who gives foreign aid to whom and why?”, a leading paper in the aid literature, emphasize that the aid distribution of bilateral donors do not optimize aid effectiveness since political and global strategic concerns of donor countries’ explain the aid distribution much more than the recipient country’s political and economic efforts toward poverty reduction. Their OLS estimation using data on aggregate bilateral aid flow from 1970 to 1994 identified variables such as the UN General Assembly voting pattern and the duration of colonial occupation, as the key determinants of bilateral aid distribution, while variables

measuring democracy and good policy of the recipient country do not seem to explain as much. Although the coefficients of independent variables such as civil liberties, trade openness, direct foreign investment flow, income level, and population were all fairly significant in most donors, they do not have as much explanatory power as UN voting pattern and colonial occupation. Religious differences were also included in the estimation model to account for cultural affinity, but the similarity of religion between a donor and a recipient country does not seem to influence the aid flow either. Infant morality was marginally significant as a determinant as well.

Alesina and Dollar also conducted individual donor analysis including the U.S., Japan, and U.K. Considerable difference in donor interests can be observed from their regression results: U.S. has distributed overwhelmingly to Egypt and Israel, Japan's aid has highly correlated with the UN voting pattern, and U.K. has prioritized its former colonies exclusively. Although Japanese and British aid have little relationship to the measures of development progress of a recipient country such as poverty even after controlling for their major interests, U.S. aid seems to be targeted at poverty, democracy, and trade openness, according to their results.

In a framework similar to Alesina and Dollar (2000), the determinants of Canadian bilateral aid allocation over the period 1984 to 2000 were examined by Macdonald and Hodinott (2004). They found that Canada allocates slightly more to countries with high economic inequality, and/or countries with good human rights. Countries with a greater volume of imports from Canada were also shown to receive greater levels of Canadian bilateral aid.

Slightly from a different perspective, Dollar and Levin (2004) discuss two determinants in particular, policy selectivity and poverty selectivity, using very a simple

regression model consisting of population, per capita GDP, and an index of sound institution/policy. Policy selectivity measures how much good institution/policy in a recipient country dictates the donor's aid flow. Poverty selectivity similarly measures how much poverty matters to the aid distribution. Their result shows that aid from most of the European donors including U.K. are both policy and poverty selective, but U.S. is not selective in either perspective. Japan, on the contrary, is highly selective in terms of policy environment, but not poverty.

In conclusion, there is some consensus in the aid literature about what interests dictate bilateral aid allocation patterns in general. Donors seem to allocate aid in a way that serves their country's interests in military alliance, trade, investment, international politics, and colonial ties. Although the needs of recipient countries have a small role to play in bilateral aid distribution, their policy environment seems to matter for some donors.

The donor specific determinants studied in previous papers vary for two reasons. One is that the predicted donor interest variables employed in regression models greatly differ across the literature. For example, a donor's economic interest may have been observed to be a significant variable in one study simply because some other determinants, such as political interests and regional interests, were excluded in the estimation model. Another possible reason is that each study uses a different index to measure donor interests. There is no uniform method to measure political interest or cultural similarity, so the difference in measurements might have led to different results. The estimation model of this paper includes the key determinants highlighted in the literature as well as other variables that capture new measures of development and have not included in previous studies. I compared the different indices that have been used to

measure donor interests with new indices that are now available, and employed the one which reflects the donor's interest most accurately.

IV. RESEARCH DESIGN

i. Estimation Strategy

In order to study the determinants of foreign aid distribution and understand the difference in donor interests, I use Ordinary Least Squares (OLS) regression analysis. OLS is the most commonly used method to obtain a numerical value for the degree of influence that a single independent variable has on a dependent variable, controlling all else equal. The calculated coefficient indicates the size of the influence of the independent variable; so the bigger the coefficient is, the stronger the impact of independent variable is.

The dependent variable is the amount of ODA from each donor, and the independent variables will consist of variables I hypothesize to be the determinants of aid distribution. If the independent variables turned out to have coefficients that are higher than a certain level of probability, then such variables are shown to play a significant role in determining the aid allocation.

