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Is Aid Allocation Consistent with Global Poverty Reduction? A Cross-Donor Comparison*

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Abstract

In this paper, we investigate the gap between the first target of the Millennium Development Goals (MDGs) and the actual allocation of grant aid in the late-1990s and the early-2000s in order to identify necessary policy adjustments to achieve the goal. As a theoretical framework, we extend the poverty-targeting model of Besley and Kanbur (1988) by considering multiple donors and possible strategic interactions among them. To test theoretical predictions, we employ detailed data on grant aid allocation of eleven major aid donor countries and on aid disbursement of six international institutions including the IBRD, IDA, and UN organizations. Four main empirical results emerged. First, both in the late-1990s and the early-2000s, grant allocations from Canada, France, Japan, the Netherlands, and UK are consistent with the necessary conditions of optimal poverty targeting. Second, we found that there is a negative population scale effect for aid allocation, suggesting that strategic motives may also exist. Third, the overall results for multilateral donors indicate that allocation patterns are consistent with the theory of poverty targeting. Finally, there has been a recent improvement in coordination among major donors in reducing global poverty.

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1 Introduction

Since the mid-1990s, the international community's development objectives have converged on poverty reduction. Current policy statements of multilateral institutions and aid donor countries are stressing explicitly the importance of poverty reduction at the global level. For instance, the first goal of the Millennium Development Goals (MDGs) is to eradicate extreme poverty and hunger in the world by the year 2015. The numerical criteria to achieve this goal are the proportion of global population living on below one dollar per day and the corresponding poverty gap ratio.

In this paper, we investigate the gap between the first goal of the MDGs and the actual aid allocation in the late-1990s and the early-2000s, in order to obtain insights on necessary policy changes to achieve the MDGs. To this aim, we construct a theoretical framework of global poverty reduction, which formalizes the first goal of the MDGs. Then, by employing cross-country data, we extend Besley and Kanbur's (1988) model of targeting of food subsidies to the international aid provisions.[1] We explicitly evaluate whether donors' aid allocations are designed to reduce poverty by comparing quantitatively the global poverty reduction effect of international aid provided by eleven donor countries (France, Germany, Japan, the Netherlands, UK, US, Canada, Italy, Finland, Norway, and Sweden) and six international institutions including the World Bank and United Nations organizations.

The aims and approach of our study may be seen as comparable to those of Collier and Dollar (2002) who derive a poverty-efficient allocation of aid and compare it with the actual aid allocations and Baulch (2006) who examines whether the major donors distribute their aid in accordance with the MDGs. Yet, four features differentiate our study from theirs. First, unlike Collier and Dollar (2002) and Baulch (2006), we model and incorporate recipients' policy responses in the estimation. We believe that this is a critical distinction especially because the existing influential studies such as Burnside and Dollar (2000) found the importance of recipients' governance in aid effectiveness. Second, we incorporate possibilities of strategic aid allocation motives explicitly, which were not considered in their studies. Third, while we utilize cross-country comparable poverty indicators directly, Collier and Dollar (2002) selected particular values for poverty reduction elasticity of income based on existing studies. A major drawback of

[1] This application was adopted first by Sawada (1996).

Collier and Dollar (2002) is that their final results are sensitive to a choice of the elasticity and an assumption of common elasticity across countries, which has never been tested. In contrast, we impose no restrictions on the elasticity of poverty reduction. Finally, unlike the existing studies, our estimation covers two periods: 1996-1999 and 2001-2004. This enables us to evaluate recent changes that occurred after the initiation of the MDGs in 2000.

The remainder of this paper is organized as follows. In Section 2, we briefly review the existing literature on foreign aid. Section 3 presents a theoretical model of aid allocation to guide econometric modeling. In Section 4, empirical strategies and data are described. In Section 5, the empirical results are reported and discussed. The final section summarizes the paper with concluding remarks.

2 Existing Studies on Foreign Aid

The existing studies on international aid can be divided into three groups, according to their focus on donors, recipients, or both. First, several researchers have examined the motivations and determinants of donors' aid allocation. There is substantial controversy over the motivation behind aid provisions. Other than poverty reduction, aid donor countries may be concerned with such issues as mutual benefits, potential economic and political benefits for themselves, and international security. Empirical results, however, are mixed. On one hand, a welfare function estimated by Behrman and Sah (1984) suggests that donors as a whole have significant inequality aversion in the international distribution of aid. Based on statistical tests of a rigorous theoretical model of ODA, Trumbull and Wall (1994) found that foreign aid allocations are determined by the recipient country's needs represented by infant mortality and political-civil rights. On the other hand, according to recent studies, donor countries largely seem to be motivated by strategic considerations, rather than the altruism or real needs of the receiving countries [e.g., Alesina and Dollar (2000)], confirming findings by Maizels and Nissanke (1984). Collier and Dollar (2002) also support this view, finding that actual aid allocation is far from efficient in terms of poverty reduction. Moreover, Alesina and Weder (2002) document that there is no evidence that donors allocate more aid to less corrupt governments. Strategic allocation of aid may be an outcome of donors' domestic political situations. Lahiri and Raimondos-Moller (2000) argues that lobbying by ethnic groups in the donor country enhances aid provisions to its country

of origin. In contrast, motivation for multilateral aid can be more transparent. Multilateral agencies are largely apolitical and more exclusively concerned with development and/or poverty reduction [Burnside and Dollar (2000); Cassen et al. (1994); Maizels and Nissanke (1984); Frey and Schneider (1986); Sawada (1996)]. With aims similar to ours, Baulch (2006) and Kasuga (2007) examine whether major donors distribute their aid in accordance with the MDG targets, including the non-monetary ones. Estimating aid concentration curves for monetary poverty, child malnutrition, school enrollment, and under-five mortality, Baulch (2006) shows clear contrasts between progressivity and regressivity depending on donors.

Second, there are studies on the policy response of recipients to aid provisions [Boone (1996); Burnside and Dollar (2000); Collier and Dollar (2002); World Bank (1998)]. For example, an influential study by Burnside and Dollar (2000) found that the impact of aid on growth of recipients is positive with good fiscal, monetary, and trade policies but has little effect on recipients with poor policies.[2] This suggests that aid would be more effective if it were more systematically conditional on good policy responses of recipients. Moreover, they found no evidence that aid has systematically affected policies of recipients. This finding is in line with the finding by Boone (1996) that aid has no effect on investment and human development indicators, while aid does increase the size of government. A number of other studies such as the one by Alesina and Weder (2002) also concluded that the aid quantity does not alter the quality of policies of recipient countries. They found that an increase in aid is likely to increase corruption, probably because an unexpected transfer will induce rent-seeking activities.

Finally, on the donor-recipient relationship, there is an emerging new theoretical approach to aid in which aid is analyzed as a contract between donors as principals and a recipient as an agent. Under asymmetric information, Svensson (2000) focuses on moral hazard issues of recipient countries and shows that the Samaritan's dilemma is an inherent outcome of the aid relationship without a credible commitment device. Svensson (2003) provides empirical evidence of the lack of commitment in aid disbursements. Hagen (2005) and Torsvik (2005) discuss the pros and cons of the role of multilateral aid agencies to mitigate the Samaritan's dilemma. Azam and Laffont (2003) add adverse selection of aid recipients, showing that aid can be oversupplied to recipients with strong altruism.

[2] Easterly, Levine, and Roodman (2004), Roodman (2007), and Rajan and Subramanian (2008), however, showed that the results of Burnside and Dollar (2000) are not robust.

In this paper, we aim to make three contributions to the existing literature on foreign aid. First, although Collier and Dollar (2002) evaluated the efficiency of aid allocation with respect to income increase by using aggregate data of all donors, they selected particular values for poverty reduction elasticity of income. As far as we know, none of the existing studies has investigated the efficiency of aid provided by each donor in reducing poverty, using standard poverty indicators. This paper tries to bridge this gap in the literature by examining each donor's aid allocation in terms of global poverty reduction without imposing restrictions on the elasticity of poverty reduction.

Second, we extend the Besley and Kanbur (1988) framework of poverty reduction by considering multiple donors, recipients' policy responses, possible strategic interactions among them, and agency relationship between donors and recipients. Explicitly incorporating recipients' policy responses is a critical distinction especially because the existing studies found the importance of recipients' governance in aid effectiveness (e.g., Burnside and Dollar 2000). Our theoretical model includes three cases of aid allocation rules: donors' joint minimization of global poverty with budget pooling, unilateral minimization of global poverty without budget pooling, and unilateral optimization with strategic motives. We attempt to test which version of the theoretical models explains the data better. There are very few attempts in the literature similar to our tests.

Third, our estimation covers two periods: 1996-1999 and 2001-2004. It is an important issue to evaluate whether there has been an improvement in aid allocation patterns since the initiation of the MDGs in 2000. Nevertheless, this issue has not been examined rigorously in the literature. This paper attempts to shed new light on this important issue.

3 Theoretical Framework

In order to achieve the first goal of the MDGs, there are two requirements. First, aid should be allocated to countries where poverty has been prevalent, not to relatively developed countries. This is the requirement for effective aid allocation imposed on aid donors.

Second, in order to reduce poverty effectively, it is better to link external assistance more with recipients' efforts. In countries where policies are inconsistent with poverty reduction, foreign aid will achieve far less. This is partly due to the fungibility with which it is difficult

for donors to target particular groups. This is the requirement for effective aid which should be satisfied within each aid recipient.

3.1 An Indicator of Global Poverty

To quantitatively evaluate the effectiveness of aid in terms of poverty reduction, we employ the class of poverty measures developed by Foster et al. (1984), or the Foster-Greer-Thorbecke (FGT) poverty measures. Let $P_r(\alpha)$ denote the poverty index of a recipient country r after receiving foreign aid:

$$P_r(\alpha) = \int_0^{z-x_r} \Big(\frac{z-(y_r+x_r)}{z} \Big)^{\alpha} f_r(y_r) dy_r,$$

where z is poverty line, y_r is personal income, $f_r(\bullet)$ is its density function, and x_r is an increment of personal income of the poor through receiving aid. In this definition, we confine the type of poverty reduction policies to a uniform transfer of x_r to the poor. Also, we postulate two assumptions here. First, poverty-reduction policies never cause the non-poor before the policies to fall into poverty. Second, the shape of $f_r(y_r)$ in the range of $[0, z-x_r]$ does not change. Therefore, the post-aid income density function of the initially poor is given by $f_r(y_r+x_r)$.

Then, we can utilize an additive decomposability property of the FGT measure in order to define an indicator of global poverty, $P(\alpha)$, as follows:

$$\begin{aligned} P(\alpha) &\equiv \sum_r \left\{ \left(\frac{N_r}{\sum_r N_r} \right) P_r(\alpha) \right\} \\ &\equiv \sum_r \Big\{ w_r P_r(\alpha) \Big\}, \end{aligned} \tag{1}$$

where N_r is recipient r's population size and w_r is its population weight in the world. The definition (1) can be interpreted as a formal representation of the criteria of global poverty stated in the first goal of the MDGs.

3.2 Agency Issues

Suppose there exists a government between the poor in country r and multiple donors, and that their complicated interactions determine the level of the increment of income from aid, x_r. Following the arguments by Azam and Laffont (2003) and Svensson (2000, 2003), we model this relationship as a principal-agent problem. Let us denote that M_d is the total aid budget of donor d, which is assumed to be fixed exogenously, M_{dr} is the aid from donor d to recipient r,

and m_{dr} is the aid per recipient's population from d to r (i.e., $m_{dr} = \frac{M_{dr}}{N_r}$). Then, the incentive compatibility constraint of the recipient is described as the recipient country's optimization of its objective function with respect to x_r given different intensities of incentive. First, the recipient's optimization includes the minimization of $P_r(\alpha)$, caring for the non-poor, maximization of personal benefits, and establishment of its political supporters. Second, behavioral constraints include a budget constraint, $\sum_d m_{dr} \geq x_r$, administrative ability constraints with respect to targeting, conditionalities imposed by donors, and donors' ability to enforce conditionalities. We can represent the resulting incentive compatibility constraint by the following reduced-form equation:

$$x_r = x_r(m_r, X_r, X_d, X_{dr}), \tag{2}$$

where m_r is a vector of amounts of foreign aid received by recipient r from different donors, $(m_{1r}, m_{2r}, ..., m_{dr}, ...)$, X_r is the recipient government's characteristics, X_d is the donors' characteristics, and X_{dr} is characteristics for the bilateral relationship between d and r. Since equation (2) is a reduced-form incentive-compatibility constraint (ICC) governing the behavior of recipient r, donor d should take this equation into consideration when it determines m_{dr}. From the donor's perspective, $\frac{\partial x_r}{\partial m_{dr}}$ is a measure of the marginal aid impact on transfer to the poor, i.e., aid effectiveness, which can be a function of factors such as governance, colonial legacies, and how pro-poor the economic structure of the recipient country is.

3.3 Optimal Aid Allocation

Setting the global poverty indicator of equation (1) as an ultimate criterion to achieve the first MDG goal, we consider three possible cases of actual aid allocation: donors' joint minimization of global poverty with budget pooling, donors' unilateral minimization of global poverty, and donors' unilateral optimization with strategic motives.

Case 1: Donors' joint minimization of global poverty with budget pooling

We first assume that all donors jointly minimize the global poverty represented by equation (1). This assumption corresponds to a situation of ultimate donor coordination to achieve the MDGs. We further assume that all donors agree to pool their aid budgets. This assumption can be interpreted as an extreme case of the general budget support (GBS) in non-project aid to support recipients' budgets.

The optimization is then expressed as

$$Min_{\{m_{dr}\}_{d,r}} : P(\alpha) = \sum_r w_r \int_0^{z-x_r} \Big(\frac{z-(y_r+x_r)}{z}\Big)^{\alpha} f_r(y_r)dy_r$$

subject to

$$\sum_d \sum_r w_r m_{dr} \leq \frac{1}{\sum_r N_r} \sum_d M_d, \tag{3}$$

and equation (2), which is an incentive compatibility constraint. Equation (3) can be called a global budget constraint. Assuming an interior solution for this problem, the first-order-condition (FOC) that should be satisfied for the optimal aid allocation becomes:

$$\frac{\partial x_r}{\partial m_{dr}} \int_0^{z-x_r} \Big(\frac{z-(y_r+x_r)}{z}\Big)^{\alpha-1} f_r(y_r)dy_r = \frac{\partial x_r}{\partial m_{dr}} P_r(\alpha-1) = \frac{z}{\alpha}\lambda, \tag{4}$$

when $m_{dr} > 0$,[3] where λ is a Lagrange multiplier associated with the global aid budget constraint, i.e., equation (3).

This FOC indicates that all donors should equalize $P_r(\alpha-1)$ weighted by $\frac{\partial x_r}{\partial m_{dr}}$, where $P_r(\alpha-1)$ is a poverty measure *after* the aid disbursements and resultant poverty reduction policies. Denote that $P_r^0(\alpha-1)$ is a poverty measure *before* transfers. By applying the implicit function theorem, equation (4) implies that all donors should allocate aid m_{dr} by using the same aid allocation function, $m_{dr} = m_r(P_r^0(\alpha-1), \theta_{P,r}, \theta_{m,dr})$, where $\theta_{P,r}$ is a vector of exogenous shifters of $P_r(\alpha-1)$ and $\theta_{m,dr}$ is a vector of exogenous shifters of $\frac{\partial x_r}{\partial m_{dr}}$.[4] Note that the partial derivatives of the three arguments should be positive. In other words, among donors and recipients, a recipient with the highest initial poverty and a pair of a donor and a recipient with the highest aid-effectiveness should be given the first priority.

Case 2: Unilateral minimization of global poverty under the identical objective function

The first case above imposed an extreme assumption of global budget pooling for aid allocation. Such an arrangement may not be enforced due to various incentive problems among donors because it is difficult to establish legally binding rules across donors. If we impose the non-cooperative game assumption where each donor behaves individually, given other donors' behavior, but share the identical objective function, the optimization problem can be represented

[3] As a corner solution, when $m_{dr} = 0$, $\frac{\partial x_r}{\partial m_{dr}} P_r(\alpha-1) \leq \frac{z}{\alpha}\lambda$

[4] In deriving the aid allocation function, we also incorporate equation (2).

as follows:

$$Min_{\{m_{dr}\}_r} : P(\alpha) = \sum_r w_r \int_0^{z-x_r} \Big(\frac{z-(y_r+x_r)}{z}\Big)^{\alpha} f_r(y_r) dy_r$$

subject to

$$\sum_r w_r m_{dr} \leq \frac{1}{\sum_r N_r} M_d, \tag{5}$$

equation (2), and $\{m_{dr}\}_{d' \neq d,r}$ is given.