The sample contains 92 developing countries receiving bilateral foreign aid for which all the data on the independent variables are available. The most recent data of 2003 was used for all the independent variables except the democracy index, the ethnolinguistics fractionalization index, and the UN voting pattern. The dependent variable, total ODA amount, and the three independent variables, GDP per capita, total population, and the volume of export, are taken in the form of logarithm to make the sample distribution less skewed and thus avoid the statistical problem of

heteroscedasticity, which often arises from the wide disparity in the data set.

ii. Dependent Variable

The data on bilateral ODA for 2003 comes from the *Geographical Distribution of Financial Flows to Aid Recipients, 1999-2003* of the OECD. This includes grants and low interest loans. The unit of this variable is million U.S. dollars. In some countries, this number turns out to be negative; some developing countries technically give more money to donor countries than they receive. This is because the recipient countries successfully repaid their financial aid debts. This debt payment for some developing countries such as Turkey and Thailand surpasses the aid they receive from donors. Such countries with negative ODA amount are eliminated from the estimation model in order to get more accurate statistical result. The exclusion of sample countries were more frequent among the U.S. aid recipients, hence the sample size of the U.S. estimation model is relatively small compared to the other donors.

iii. Independent Variables

Thirteen different independent variables were included in this research. Some of these variables are commonly used by the aid literature, but some are completely new variables whose relationships have not been statistically analyzed yet. The independent variables can be categorized into two groups: variables that indicate the characteristics of a recipient country and variables that represent a donor country's strategic interests. Table 1 is the complete list of independent variables and what each variable is expected to capture.

Table 1. List of Independent Variables

Characteristics of a Recipient Country	
Measurement of Human Development (HDI)	GDP per capita (Income level) Literacy Rate (Education index) Infant Mortality Rate (Health index)
Other Key Measurement of Development	Population Number of Displaced People Ethnolinguistics Fractionalization GINI index (Income Inequality)
Institutional Characteristics	Transparency (Corruption index) Democracy index

Donor Interests	
Economic Interests	Volume of Export
Political Interests	UN Voting Patterns
Regional Interests	Regional Dummy Variable
Historical Relationship	Colonial Past Dummy Variable

■ **Characteristics of a Recipient Country**

Gross Domestic Product (GDP) Per Capita in US dollar

The most important and frequently used variable in aid literature, GDP per capita, was included to represent a recipient country's level of income. The relationship between GDP per capita and the amount of aid allocated is expected to be negative, because more foreign aid flows to poorer countries rather than richer countries. The data of GDP per capita in purchasing power parity (US dollars) is obtained from the Human Development Report (HDR) 2005 of the United Nations Development Programme (UNDP).

Literacy Rate

Education is one of the principal means to both human and economic development, since it greatly contributes to the quality of labor. As a proxy for a country's overall level of education, the literacy rate from the HDR 2005 is used in the analysis. The data uses a scale of zero to one, with a higher number reflecting more education. This index is expected to have a negative sign since the lower the literacy rate, the higher the problem of underdevelopment. Although this variable is not commonly used in the aid flow literature, I include it to observe donor responses specifically to education level of the recipient countries.

Infant Mortality Rate

Basic health conditions of people in a developing country might also contribute to aid allocation decision making. Although both the infant mortality rate and life expectancy from the HDR 2005 were included in the initial estimation model, due to the high correlation between these two variables (correlation coefficient of 0.85), life expectancy was excluded to avoid potential statistical complications. The infant mortality rate represents the probability that a child dies between birth and one year of age, per thousand live births. The higher this rate is, the more foreign aid allocation a country should expect. Similar to the literacy rate, this variable is not a widely used as an independent variable in aid literature.

Human Development Index (HDI)

In order to observe the overall impact of Basic Human Needs in aid allocation, I created an additional regression model for each donor which includes Human Development Index from the HDR 2005 instead of GDP per capita, literacy rate, and

infant mortality rate. Human development is relatively a recent concept which was created to improve the widespread practice of measuring development exclusively in economic terms such as income levels. Human development can be defined as the development process that “expand(s) human capabilities by expanding the choices that people have to live full and creative lives” (HDR 2005, p.127). HDI is a composite measure of such development, and focuses on three dimensions: living a long and healthy life, being educated, and having a decent standard of living, namely life expectancy, adult literacy rate and gross enrolment rate, and GDP per capita (HDR 2005, p.127). Therefore, replacing GDP per capita, literacy rate, and infant mortality rate with HDI would enable us to observe whether a donor is concerned about the improvements of overall human development.

In addition, HDI is increasingly viewed by the development community as the primary measure of development. However, the existing literature has not discussed the significance of this variable in aid allocation. HDI is reported on a scale of zero to one, with a low score indicating low levels of human development. The relationship of this variable with ODA allocation is expected to be negative if a donor prioritizes the improvement of human development.

Total Population

Total population is also well-known to have significant impact on aid allocation due to its strong correlation with a country’s economic development. All else equal, economic performances of very populous countries tend to be inferior to those of less populous countries (Neumeyer, 2005). Therefore, I expect the relationship between total population and aid allocation to be positive: more aid should be flowing to populous

and poor countries. Total population for 2003 was also obtained from UNDP's Human Development Report 2005.

Number of Displaced People

Foreign aid, often in form of emergency aid, flows to countries that experienced natural disasters and conflicts. To account for this sort of aid flow, the dataset created by combining the data on the total number of refugees and the number of internally displaced people hosted in a country is used. Both of the original data are taken from the Human Development Report 2005. However, due to the volatile nature of the refugees, the report notes that the data is “the best possible estimate with high level of uncertainty” (214).

Ethnolinguistic Fractionalization Index (1985)

This index of ethnolinguistic fractionalization measures “the probability that two randomly selected individuals from the country in question will not belong to the same ethnic group” (Phillip, 2005). A greater degree of ethnic diversity within a country is known to be one of the causes of poverty, as we can see from many African nations. The intuition is that more ethnically diverse countries are more prone to instability and social conflicts; hence they require higher levels of government expenditure, particularly in law enforcement and policing activities. This higher fiscal requirement often becomes a burden that prevents a country from achieving faster economic growth and lead to poverty.

The relationship between ethnic fractionalization and the ODA allocation is ambiguous due to the two dimensions of this variable. While positive correlation with a

country's poverty level suggests that aid should flow to highly fractionalized and poor countries, donors might avoid politically unstable countries in social turmoil due to their bad governance and ineffectiveness of aid projects. This relationship has never discussed in previous aid studies, so the relationship cannot be hypothesized at this stage.

Income Inequality— Gini index

Huge disparities in income and living standard within a nation indicate the inefficient internal governance. Truly efficient government with sound policies would be able to build systems to distribute a country's wealth more equally, so that it could maximize the speed of development. Therefore, high income inequality signals the need for more foreign aid to improve such internal systems. This study uses the most popular measurement of domestic economic inequality, Gini index. According to the HDR 2005, it measures "the extent to which the distribution of income (or consumption) among individuals or households within a country deviates from a perfectly equal distribution" (188). It measures on a scale of zero to hundred with zero representing perfect equality and hundred representing perfect inequality. Therefore, a positive relationship with the aid amount is expected to be observed for a donor who prioritizes improvements of income inequality.

Transparency Index

Corruption or government transparency is a fairly popular concept in the development community today. Many bilateral donors publicly announce that they take institutional transparency of the recipient country's government into serious

consideration, since higher corruption indicates an inability to manage aid projects effectively and efficiently. It is now the consensus of all the development community that aid works better in a good policy environment since aid effectiveness is only promised in such an environment (Klein and Harford, 2005). While the soundness of institutions and policies is a frequently used variable in aid literature, corruption data has not been directly used in exhibiting aid allocation research. Since policy soundness was not significant in most bilateral donors' aid allocation (Dollar and Levin, 2004), this study alternatively uses the corruption rate to identify a statistical significance of such a policy environmental factor. The dataset from the Transparency International corruptions perceptions index 2003, which is composed of various international polls and surveys on perceptions on corruption in public sector, was included (For the countries whose data was not available yet in 2003, the value in the latest available year was alternatively used). The index measures on a scale of zero to ten, with higher score representing more transparent governance. The relationship between this variable and the dependent variable is expected to be positive, since more aid supposedly flow to countries with more institutional transparency and good governance.