Maintaining the same objective function, i.e., the minimization of global poverty, the FOC for an interior solution is

$$\frac{\partial x_r}{\partial m_{dr}} P_r(\alpha - 1) = \frac{z}{\alpha} \lambda_d, \tag{6}$$

when $m_{dr} > 0$. This FOC indicates that each donor should equalize $P_r(\alpha - 1)$ weighted by $\frac{\partial x_r}{\partial m_{dr}}$. By applying the implicit function theorem, equation (6) with a donor-specific Lagrange multiplier associated with budget, λ_d, implies that the aid allocation function can now differ by donor, $m_{dr} = m_{dr}(P_r^0(\alpha - 1), \theta_{P,r}, \theta_{m,dr})$, where the partial derivatives of these three arguments should be positive. For each donor d, if we look at the aid distribution across recipients r, a country with the highest aid-effectiveness and the highest initial poverty should be given first priority.

Case 3: Aid allocation under strategic motives

In reality, some donors may be largely motivated by political considerations rather than altruism. In order to incorporate donors' different optimization problems, we allow each donor to have different objectives. For a donor, poverty reduction in a recipient should be weighted more heavily than poverty reduction in another recipient when the recipient is a part of the donor's strategic alliance. For another donor, the absolute amount of aid flow to some groups of countries may be more important than the reduction of global poverty in order to establish and maintain its political influence on the recipients. To take into account these aspects, we postulate the following optimization problem:

$$Max_{\{m_{dr}\}_r} - (1 - \mu_d) P(\alpha) + \mu_d G_d(\{m_{dr}\}_r, \{m_{d'r}\}_{d' \neq d,r}) \tag{7}$$

subject to equation (2), equation (5), and $\{m_{dr}\}_{d' \neq d,r}$ is given, where G_d is donor d's non-poverty reduction objective that is assumed to be an increasing function of m_{dr}, and μ_d is a weight attached to this objective. In this formulation, we assume that giving more aid to a

politically important country brings additional payoff to the donor. Note that the Case 2 above is a special instance of the Case 3 where $\mu_d = 0$.

The FOC of this problem becomes:

$$(1-\mu_d)\frac{\partial x_r}{\partial m_{dr}}P_r(\alpha-1)+\mu_d\frac{\partial G_d}{\partial m_{dr}}=\frac{z}{\alpha}\lambda_d \tag{8}$$

when $m_{dr} > 0$. As we can see in equation (8), the second term of the left hand side is the additional term capturing strategic motives. Applying the implicit function theorem, each donor's aid allocation should now follow a function $m_{dr} = m_{dr}(P_r^0(\alpha-1), \theta_{P,r}, \theta_{m,dr}, \theta_{G,dr})$, where $\theta_{G,dr}$ is a vector of exogenous shifters of $\mu_d\frac{\partial G_d}{\partial m_{dr}}$. When $\theta_{G,dr}$ is higher (i.e., the marginal utility of donor d from giving aid to recipient r is larger), $\mu_d\frac{\partial G_d}{\partial m_{dr}}$ becomes larger so that the optimal level of aid m_{dr} should be higher. Simply, the higher the marginal utility from giving aid through strategic considerations, the more aid goes to such a recipient, regardless of its poverty situation. Note that μ_d itself is also an important contributing factor. In the extreme case where μ_d=1, the optimal level of aid is determined by strategic factors only, not by the degree of poverty, $P_r^0(\alpha-1)$, because $m_{dr} = m_{dr}(\theta_{G,dr})$ in this case.

4 Empirical Strategies and Data

4.1 Empirical Strategies

The theoretical discussion above has shown that m_{dr} increases with $\theta_{P,r}$ (Cases 1-3), $\theta_{m,dr}$ (Cases 1-3), and $\theta_{G,dr}$ (Case 3). Accordingly, our strategy is to estimate a reduced form equation:

$$m_{dr} = h_d(P_r^0(\alpha-1), X_r, X_{dr}) \tag{9}$$

where X_r is a vector of characteristics of recipient r and X_{dr} is a vector of variables characterizing the relation between donor d and recipient r. X_r and X_{dr} jointly are proxy variables for $\theta_{P,r}$, $\theta_{m,dr}$, and $\theta_{G,dr}$.

Suppose that the global poverty index in equation (1) is defined as the squared poverty gap index, i.e., α equals two, satisfying the transfer axiom as clarified by Foster et al. (1984). Then a log-linearlized version of equation (9) is employed for estimation:

$$\ln(1+m_{dr}) = b_{0,d} + b_{1,d}\ln P_r^0(1) + X_r\beta_{1,r} + X_{dr}\beta_{2,d} + u, \tag{10}$$

where u represents an error term.

There are three empirically verifiable hypotheses derived from the theoretical results and tested in the empirical part of this paper. First, if a donor's aid allocation is consistent with poverty reduction (Case 1, Case 2, and Case 3 with $\mu_d < 1$), we should observe that $b_{1,d} > 0$. Second, the functional form $h_d(\bullet)$ should be identical for all donors under Case 1, while they should differ from donor to donor under Cases 2 & 3. Therefore, if the first test shows that $b_{1,d} > 0$, we test whether $b_{1,d} = b_1 \ \forall d$. If this null hypothesis cannot be rejected, Case 1 is supported empirically against the alternatives of Cases 2 & 3. Finally, when a proxy variable for $\theta_{G,dr}$ take coefficients which are not statistically different from zero, Case 3 is rejected in favor of Cases 1 & 2. Among the explanatory variables described below, we regard a recipient's population size in X_r, colonial history, and UN voting patterns in X_{dr} as mainly reflecting the strategic motives, although we acknowledge the possibility that these variables also reflect the aid effectiveness represented by $\theta_{m,dr}$.

Note that there are many zeros for the dependent variable in equation (10), since a donor does not necessarily give aid to all potential recipient countries. If such aid-provision decisions are correlated with unobserved factors affecting the aid amount, OLS estimation of equation (10) will suffer from a standard sample selection bias. Accordingly, we employ the Type I Tobit model of Amemiya (1985) to estimate equation (10).

4.2 Data

We employ data from eleven donor countries (France, Germany, Japan, Netherlands, UK, US, Canada, Italy, Finland, Norway, and Sweden) and six international institutions (IBRD, IDA, UNDP, UNFPA, UNHCR, and UNICEF), together with internationally comparable poverty data.

Our data is on the 98 aid-recipient countries listed on Table 1. The total population of these countries was 4.727 billion as of 1999, covering 92.9 percent of the total population of all aid-recipient countries in the same year. Table 2 shows that out of the total grant provisions of each donor, our data set covers 63.8 percent for France, 81.7 percent for Germany, 86.7 percent for Japan, 69.5 percent for the Netherlands, 85.0 percent for the UK, 88.6 percent for the US, 87.8 percent for Canada, 68.2 percent for Italy, 76.7 percent for Finland, 64.1 percent for Norway, and 79.4 percent for Sweden. As to the total official gross amount of each international institution, the coverage rates are as follows: IBRD (97.0 percent), IDA (96.1 percent), UNDP

(78.4 percent), UNFPA (83.5 percent), UNHCR (77.1 percent), and UNICEF (55.3 percent).

In order to capture behavioral changes of donors in response to the MDGs, we estimate the model of equation (10) for two periods, one for 1996-1999 and the other for 2001-2004. The former and latter periods are before and after, respectively, the initiation of the MDGs.

Dependent Variables

OECD defines official development assistance (ODA) as a net sum of grants, including tied and technical assistance, and highly concessional loans with a grant element of at least 25 percent. Yet, Chang, Fernandez-Arias, and Serven (1998) pointed that the net flow underestimates the aid content of disbursed flows by netting out amortization payments. They also pointed that the threshold of 25 percent of grant elements for concessionality of loan over-represents loans with high concessionality and under-represents loans with low concessionality. Hence, we employ logged values of per capita gross grant, distinguishing from loans, as our dependent variable, which are total ODA/OA grant from OECD (2007) averaged over 1996-1999 and 2001-2004. We deflated this variable by using the donor country deflator in OECD (2007) to make adjustments for exchange rate and price changes. With respect to the multinational institutions data, note that the amount of total official gross disbursement is equivalent to the total official gross amount including OOF for IBRD, gross ODA loan for IDA, and ODA grant for UNDP, UNFPA, UNHCR, and UNDP. These multinational institution data are deflated by applying deflator of combined DAC countries in OECD (2007). The upper two blocks of Tables 3 and 4 shows the descriptive statistics on each donor's aid flow for 1996-1999 and 2001-2004 separately.