Democracy Index (2005)

The democracy index from the nonprofit organization, Freedom House, measures a country's political and economic freedom on a scale of one to seven (the lower score indicates more freedom). This index is also used widely in aid distribution studies to measure political openness of a recipient country. Since some donors such as the U.S. strongly advocate and prioritize the democratization of developing countries, they might have interests in providing more aid to less democratized countries. Therefore, this

variable is expected to have a positive relationship with the aid allocation.

Originally, the variable measuring the degree of poverty (population living under the national poverty line, from the HDR 2005) was included in the estimation model. It was subsequently dropped from the regression model since it is highly correlated with GDP per capita (correlation coefficient of 0.78) and potentially creates a problem of multicollinearity.

■ Donor Interests

Volume of Exports of Goods and Services from Donor Country

A wide variety of variables has been used to measure the degree of donors' economic interests reflected in previous studies. Alesina and Dollar (2000) used trade openness, Maizels and Nissanke (1984) used the amount of private direct investment from a donor country, and Neumeyer (2005) used the total exports of goods and services from a donor country to a recipient country. This study uses the latter to measure economic and commercial interests of donors. The rationale for this choice is that the volume of international trade reflects the commercial relationship of the countries most accurately since trade openness and FDI are relatively more sensitive to recipient country's domestic policies. The data for exports is obtained from U.S. Census Bureau (U.S.), Japan Ministry of Finance (Japan), U.K. Tradeinfo website (U.K.), and Canadian Trade Data Online at Strategis website (Canada). For donors that have a tendency to allocate more to their trade partners, that is, donors that promote their own economy by assisting countries which import a lot from them. This variable is expected to have a positive coefficient.

UN Voting Patterns (1996)

Politics is an issue that cannot be separated from aid distribution, particularly for bilateral donors. For some bilateral donors, foreign aid might be just another diplomatic tool to promote global political alliances. To incorporate this political aspect into the aid distribution model, this study included a variable measuring a similarity in voting pattern in the UN General Assembly (Gartzke, Jo and Tucker). The higher this score is, the more two countries have similarity in political viewpoints. Some donors might have interests to use foreign aid to reward politically friendly countries and to further promote global network of political alliances. We can also think some donors might want to use aid as a tool to buy UN votes in favor of their country. Since regression analysis does not imply causation, the direction of the relationship between UN voting pattern and the aid allocation is not clear, but in both cases, the correlation between the UN voting pattern and the ODA allocation should be positive. However, it is noted that the UN votes might be meaningless, so the voting pattern does not reflect any donor interests. Nonetheless I included this variable since it is frequently used in key papers in the literature such as Alesina and Dollar's.

Regional Dummy Variable

Some donors such as Japan are known to have specific regional interests; they distribute significantly more to one region of the world. To approximate this geographical interest, this study includes three regional dummy variables, Africa, Asia, and Latin America. Dummy variables enable us to observe the degree of how much 'being in a region' makes difference holding everything else constant.

Colonial Past Dummy Variable

Some donors such as France and U.K. are widely known to have strong interests to distribute a larger amount to the countries with historical ties. According to Dollar and Alesina (2000), the share of aid during 1970 to 1994 going to countries that were the donor country's colonies in the 20th century was 78.0% in United Kingdom, 6.3% in Japan, 2.9% in the United States, and zero for Canada. To account for this historical relationship, a dummy variable of whether a country has been colonized by a donor country was used in the analysis. This variable is not included in the estimation model of the U.S. and Canada since they have no or few colonies. The table 1 below is the list of the countries identified as former colonies of the U.K. and Japan in the sample countries used in this research.

Table 2. Former Colony Countries of the U.K. and Japan included in the model
(some former countries are not included in the model due to data unavailability)

U.K.			Japan
Trinidad & Tobago	Tanzania, U Rep	Bangladesh	Philippines
Malaysia	Malawi	Uganda	China
Mauritius	Zambia	Zimbabwe	Viet Nam
Sri Lanka	Nigeria	Cameroon	Cambodia
Jamaica	Botswana	Lesotho	Lao P.D.R.
Egypt	Pakistan	Yemen	
South Africa	Nepal	Kenya	
Namibia	Papua New Guinea	Gambia	
India	Ghana		

V. RESULTS

i. United States

The estimation result for U.S. aid allocation is presented in table 3. Only two variables are statistically significant in this regression analysis: the number of displaced people and the Africa and the Asia dummy variables. The coefficient of the displaced people is extremely small (0.001), and has virtually no effect on the aid distribution. This may be because only a small number of countries have experience problems of displacement, so the overall effect of the problem of displaced people on aid allocation is hardly observable. The coefficients of the regional dummy variables can be interpreted as follows. If a recipient country is located in Africa, the country receives 4.1% more aid than countries in other regions. Similarly, Asian countries get 1.9% more assistance than countries in other regions.

Literacy rate, infant mortality rate, democracy, and the volume of export were expected to be key determinants of U.S. aid according to the common recognition of U.S. aid allocation behavior, but all of such variables turned out to be statistically insignificant. Therefore, the popular arguments that the U.S. aid is specifically targeted at BHNs improvements, democratization, and/or its own economic welfare cannot be verified from the empirical evidence.

The U.S. aid allocation pattern observed from the regression result is striking since none of the characteristics of a recipient country or donor's own economic or political interests seem to determine its aid allocation. The value of R-squared is as low as 0.30, which means only 30% of the allocation is explained by the variables included in the model. I should also note that the value of R-squared in similar researches is also quite low both in absolute term and relative to other donors' scores. Therefore, U.S.

Table 3. OLS Estimation for U.S. (Dependent Variable is Log of U.S. ODA 2003)

Variable	Coefficient		Variable	Coefficient
log(GDP per capita)	-0.372 (-0.968)	}		
Literacy Rate	0.062 (0.936)		HDI	0.858 (0.154)
Infant Mortality Rate	-0.005 (-0.429)			
Log(Population)	0.366 (0.857)		Log(Population)	0.230 (0.420)
Log(Export)	0.013 (0.045)		Log(Export)	0.143 (0.494)
Democracy	-0.055 (-0.182)		Democracy	-0.109 (-0.395)
Displaced People	0.001 (3.518)***		Displaced People	0.001 (3.786)***
Ethnolinguistics	-0.662 (-0.545)		Ethnolinguistics	-0.702 (-0.579)
Income Inequality	-0.035 (-0.802)		Income Inequality	-0.050 (-1.032)
Transparency	-0.334 (-1.062)		Transparency	-0.427 (-1.310)
UN vote similarity	2.278 (1.145)		UN vote similarity	1.446 (0.887)
Africa	4.103 (1.372)*		Africa	3.135 (1.173)*
Asia	1.997 (1.455)*		Asia	1.752 (1.398)*
Latin America	2.005 (1.123)		Latin America	1.843 (1.031)
<hr/>			<hr/>	
R-squared	0.308421		R-squared	0.293001
Observations	85		Observations	85

Note: Standard Errors calculated with White's correction for heteroscedasticity.

t-statistics in parentheses.

*=statistically significant at 90 per cent level, **=at 95 per cent level, ***=at 99 per cent level

aid distribution seems rather random since they do not have any set of determinants except some regional preferences to explain the allocation pattern. Why does this regression result show this randomness?

The absence of the determinants in the regression model can be explained that the U.S. aid is distributed accordingly to their global strategic concerns, as number of previous papers concluded. Strategically important countries receive U.S. aid no matter which region, or what development characteristics they have, so there is no or little correlation between such recipients. As I have discussed in the previous section, countries like Egypt, Israel, and Iraq receive a great amount of assistance from the U.S., but there is little correlation between these countries except their importance as the U.S. global strategy. This hypothesis matches with the predominant views on U.S. aid distribution patterns in previous aid researches.

ii. Japan

The estimation result for Japan's aid allocation is presented in table 4. The statistically significant variables are GDP per capita, population, Asia, and colonial past dummy variables. Displaced people variable was statistically significant, but the coefficient is extremely small, so there is virtually no effect on aid distribution.