Independent variables

As to the independent variables, we extract data in or around 1995 and 2001. The descriptive statistics of the independent variables are shown at the last block of Table 3 for 1995 and Table 4 for 2001. The poverty gap measure for each recipient country in the sample at around 1995 and 2000 is shown in Table 5.

First, poverty gap indices are taken from the World Bank's *PovcalNet* data file. Since the survey years of original household surveys vary by country to some extent, we adopt an index at the nearest of 1995 or 2000 by assuming poverty indices are stable in the short run. The poverty index of Israel is calculated from its income distribution statistics by assuming a log-normal

income distribution function [Central Bureau of Statistics (1995)].

Second, in order to capture recipient specific variables, X_r, we employ two sets of indicators: political rights indices by Freedom House (2000) in 1995 and 2000, and government effectiveness indices by Kaufmann, Kraay, and Zoido-Lobaton (1999, 2002) in 1996 and 2000. Freedom House (2000) does not consider governments per se, but rather rights and freedoms enjoyed by individuals in each country or territory. The index captures not only the political conditions in a country or territory, such as the prevalence of terrorism or war, but also the effect that these conditions have on freedom. Note that its political rights index ranges from 1 (best) to 7 (worst). With respect to the second set of indicators, Kaufmann, Kraay and Zoido-Lobaton (1999, 2002) have combined more than 300 governance indicators to construct six aggregate indicators corresponding to six fundamental governance concepts, one of which is government effectiveness. Their government effectiveness index captures the capacity of governments to manage resources efficiently and to formulate, implement, and enforce sound policies and regulations. This is the index we employ.

Third, following existing studies such as Burnside and Dollar (2000) and Alesina and Weder (2002), we include a log of the total population of a recipient country to capture non-linearity of the aid amount with respect to the country size. The data is extracted from World Bank (2001). In fact, the non-linearity between aid allocation and population size can be interpreted as a reflection of strategic motives, $\theta_{G,dr}$. For example, in the UN assembly, each country has one vote regardless of its population size. Therefore, a smaller country may be able to attract more aid per capita. In order to illustrate this aspect, in equation (7), let $\mu_d G_d = -\sum_r \beta P_r(\alpha)$, so that the donor's optimization problem is to minimize $\sum_r (w_r + \beta) P_r(\alpha)$, where the condition $\beta > 0$ captures the weight attached to each country regardless of its population size. Under this functional specification, the FOC is

$$\frac{w_r + \beta}{w_r} \cdot \frac{\partial x_r}{\partial m_{dr}} P_r(\alpha - 1) = \frac{z}{\alpha} \lambda_d,$$

for $m_{dr} > 0$. It is straightforward to show that, ceteris paribus, a less populated recipient, i.e., with lower w_r, receives a larger amount of aid per capita.[5]

[5] This is an interpretation based on Case 3 of the theoretical model, i.e., the population size is a shifter of $\frac{\partial G_d}{\partial m_{dr}}$. It is also possible that the population size affects $\frac{\partial x_r}{\partial m_{dr}}$ as in Case 2, if the central government in a more populated country is less efficient in implementing poverty reduction policies than one in a less populated country, simply because of the size of the country. Our intuition is that the latter effect, even when it exists, is likely to be small.

Finally, in order to capture other strategic aspects of foreign aid, $\theta_{G,dr}$, we include other donor-recipient specific variables, X_{dr}, which have been employed in the previous studies as possible determinants of foreign aid. Especially, following Alesina and Dollar (2000), we include colonial history and UN voting patterns. The two colonial past variables included are defined as the number of years as a colony of the donor and as the number of years as a colony of any country other than the donor since 1900. These data are extracted from CIA (1998). We also include the UN-Voting Similarity variable of Gartzke, Jo, and Tucker (1999) and Voeten (2006), which captures the similarity of foreign policy positions based on votes and resolutions by recorded or roll-call vote at the UN General Assembly. To some extent, these variables may also reflect aid effectiveness (proxy for $\theta_{m,dr}$). While we will discuss this issue later, we believe that, by including these variables, we can mitigate potential bias due to an omission of important variables.

5 Estimation Results

5.1 The Basic Model

The basic estimation results of equation (10) without donor-recipient specific variables X_{dr} are presented in Table 6 for 1996-1999 and in Table 7 for 2001-2004. According to Table 6, grant allocations of Canada, France, Japan, Norway, the Netherlands, and the U.K i.e., six out of eleven donor countries have positive and statistically significant coefficients on the poverty gap indicator, although the coefficient of Norway is marginally significant at the 10% level. These six donor countries provide more grants to the recipient countries where poverty is severe. The results are consistent with the theory of poverty targeting. All other countries have positive coefficients on poverty gap, but they are not statistically significant.

In Table 7, which summarizes the basic results for 2001-2004, grant allocations of Canada, France, Japan, the Netherlands, and the UK i.e., five out of eleven donor countries have positive and statistically significant coefficients on the poverty gap indicator. Again, all other countries have positive coefficients on the poverty gap, but they are not statistically significant. It may seem surprising that all three Nordic countries (Finland, Norway, and Sweden) have insignificant coefficients because aid allocations by these countries are usually regarded as sensitive to poverty. However, when we look closely at the data, it is found that the Nordic countries provided much

aid to Eastern European economies where poverty gap indices were not necessarily high. This makes the poverty-aid nexus of the Nordic countries less clear in our analysis.

On the other hand, no donor country is sensitive to political rights when it allocates grants. This is true in both periods (1996-1999 and 2001-2004). As for the government effectiveness index, Japan has a significantly positive coefficient in 1996-1999, implying Japan gave more aid to countries with high government effectiveness, although this relation vanishes in 2001-2004. The US has a significantly negative coefficient in 2001-2004, suggesting a possibility that the US gave more aid to countries with low government effectiveness.

With respect to the population variable, we find that its coefficients are negative and statistically significant for nine out of eleven donor countries in 1996-1999, and for ten out of eleven countries in 2001-2004. When a recipient country's population is large, donors will allocate less aid per population of the recipient. As we have seen already, this non-linearity between aid allocation and population size may be a product of aid effectiveness. Furthermore, if we interpret that the population effect comes from strategic motives, we can validate Case 3 against Cases 1 & 2. However, note that the population effect may come from the incentive compatibility constraint (2). If that is the case, we cannot validate Case 3 against Cases 1 & 2.

5.2 Colonial History and Political Alliance

As Alesina and Dollar (2000) found, aid donor countries may be motivated by strategic considerations, rather than poverty reduction of the recipient countries. In order to control for donors' preference toward former colonies or strategic aid allocation, we have included the colonial past variables and the UN Voting Similarity variables. The results are summarized in Table 8 for 1996-1999 and in Table 9 for 2001-2004.

In 1996-1999, once the colonial past variable is included, the statistical significance of the poverty gap coefficient for the UK disappears. However, the coefficient of the UK in 2001-2004 survives to be positive and significant even after controlling for the colonial variable. The other three countries (France, Japan, and the Netherlands) that have positive and significant coefficients on poverty measure in the basic specification all have positive and significant coefficients even after controlling for the colonial variable in both periods. The coefficient on the colonial variable is positive and statistically significant at the 1 percent level for France and the UK in both periods and is marginally significant for Japan. These results indicate that being formerly

an own colony is an important determinant of aid allocation especially for France, Japan, and the UK.

The coefficient of France on the UN voting variable is positive and significant in 1996-1999, which suggests that France provided a larger amount of aid to its allied countries in the UN. But, this relation vanishes in 2001-2004. On the other hand, the coefficient of Japan on the UN voting variable became significant in 2001-2004, but was not significant in 1996-1999, implying Japan's grant allocation might become more sensitive to its strategic motives after the initiation of the MDGs. This period overlaps with the timing when Japanese government sought a permanent seat of the UN's security council

5.3 Multilateral Institutions

The results for multilateral donors are summarized in Table 10 for 1996-1999 and in Table 11 for 2001-2004. First, it is notable that the two World Bank organizations, IBRD and IDA, show a clear contrast in both periods. While IDA targets poverty significantly, the allocation of IBRD shows a strong poverty-aversion pattern. This is plausible because the primal mandate of IDA is to provide aid to the low countries whose GNP per capita is, for example, less than 905 US dollars in 1995 (World Bank, 1996). These low-income recipient countries are more likely to have larger poverty gap indices. On the other hand, IBRD allocates loans to relatively developed, middle-income countries.