This result implies that Japan's aid is distributed using the most traditional measurement of development such as GDP per capita and population. HDI was significant in the second regression result, but that is derived from the high significance of GDP per capita, since neither literacy rate nor infant mortality rate was statistically significant. All the other variables indicating the various characteristics of recipient countries were insignificant, hence Japan's aid allocation seems to take only simplest

Table 4. OLS Estimation: Dependent Variable: Log of Japan's Foreign Aid 2003

Variable	Coefficient	Variable	Coefficient
log(GDP per capita)	-0.827 (-2.967)***	HDI	-5.312 (-2.132)**
Literacy Rate	0.027 (0.709)		
Infant Mortality Rate	0.001 (0.155)		
Log(Population)	0.592 (2.675)***	Log(Population)	0.443 (1.780)*
Log(Export)	-0.084 (-0.607)	Log(Export)	0.033 (0.233)
Democracy	-0.035 (-0.205)	Democracy	-0.016 (-0.093)
Displaced People	-0.000 (-2.321)**	Displaced People	-0.000 (-1.976)**
Ethnolinguistics	1.061 (1.214)	Ethnolinguistics	0.941 (1.120)
Income Inequality	0.025 (0.724)	Income Inequality	0.028 (0.933)
Transparency	0.139 (0.701)	Transparency	0.088 (0.434)
UN vote similarity	0.759 (0.395)	UN vote similarity	1.446 (0.887)
Africa	-0.664 (-0.687)	Africa	-1.294 (-1.552)*
Asia	2.194 (3.880)***	Asia	2.299 (4.430)***
Latin America	-0.001 (-0.001)	Latin America	0.151 (0.158)
Colonial Past	1.025(2.389)**	Colonial Past	0.736 (1.557)*
R-squared	0.479577	R-squared	0.469959
Observations	91	Observations	91

Note: Standard Errors calculated with White's correction for heteroscedasticity.

T-statistics in parentheses.

*=statistically significant at 90 per cent level, **=at 95 per cent level, ***=at 99 per cent level

characteristics of the recipient countries into consideration.

As expected from both common conceptions and Japan's foreign policy, Asian countries receive significantly more assistance from Japan. This high preference to Asian countries can be clearly observed from the regression result. Notice in the first regression result, although insignificant, the coefficients of Africa and Latin America variables are in fact negative, which means if a country is in Africa or Latin America, they tend to get less assistance from Japan than countries in other regions all else equal.

Another expected determinant of Japan's aid, colonial past can also be observed from the result fairly clearly. The first regression estimation shows that if a recipient country has a colonial relationship with Japan, the country receives 1.025 % more on average than other countries all else equal. Considering the relatively small number of Japanese former colony, the colonial past seems to have a fairly big impact on Japan's aid distribution pattern.

On the other hand, export was not statistically significant in both regression models. The common criticism that Japan's aid is targeted exclusively at its own economic well-being cannot be confirmed from this regression model. One might argue that therefore such criticism are invalid, and in fact, only a weak association between Japan's aid and their economic interests has been found in previous research. However, we could also think that the volume of export doesn't accurately capture the commercial relationship. Japan's aid may be correlated with other measures of commercial activities such as foreign direct investment (FDI) rather than export, since FDI works as substitute of export in general. Therefore, although Japan's aid seems to have no correlation with the volume of trade, we do not have sufficient evidence to conclude that Japan's aid is free of commercial interests without conducting further analysis.

iii. United Kingdom

The estimation result for U.K. aid allocation is presented in table 5. The most number of variables was statistically significant from the U.K. regression result; infant mortality rate, population, democracy, income inequality, UN vote similarity, all the regional dummy variables, and colonial past dummy variable, which were fairly consistent with the literature. The coefficient of the infant mortality rate has an unexpected sign, but the size of the coefficient is relatively small and it is rather reasonable to think the significance was a side effect and U.K. aid wasn't specifically targeted at low infant mortality rate countries.

The common recognition of U.K. aid among both economists and non-economists, as having a traditionally strong preference of their former colony countries is empirically verified from the result. The colonial past variable is a key determinant of U.K. aid with very high significance.