Results for other UN agencies indicate that the coefficients on the poverty gap are positive and significant except for UNHCR in both periods, indicating that these institutions allocated funds in a way consistent with the theory of poverty targeting. In contrast, UNHCR does not seem sensitive to poverty or governance per se. This pattern may emerge because UNHCR's primary purpose is to safeguard the rights and well-being of refugees regardless of the governance. Moreover, the targeted refugees might be relocated to relatively developed countries where poverty is less serious.

Interestingly, while the political rights index had no impact on the aid allocation of multilateral donors in 1996-1999, it became positive and statistically significant for IDA, UNDP, UNFPA, and UNICEF in 2001-2004. This implies that these donors have given more aid to less democratic countries in recent years. Government effectiveness does not seem to be a crucial factor in the aid allocation of multilateral donors.

With respect to the population size, all international agencies except IBRD and UNHCR allocated less aid per capita to more populated countries. IBRD's aid allocation is insensitive to the population size of the recipient countries possibly because its main function is to finance public infrastructure rather than financing procurement of excludable goods.

5.4 Testing Donors' Joint Minimization of Global Poverty Hypothesis

The formal hypothesis test concerning Case 1 vs. Cases 2 & 3 requires a test of cross-equation (or cross-donor) restrictions because we need to compare the coefficients on the poverty gap across the bilateral donors. We apply a seemingly unrelated regression (SUR) framework to equation (10) to test cross-equation restrictions. Since the numbers of left-censored samples are negligible for bilateral donors except Finland, we report estimation results based on a linear SUR specification.[6] To check the robustness of the hypothesis test results, we implement two specifications, i.e., basic one and the one including colonial past & political alliance, and two sets of bilateral donors, i.e., major six donors and all the eleven donors.

Tables 12 to 16 show the SUR estimation results regarding various specification and two sets of bilateral donors for 1996-1999. Because most of the same qualitative results as the equation-by-equation estimation are maintained under the SUR specification, we concentrate on the results of the joint hypothesis test in this subsection. At the bottom row in each table, we show the p-value of the joint test of the equality hypothesis of the coefficients on the poverty gap across the bilateral donors.

For the period 1996-1999, Tables 12 to 16 show that the joint test of equality of the coefficients on the poverty gap across the bilateral donors is rejected regardless of the specification and the choice of donor sets. This implies that in 1996-1999, we reject Case 1 in favor of Cases 2 & 3 strongly.

In sharp contrast, the results for 2001-2004 in Tables 17 to 21 show several cases in which we cannot reject the null hypothesis of the equality of the coefficients on the poverty gap across the bilateral donors. Especially, if we restrict the sample to 6 major bilateral donors, we cannot reject the hypothesis on joint equality of the coefficients on the poverty gap across the donors

[6] We attempted to estimate a joint Tobit model with recipient-country-specific latent factors through the Markov Chain Monte Carlo (MCMC) method. However, the posterior sampling of several parameters was not stable. We therefore do not report the estimation results here, but the programs and notes are available from the corresponding author upon request.

(Tables 17 and 19). This implies that if we focus on the grant allocation of major bilateral donors, the allocation pattern is coming closer to the coordinated global poverty minimization of Case 1, which is consistent with the MDG target 1. However, the evidence becomes mixed if we expand the donors or the explanatory variables. Once all eleven donors are considered simultaneously, we reject the null hypothesis (Table 18). After adding the colonial past and political alliance variables for six major donors, the p-value for the hypothesis becomes 0.057 (Table 20). In this case, we reject the hypothesis at the 10% level but not at the 5% level. Also, we can see that the extreme version of Case 3, i.e., the case where μ_d=1, is rejected strongly. On the other hand, the significant coefficients on population variables can be interpreted as the case where $\mu_d \neq 1$.

In sum, in comparing the periods of 1996-1999 and 2001-2004, we observe an improvement in grant allocation in terms of coordinated global poverty reduction among major donors. Yet it seems that there is still large room for further progress in their coordination.

6 Concluding Remarks

In this paper, we first proposed an empirically testable model of the optimal aid allocation for the global poverty reduction in the late-1990s and the early-2000s. We then tested theoretical predictions, using detailed data on grant aid allocation of eleven major aid donor countries and six international institutions. Three findings emerged from our empirical analysis, which may provide important policy implications. First, aid allocations of Canada, France, Japan, the Netherlands, the UK, and multilateral donors except IBRD and UNHCR have been consistent with the theory of global poverty targeting, in the sense that aid was provided to a higher level of poverty gaps.

Second, almost no donor country was sensitive to political rights or governance of recipient countries when it allocated grants. Moreover, even for multilateral donors, fund allocation was not responsive to political or governance indicators. While our results are consistent with the finding by Alesina and Weder (2002), aid allocation should be targeted more to countries with better political rights and governance to reduce poverty further at the global level.

Finally, the comparison of the period of 1996-1999 and that of 2001-2004 indicates a recent improvement in grant allocation in terms of coordinated global poverty reduction among major

donors. This may reflect the favorable impact on the aid donor community in reducing global poverty since the initiation of the MDGs in 2000. Yet it seems that there is still large room for further progress in their coordination.

References

[1] Alesina, A. and Dollar, D. (2000) "Who Gives Foreign Aid to Whom and Why?" Journal of Economic Growth 5, 33-64 March.

[2] Alesina, A. and Weder, B. (2002) "Do Corrupt Governments Receive less Foreign Aid?" American Economic Review 92(4), 1126-1137.

[3] Amemiya, T. (1985), Advanced Econometrics, Harvard University Press.

[4] Azam, Jean-Paul and Laffont, Jean-Jacques (2003). "Contracting for aid," Journal of Development Economics 70(1), pp. 25-58.

[5] Baulch, Bob (2006) "Aid Distribution and the MDGs," World Development Vol. 34, No. 6, pp. 933-950.

[6] Besley, T. and Kanbur, R. (1988) "Food subsidies and poverty alleviation," Economic Journal 98, 701-719.

[7] Boone, P. (1996) "Politics and the effectiveness of foreign aid," European Economic Review 40, 289-329.

[8] Burnside, C. and Dollar, D. (2000) "Aid, Policies, and Growth," American Economic Review 90, 847-868.

[9] Burnside, C. and Dollar, D. (1998) "Aid, the Incentive Regime, and Poverty Reduction," Policy Research Working Paper 1937. World Bank, Development Research Group, Washington, D.C..

[10] Cassen, Robert and Associates (1994), Does Aid Work? - Report to an Inter-governmental Task Force, Second Edition, Oxford University Press.

[11] Central Bureau of Statistics (1995) Statistical Abstract of Israel.

[12] Central Intelligence Agency. (1998) The World Factbook. Brassey's.

[13] Chang, Charles, C. and Eduardo Fernandez-Arias, and Luis Serven (1998), "Measuring Aid Flows: A New Approach," Policy Research Working Paper No. 2050, DECRG, World Bank.

[14] Collier, P. and Dollar, D. (2002) "Aid Allocation and Poverty Reduction," European Economic Review 46, 1475-1500.

[15] Dowling, J.M. and Heimenz, U. (1985) "Biases in the allocation of foreign aid: some new evidence," World Development 13, 535-541.

[16] Dudley, L. and Montmarquette, C. (1976) "A model of the supply of bilateral foreign aid," American Economic Review 66, 132-142.

[17] Foster, J., Greer, J. and Thorbecke, E. (1984) "A class of decomposable poverty measures," Econometrica 52, 761-766.

[18] Freedom House (2000) “Annual Survey of Freedom Country Ratings 1972-73 to 1999-00," (http://www.freedomhouse.org/).

[19] Gartzke, Erik, Dong-Joon Jo, and Richard Tucker (1999), The Similarity of UN Policy Positions, 1946-96. Version 1.17 <http://www.vanderbilt.edu/r̃tucker/data/affinity/un/similar/>.

[20] Hagen, Rune Jansen (2005) “Samaritan agents? On the strategic delegation of aid policy," Journal of Development Economics 79, 249-263.

[21] Kasuga, H. (2007), "The Millennium Development Goals: Which Donors Give High-Quality Aid?" RIETI Discussion Paper Series 07-E-050.

[22] Kaufmann, Daniel, Aart Kraay, and Pablo Zoido-Lobaton (1999), “Governance Matters," Policy Research Working Paper No. 2196, World Bank.

[23] Kaufmann, Daniel, Aart Kraay, and Pablo Zoido-Lobaton (2002), “Governance Matters II," Policy Research Working Paper No. 2772, World Bank.

[24] Lahiri, Sajal and Pascalis Raimondos-Moller (2000), “Lobbying by Ethnic Groups and Aid Allocation," Economic Journal 110, 62-79.

[25] Maizels, A. and Nissanke, M. (1984) “Motivations for Aid to Developing Countries," World Development 12, 879-900.

[26] OECD (2001a) International Development Statistics (CD-ROM).

[27] OECD (2001b) Geographical Distribution of Financial Flows to Aid Recipients 1995-1999.

[28] Rajan, Raghuram G. and Arvind Subramanian (2008) "Aid and Growth: What Does the Cross-Country Evidence Really Show?" Review of Economics and Statistics, forthcoming.

[29] Roodman, David (2007) "The anarchy of numbers: Aid, development, and crosscountry Empirics," World Bank Economic Review 21(2), 255-277.

[30] Sala-i-Martin, Xavier (2006), “The World Distribution of Income: Falling Poverty and Convergence, Period," Quarterly Journal of Economics 121, 351-397.

[31] Sawada,Y. (1996) “Aid and Poverty Alleviation: An International Comparison," IDS Bulletin 27, January 100-108.

[32] Stein, H. (1998), “Japanese Aid to Africa: Patterns, Motivation and the Role of Structural Adjustment," Journal of Development Studies 35(2), 27-53.

[33] Svensson, Jakob. “When is Foreign Aid Policy Credible? Aid Dependence and Conditionality."Journal of Development Economics, 2000b. 61(1), pp. 61-84.

[34] Svensson, Jakob. “Why Conditional Aid Doesn’t Work and What Can Be Done About It?"Journal of Development Economics, 2003. 70(2), pp. 381-402.

[35] Trumbull,W. N. and Wall, H. J. (1994) “Estimating Aid-Allocation Criteria with Panel Data," Economic Journal 104, 876-882.

[36] Voeten, Erik (2006), “Documenting Votes in the UN General Assembly V2.0: 1946-2005," mimeographed, The George Washington University.

[37] Wall, H. J. (1995) “The Allocation of Official Development Assistance," Journal of Policy Modeling 17(3): 307-314.

[38] World Bank (1996), Annual Report, World Bank.

[39] World Bank (1998), Assessing Aid: What Works, What Doesn’t, and Why, World Bank.

[40] World Bank (2001) World Development Indicators 2001. (CD-ROM).

[41] World Bank (2002), Poverty Monitoring Homepage, World Bank. (http://www.worldbank.org/research/povmonitor/)

Table 1: Recipient countries in sample

East Asia	**Sub Sahara Africa**	**Central America**	**East Europe and Former Soviet Union (except Central Asia)**
China	Benin	Costa Rica	
Mongolia	Botswana	Dominican Republic	
	Burkina Faso	El Salvador	Albania
South East Asia	Burundi	Guatemala	Belarus
Cambodia	Cameroon	Haiti	Bulgaria
Indonesia	Central African Republic	Honduras	Croatia
Lao PDR	Cote d'Ivoire	Jamaica	Czech Republic
Malaysia	Ethiopia	Mexico	Estonia
Myanmar	Gambia, The	Nicaragua	Hungary
Philippines	Ghana	Panama	Latvia
Thailand	Kenya	St. Lucia	Lithuania
Vietnam	Lesotho	Trinidad and Tobago	Macedonia, FYR
	Madagascar		Moldova
South Asia	Malawi	**Latin America**	Poland
Bangladesh	Mali	Argentina	Romania
India	Namibia	Bolivia	Russian Federation
Pakistan	Niger	Brazil	Slovak Republic
Sri Lanka	Nigeria	Chile	Slovenia
	Rwanda	Ecuador	Ukraine
Central Asia	Senegal	Guyana	
Armenia	Sierra Leone	Paraguay	Egypt, Arab Rep.
Azerbaijan	South Africa	Peru	
Georgia	Swaziland	Uruguay	Israel
Kazakhstan	Tanzania	Venezuela, RB	
Kyrgyz Republic	Uganda		
Tajikistan	Zambia	**Middle East and North Africa**	
Turkmenistan	Zimbabwe	Algeria	
Uzbekistan		Iran, Islamic Rep.	
		Jordan	
		Mauritania	
		Morocco	
		Tunisia	
		Turkey	
		Yemen, Rep.	

Source: see text.

Table 2: Coverage of sample in aid amount (in 1999)

	Amount covered in the sample corresponding to the 98 recipient countries (million US$) [1]	Total amount from each donor (million US$) [2]	Coverage (%) [1]/[2]*100
Amount of grant provision			
France	2188.6	3429.9	63.8
Germany	1945.3	2380.7	81.7
Japan	3601.9	4153.8	86.7
Netherlands	1030.7	1482.3	69.5
UK	1705.2	2005.5	85.0
US.	5988.0	6755.1	88.6
Canada	608.4	693.3	87.8
Italy	337.5	495.2	68.2
Finland	134.7	175.6	76.7
Norway	443.9	692.9	64.1
Sweden	644.2	810.9	79.4
Amount of gross disbursement			
IBRD	13216.2	13622.4	97.0
IDA	5098.7	5305.7	96.1
UNDP	253.0	322.8	78.4
UNFPA	97.0	116.2	83.5
UNHCR	257.4	334.1	77.1
UNICEF	236.5	427.2	55.3

Source: see text.

Table 3: Descriptive statistics (1996-99)

Variable	Sample mean	Sample std. dev.	#. of left censored
Grant			
(per capita, average over 96 to 99, US$)			
France	2.23	4.14	0
Germany	2.30	2.97	1
Japan	2.66	4.53	0
Netherlands	0.90	1.29	3
UK	1.87	8.22	1
US	3.67	10.87	2
Canada	0.51	0.87	2
Italy	0.26	0.88	12
Finland	0.18	0.67	25
Norway	0.46	0.91	9
Sweden	0.65	1.33	5
Total Official Gross			
(per capita, average over 96 to 99, US$)			
IBRD	5.80	13.96	38
IDA	4.05	6.35	47
UNDP	0.36	0.57	2
UNFPA	0.14	0.31	6
UNHCR	0.15	0.37	15
UNICEF	0.26	0.38	13
Independent Variables			
Poverty Gap at $1 a day (%)	8.20	11.60	
Population (million, 1995)	44.83	153.22	
Political Rights Index (1995)	3.90	1.94	
Government Effectiveness(1996)	-0.34	0.59	
Colonial Past	43.07	31.80	
(number of years since 1900)			
Years of French Colony	10.56	22.48	
Years of German Colony	0.32	2.30	
Years of Japanese Colony	0.15	0.75	
Years of Dutch Colony	0.47	4.65	
Years of UK Colony	14.16	25.53	
Years of US Colony	0.42	4.14	
UN-Voting Similarity (1996)			
France	0.81	0.10	
Germany	0.86	0.10	
Japan	0.88	0.09	
Netherlands	0.84	0.11	
UK	0.48	0.22	
US	0.15	0.34	
Sample Size			98

Source: see text.

Table 4: Descriptive statistics (2001-2004)

Variable	Sample mean	Sample std. dev.	# of left censored
Grant			
(per capita, average over 2001 to 2004, US$)			
France	2.04	3.18	0
Germany	2.45	3.90	0
Japan	2.34	3.74	0
Netherlands	1.11	1.88	0
UK	1.21	2.64	1
US	5.59	11.21	1
Canada	0.53	0.89	0
Italy	0.32	0.87	3
Finland	0.16	0.48	10
Norway	0.38	0.65	4
Sweden	0.67	1.88	3
Total Official Gross			
(per capita, average over 2001 to 2004, US$)			
IBRD	3.28	5.57	43
IDA	3.80	5.37	46
UNDP	0.19	0.24	1
UNFPA	0.12	0.14	7
UNHCR	0.23	0.45	19
UNICEF	0.17	0.19	12
Independent Variables			
Poverty Gap at $1 a day (%)	7.19	10.29	
Population (million, 2000)	48.21	163.89	
Political Rights Index (2000)			
Government Effectiveness(2000)	-0.27	0.64	
Colonial Past	43.07	31.80	
(number of years since 1900)			
Years of French Colony	10.56	22.48	
Years of German Colony	0.32	2.30	
Years of Japanese Colony	0.15	0.75	
Years of Dutch Colony	0.47	4.65	
Years of UK Colony	14.16	25.53	
Years of US Colony	0.42	4.14	
UN-Voting Similarity (2000)			
France	0.77	0.12	
Germany	0.77	0.13	
Japan	0.95	0.10	
Netherlands	0.77	0.13	
UK	0.67	0.15	
US	0.13	0.28	
Sample Size			98

Source: see text.