U.K. aid is also known to prioritize countries that lack BHN. If this claim is true, variables such as literacy rate, infant mortality, and income equality must be statistically significant. From the regression result, however, only income inequality seems to have an expected relationship with U.K. aid allocated. HDI, indicating the overall human development level, was not statistically significant as well, so U.K. seems to take BHN into consideration only for a small degree compared to other factors.

Although not expected, the UN voting pattern and democracy seem to affect U.K. aid allocation. Especially the coefficient of the UN voting similarity is fairly large and has high statistical significance. This can be considered as the evidence that U.K. aid is being used as political tools to either promote or reward the political alliances in the

Table 5. OLS Estimation: Dependent Variable: Log of U.K. Foreign Aid 2003

Variable	Coefficient	Variable	Coefficient
log(GDP per capita)	-0.239 (-0.433)	HDI	6.680 (1.116)
Literacy Rate	-0.036 (-0.584)		
Infant Mortality Rate	-0.035 (-2.562)**		
Log(Population)	1.170 (3.725)***	Log(Population)	1.301 (3.613)***
Log(Export)	-0.487 (0.214)	Log(Export)	-0.570 (-2.235)**
Democracy	0.457 (1.665)*	Democracy	0.441 (1.793)**
Displaced People	-0.000 (-0.332)	Displaced People	-0.000 (-0.400)
Ethnolinguistics	0.012 (0.009)	Ethnolinguistics	-0.112 (-0.087)
Income Inequality	-0.130 (-2.925)***	Income Inequality	-0.118 (-2.964)***
Transparency	0.269 (0.752)	Transparency	0.224 (0.647)
UN vote similarity	6.787 (2.483)***	UN vote similarity	7.062 (2.652)**
Africa	6.533 (3.328)***	Africa	6.680 (3.771)***
Asia	2.686 (2.416)**	Asia	2.125 (1.969)**
Latin America	3.844 (3.030)***	Latin America	3.544 (-2.964)***
Colonial Past	2.018(2.965)***	Colonial Past	2.677 (4.089)***
R-squared	0.505192	R-squared	0.483308
Observations	92	Observations	92

Note: Standard Errors calculated with White's correction for heteroscedasticity.

T-statistics in parentheses.

*=statistically significant at 90 per cent level, **=at 95 per cent level, ***=at 99 per cent level

world. Another rationale is that this is simply a consequence of U.K.'s strong preference for former colonies, since former colonies might have similar political views due to the long period of occupation. Both the variable measuring political interests and preference for democratic regime were once observed in McKinlay and Little's regression model (1978) as well.

iv. Canada

The estimation result for Canadian aid allocation is presented in table 6. The determinants observed include population, income inequality, transparency, UN voting similarity, and all the regional dummy variables.

Consistent with the literature, Canada aid is highly responsive to the recipient countries' development levels rather than to its own interests. Although GDP per capita, literacy rate, and infant mortality rate were not significant, the combined variable of HDI turned out to be significant in the second regression model. Therefore, Canada allocates significantly larger amounts of ODA to countries with low level of human development, and/or countries with high income inequality. Considering that UN voting similarity is the only one variable which indicates donor interest and its coefficient as well as its significance is relatively small, we can conclude Canadian aid is definitely targeted towards development. Another interesting determinant of Canadian aid is transparency. Canadian ODA seems to be allocated efficiently to countries with less corruption.

Among the three regions that were observed to have effect on aid allocation, both the coefficient and significance were highest in Latin America, followed by Africa and Asia. This can be interpreted that Latin American countries receive more because of geographical proximity, and African countries receive more since priority in African

nations is advocated by Canadian government as a foreign aid policy.