Table 5: Poverty gap measure (1995, 2000)

East Asia	1995	2000
China	6.60	3.12
Mongolia	0.08	0.08
South East Asia		
Cambodia	37.77	27.24
Indonesia	2.28	1.04
Lao PDR	6.31	6.26
Malaysia	0.10	0.01
Myanmar	13.97	13.97
Philippines	3.76	2.38
Thailand	0.15	0.06
Vietnam	0.48	0.10
South Asia		
Bangladesh	7.38	10.42
India	13.89	8.42
Pakistan	2.32	3.00
Sri Lanka	1.00	1.51
Central Asia		
Armenia	1.48	1.14
Azerbaijan	3.23	0.62
Georgia	0.00	0.88
Kazakhstan	0.32	0.02
Kyrgyz Republic	0.29	0.23
Tajikistan	3.44	1.21
Turkmenistan	5.30	2.59
Uzbekistan	0.46	0.00

Sub Sahara Africa	1995	2000
Benin	8.42	8.42
Botswana	10.14	10.14
Burkina Faso	19.50	7.62
Burundi	22.68	22.68
Cameroon	10.56	5.17
Central African Republic	40.04	40.04
Cote d'Ivoire	2.41	4.14
Ethiopia	7.95	4.47
Gambia, The	9.47	9.47
Ghana	12.89	12.89
Kenya	9.03	2.40
Lesotho	18.97	18.97
Madagascar	18.88	27.91
Malawi	4.71	4.71
Mali	37.39	11.86
Namibia	8.96	5.55
Niger	21.31	21.31
Nigeria	40.46	34.59
Rwanda	7.41	25.57
Senegal	6.25	3.57
Sierra Leone	40.62	40.62
South Africa	0.56	2.26
Swaziland	37.73	19.30
Tanzania	22.70	20.64
Uganda	47.30	43.30
Zambia	37.39	29.69
Zimbabwe	24.17	24.17

Central America	1995	2000
Costa Rica	1.09	0.66
Dominican Republic	0.38	0.19
El Salvador	8.17	8.54
Guatemala	4.03	2.71
Haiti	26.87	26.87
Honduras	9.52	3.83
Jamaica	0.61	0.00
Mexico	2.39	1.58
Nicaragua	20.36	18.11
Panama	2.57	2.28
St. Lucia	8.45	8.45
Trinidad and Tobago	1.28	1.28
Latin America		
Argentina	0.20	0.55
Bolivia	9.66	13.14
Brazil	3.88	2.09
Chile	0.00	0.08
Ecuador	6.56	6.32
Guyana	0.43	0.43
Paraguay	8.27	7.37
Peru	3.02	9.14
Uruguay	0.20	0.05
Venezuela, RB	2.86	8.36
Middle East and North Africa		
Algeria	0.22	0.22
Iran, Islamic Rep.	0.10	0.04
Jordan	0.10	0.02
Mauritania	9.09	7.57
Morocco	16.38	11.62
Tunisia	0.19	0.07
Turkey	0.55	0.20
Yemen, Rep.	2.10	2.10

East Europe and Former Soviet Union (except Central Asia)	1995	2000
Albania	0.01	0.04
Belarus	0.52	0.00
Bulgaria	1.37	0.59
Croatia	0.00	0.00
Czech Republic	0.00	0.00
Estonia	0.09	0.00
Hungary	0.00	0.00
Latvia	0.00	0.00
Lithuania	0.00	0.18
Macedonia, FYR	0.00	0.69
Moldova	1.59	3.62
Poland	0.00	0.06
Romania	0.76	0.59
Russian Federation	1.71	1.20
Slovak Republic	0.06	0.06
Slovenia	0.00	0.00
Ukraine	0.64	0.17
Egypt, Arab Rep.	0.45	0.44
Israel	0.00	0.00

Source: *PovcalNet*, World Bank

Table 6: Basic Results, ODA Grant Allocation of 11 Bilateral Donors (Tobit, 1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.066	0.012	0.111	0.058	0.063	0.006	0.035	-0.003	-0.008	0.027	0.014
	(2.31)**	(0.58)	(4.81)***	(3.24)***	(2.63)***	(0.18)	(2.56)**	(0.28)	(0.58)	(1.81)*	(0.74)
Political Rights	-0.002	-0.035	-0.025	-0.03	-0.032	-0.054	-0.035	-0.004	-0.01	-0.013	-0.02
	(0.04)	(1.11)	(0.68)	(1.07)	(0.85)	(1.12)	(1.6)	(0.22)	(0.46)	(0.54)	(0.68)
Government Effectiveness	0.056	0.018	0.306	-0.044	0.082	-0.196	-0.006	-0.068	-0.049	-0.046	0.004
	(0.37)	(0.17)	(2.49)**	(0.46)	(0.63)	(1.20)	(0.08)	(1.00)	(0.67)	(0.57)	(0.04)
Population	-0.156	-0.183	-0.235	-0.108	-0.207	-0.21	-0.069	-0.023	-0.01	-0.079	-0.094
	(2.98)***	(5.04)***	(5.56)***	(3.35)***	(4.70)***	(3.77)***	(2.74)***	(1.01)	(0.39)	(2.90)***	(2.78)***
Constant	2.217	2.823	3.315	1.584	2.587	3.081	1.082	0.347	0.155	1.02	1.28
	(4.61)***	(8.48)***	(8.54)***	(5.35)***	(6.40)***	(6.01)***	(4.68)***	(1.63)	(0.65)	(4.07)***	(4.10)***
# of Obs	98	98	98	98	98	98	98	98	98	98	98

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7: Basic Results, ODA Grant Allocation of Bilateral Donors (Tobit, 2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.075	0.034	0.096	0.058	0.079	0.007	0.024	0.014	0.008	0.016	0.02
	(2.85)***	(1.53)	(4.38)***	(3.13)***	(3.66)***	(0.22)	(1.94)*	(1.14)	(0.83)	(1.32)	(1.11)
Political Rights	0.024	-0.003	0.009	-0.036	0.02	-0.044	-0.018	0.009	-0.001	0.004	-0.01
	(0.58)	(0.08)	(0.27)	(1.2)	(0.58)	(0.81)	(0.92)	(0.45)	(0.10)	(0.18)	(0.37)
Government Effectiveness	0.209	0.1	0.169	-0.127	0.011	-0.428	-0.045	-0.05	0.052	-0.083	-0.032
	(1.45)	(0.82)	(1.40)	(1.25)	(0.10)	(2.32)**	(0.67)	(0.73)	(1.00)	(1.22)	(0.33)
Population	-0.143	-0.183	-0.223	-0.116	-0.131	-0.233	-0.095	-0.037	-0.032	-0.058	-0.084
	(2.96)***	(4.46)***	(5.52)***	(3.42)***	(3.31)***	(3.76)***	(4.22)***	(1.62)	(1.85)*	(2.54)**	(2.56)**
Constant	2.063	2.712	3.001	1.737	1.67	3.515	1.28	0.494	0.414	0.754	1.177
	(4.55)***	(7.04)***	(7.90)***	(5.45)***	(4.49)***	(6.05)***	(6.08)***	(2.28)**	(2.52)**	(3.51)***	(3.81)***
# of Obs	98	98	98	98	98	98	98	98	98	98	98

Absolute value of t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8: ODA Grant Allocation of Bilateral Donors, Colonial Past and Political Alliance (1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)
	France	Germany	Japan	Netherlands	UK	US
Poverty Gap	0.051	0.004	0.099	0.037	-0.016	0.009
	(2.09)**	(0.18)	(4.26)***	(1.96)*	(0.7)	(0.25)
Political Rights	-0.013	-0.023	-0.013	-0.03	-0.05	-0.046
	(0.41)	(0.71)	(0.34)	(1.07)	(1.64)	(0.89)
Government Effectiveness	0.069	-0.025	0.19	-0.16	-0.225	-0.192
	(0.58)	(0.21)	(1.44)	(1.59)	(2.07)**	(1.13)
Population	-0.126	-0.214	-0.295	-0.143	-0.16	-0.222
	(3.02)***	(5.37)***	(6.32)***	(4.06)***	(4.24)***	(3.48)***
UN Voting similarity	1.604	-0.413	-0.598	-1.296	-0.487	0.092
	(2.37)**	(0.72)	(0.83)	(2.67)***	(1.79)*	(0.33)
Years of this donor's colony	0.022	0.006	0.156	-0.001	0.017	0
	(7.92)***	(0.27)	(1.88)*	(0.11)	(7.43)***	(0.01)
Years of other donor's colony	-0.003	-0.003	-0.005	-0.002	0.001	-0.002
	(1.89)*	(1.67)*	(2.19)**	(0.96)	(0.71)	(0.72)
Constant	0.572	3.54	4.486	3.028	2.075	3.227
	(0.73)	(5.07)***	(5.17)***	(5.13)***	(5.11)***	(5.31)***
Observations	98	98	98	98	98	98