Table 6. OLS Estimation: Dependent Variable: Log of Canada's Foreign Aid 2003

Variable	Coefficient	Variable	Coefficient
log(GDP per capita)	-0.304 (-1.298)	HDI	-3.843(-1.960)**
Literacy Rate	-0.017 (-0.693)		
Infant Mortality Rate	-0.003 (-0.538)		
Log(Population)	0.678 (3.863)***	Log(Population)	0.617 (3.607)***
Log(Export)	0.004 (0.033)	Log(Export)	0.051 (0.405)
Democracy	-0.118 (-0.914)	Democracy	-0.097 (-0.807)
Displaced People	-0.000 (-1.176)	Displaced People	-0.000 (-1.094)
Ethnolinguistics	0.034 (0.061)	Ethnolinguistics	0.029 (0.050)
Income Inequality	-0.041 (-2.587)**	Income Inequality	-0.031(-2.149)**
Transparency	-0.233 (-1.556)**	Transparency	-0.185 (-1.298)
UN vote similarity	2.121 (1.587)*	UN vote similarity	2.759 (2.066)**
Africa	1.621 (2.286)**	Africa	1.282 (1.948)**
Asia	0.434 (1.059)*	Asia	0.500 (1.222)
Latin America	1.715 (3.588)***	Latin America	1.672 (3.740)***
R-squared	0.559749	R-squared	0.568050
Observations	91	Observations	91

Note: Standard Errors calculated with White's correction for heteroscedasticity.

T-statistics in parentheses.

*=statistically significant at 90 per cent level, **=at 95 per cent level, ***=at 99 per cent level

VI. DISCUSSION

What determines bilateral aid distribution? The answer differs greatly by the donor country. Table 7 shows the complete list of observed determinants. Population and region are the most popular determinants in general, and they seem to play key roles explaining the allocation pattern in almost all the four donor countries. On the other hand, although there is an increasing number of discussion in development field that argue human development and transparency of the recipient country should dictate the bilateral aid allocation for a greater degree, they were not observed as the determinants of aid from the regression analysis. Ethnolinguistics fractionalization and most interestingly the very controversial variable, the volume of export, were not statistically significant in any estimation models. I have to note, however, that this analysis uses pooled data for 2003, which makes the sample size significantly smaller than previous papers. Therefore, it could be that this paper's sample size is insufficient to identify the real determinants of aid distribution. Another explanation is that these variables may actually be important to aid distribution, but other variables such as the region and population matter so much more that these variables were not identifiable as proximate determinants.

In terms of individual donors, all donors' aid allocation except for Canada's can be explained better by donor interest variables such as colonial ties, political similarity, and global strategic interests, which have very weak relationship with poverty reduction, policy soundness, or effective development strategies. Therefore, we can clearly see that the bilateral aid is really a strategic tool for donor countries. Aid allocation of the primary donors might be effective at promoting their own political interests or regional partnership, but might not be effective at promoting poverty alleviation.

Table 7: Summary of Observed Determinants of Bilateral ODA

	United States	Japan	United Kingdom	Canada
Recipient's needs	Displaced people	GDP/ capita Population Displaced people	Population Income inequality Infant mortality	Population Income inequality Transparency HDI
Donor interest	Region(Africa, Asia)	Region (Asia) Colonial past	UN voting similarity Region (All) Colonial Past	UN voting similarity Region (All)

VII. CONCLUSIONS

The determinants of bilateral aid distribution differ greatly across donors. However, it is clear that a donor country's own interests play at least some role. U.S. aid seems to be dictated by their global strategic concerns, which are fairly irrelevant to the recipient country's need or their own commercial interests. Emphasis on the improvement of education and health conditions advocated by U.S. foreign policy and USAID was not statistically significant. Japanese aid is largely determined by colonial ties and preference for Asia. Despite the persistent criticism of Japan's prioritizing its own economic interests in aid-giving, trade volume does not affect the distribution pattern significantly in the regression model. U.K. aid is generally explained by colonial ties and political concerns, which is fairly consistent with the previous researches and common perceptions of the development practitioners. Canadian aid distribution is unique in a way that it is primarily allocated based on the humanitarian needs of recipient countries rather than Canada's own interests. This may be partially due to its lack of strong historical or regional ties with developing nations.

Although the improvement of transparency of the government and human

development are strongly encouraged by major international organizations like World Bank, such variables do not seem to have statistically significant impact on bilateral aid allocation. Variables that directly relate to poverty reduction, such as literacy rate, infant mortality rate, and income inequality were not popular determinants as well. Bilateral aid distribution in general is dictated by donor interests far more than the need of recipient countries. In order to maximize aid effectiveness and create a favorable environment for developing countries to reduce poverty and work toward the Millennium Development Goals, bilateral aid should be used as genuine tool for growth rather just than another foreign policy tool for developed countries.

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