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9: ODA Grant Allocation of Bilateral Donors, Colonial Past and Political Alliance (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)
	France	Germany	Japan	Netherlands	UK	US
Poverty Gap	0.04	0.04	0.068	0.058	0.047	0.002
	(2.03)**	(1.66)	(2.93)***	(2.93)***	(2.30)**	(0.05)
Political Rights	-0.015	0.015	-0.021	-0.039	-0.018	-0.045
	(0.46)	(0.38)	(0.56)	(1.17)	(0.55)	(0.78)
Government Effectiveness	0.121	0.124	0.096	-0.124	-0.099	-0.467
	(1.14)	(0.96)	(0.82)	(1.16)	(0.93)	(2.46)**
Population	-0.141	-0.19	-0.262	-0.112	-0.067	-0.255
	(3.87)***	(4.31)***	(6.21)***	(2.97)***	(1.79)*	(3.73)***
UN Voting similarity	0.409	0.415	1.692	-0.015	-0.172	-0.252
	(0.85)	(0.74)	(2.51)**	(0.03)	(0.43)	(0.72)
Years of this donor's colony	0.021	-0.012	0.184	0.003	0.014	-0.002
	(7.94)***	(0.44)	(2.38)**	(0.25)	(5.76)***	(0.08)
Years of other donor's colony	-0.003	-0.002	-0.002	0.001	0.004	-0.002
	(1.70)*	(0.84)	(0.84)	(0.44)	(1.92)*	(0.5)
Constant	1.727	2.481	1.895	1.686	0.987	3.816
	(3.09)***	(3.69)***	(2.69)***	(3.07)***	(1.95)*	(5.57)***
Observations	98	98	98	98	98	98

Table 10: Basic Results, Total Official Gross of Multilateral Donors (1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)
	IBRD	IDA	UNDP	UNFPA	UNHCR	UNICEF
Poverty Gap	-0.209	0.243	0.034	0.023	0.013	0.034
	(3.39)***	(3.18)***	(3.79)***	(3.85)***	-1.52	(4.52)***
Political Rights	-0.139	0.089	0.017	-0.004	-0.004	0.01
	(1.40)	(0.83)	(1.23)	(0.41)	(0.27)	(0.86)
Government Effectiveness	0.274	-0.654	-0.029	0.001	0.039	-0.015
	(0.83)	(1.70)*	(0.6)	(0.05)	(0.86)	(0.39)
Population	0.146	-0.335	-0.104	-0.043	-0.027	-0.078
	(1.31)	(2.72)***	(6.41)***	(3.99)***	(1.75)*	(5.90)***
Constant	-0.029	2.775	1.137	0.516	0.371	0.862
	(0.03)	(2.47)**	(7.62)***	(5.20)***	(2.55)**	(7.06)***
# of Obs	98	98	98	98	98	98

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 11: Basic Results, Total Official Gross of Multilateral Donors (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)
	IBRD	IDA	UNDP	UNFPA	UNHCR	UNICEF
Poverty Gap	-0.17	0.347	0.021	0.026	0.006	0.028
	(2.90)***	(4.56)***	(4.54)***	(8.00)***	-0.56	(6.57)***
Political Rights	-0.165	0.171	0.018	0.01	0.024	0.02
	(1.74)*	(1.73)*	(2.44)**	(2.03)**	-1.35	(3.00)***
Government Effectiveness	0.297	-0.434	-0.035	0.02	-0.037	-0.016
	(0.92)	(1.24)	(1.39)	(1.16)	(0.61)	(0.72)
Population	0.131	-0.233	-0.064	-0.034	-0.038	-0.05
	(1.24)	(2.13)**	(7.63)***	(5.92)***	(1.86)*	(6.63)***
Constant	-0.221	1.691	0.679	0.389	0.388	0.527
	(0.22)	(1.59)	(8.66)***	(7.27)***	(1.98)*	(7.42)***
# of Obs	98	98	98	98	98	98

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12: SUR estimation, Basic specification, six major bilateral donors (1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)
	France	Germany	Japan	Netherlands	UK	US
Poverty Gap	0.066	0.012	0.111	0.053	0.062	0.003
	(2.25)**	(0.61)	(4.69)***	(3.03)***	(2.54)**	(0.10)
Political Rights	-0.001	-0.035	-0.025	-0.029	-0.032	-0.048
	(0.04)	(1.11)	(0.66)	(1.06)	(0.83)	(0.99)
Government Effectiveness	0.559	0.021	0.306	-0.066	0.098	-0.179
	(0.36)	(0.20)	(2.42)**	(0.70)	(0.75)	(1.10)**
Population	-0.156	-0.185	-0.235	-0.110	-0.207	-0.206
	(2.90)***	(5.03)***	(5.42)***	(3.41)***	(4.63)***	(3.66)***
Constant	2.217	2.849	3.314	1.602	2.600	3,035
	(4.49)***	(8.44)***	(8.32)***	(5.40)***	(6.32)***	(5.87)***
# of Obs	98	98	98	98	98	98
R-squared	0.12	0.25	0.35	0.21	0.24	0.16
P-value for the same coefficient across donor			[0.003]			

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Six equations in this table are jointly estimated by SUR. Each number on the column corresponds to the equation-by-equation estimation result reported in Table 6 with the same column number.

Table 13: SUR estimation, Basic specification, 11 bilateral donors (1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.066	0.012	0.111	0.054	0.062	0.003	0.033	-0.001	0	0.025	0.015
	(2.25)**	(0.61)	(4.69)***	(3.03)***	(2.54)**	(0.1)	(2.39)**	(0.12)	(0.03)	(1.78)*	(0.85)
Political Rights	-0.002	-0.035	-0.025	-0.03	-0.032	-0.048	-0.035	0.001	-0.013	-0.014	-0.02
	(0.04)	(1.11)	(0.66)	(1.06)	(0.83)	(0.99)	(1.6)	(0.06)	(0.77)	(0.62)	(0.68)
Government Effectiveness	0.056	0.021	0.306	-0.066	0.098	-0.18	0.005	-0.054	-0.013	-0.033	0
	(0.36)	(0.2)	(2.42)**	(0.7)	(0.75)	(1.1)	(0.07)	(0.88)	(0.22)	(0.44)	(0)
Population	-0.156	-0.185	-0.235	-0.11	-0.207	-0.206	-0.07	-0.037	-0.039	-0.086	-0.103
	(2.90)***	(5.03)***	(5.42)***	(3.41)***	(4.63)***	(3.66)***	(2.77)***	(1.77)*	(1.97)**	(3.36)***	(3.13)***
Constant	2.217	2.85	3.315	1.602	2.601	3.036	1.105	0.483	0.516	1.116	1.376
	(4.49)***	(8.44)***	(8.32)***	(5.40)***	(6.32)***	(5.87)***	(4.73)***	(2.51)**	(2.82)***	(4.74)***	(4.53)***
# of Obs	98	98	98	98	98	98	98	98	98	98	98
R-squared	0.13	0.25	0.36	0.21	0.24	0.16	0.15	0.04	0.06	0.15	0.12
P-value for the same coefficient across donor						[0.000]					

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Eleven equations in this table are jointly estimated by SUR. Each column number corresponds to the equation-by-equation estimation result reported in Table 6 with the same column number.

Table 14: SUR estimation, Colonial past and political alliances, six bilateral donors (1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)
	France	Germany	Japan	Netherlands	UK	US
Poverty Gap	0.066	0.014	0.101	0.043	-0.012	0.018
	(2.61)***	(0.67)	(4.17)***	(2.28)**	(0.53)	(0.53)
Political Rights	-0.01	-0.019	-0.012	-0.027	-0.053	-0.043
	(0.3)	(0.59)	(0.3)	(0.93)	(1.69)*	(0.82)
Government Effectiveness	0.126	0.037	0.203	-0.125	-0.207	-0.138
	(1.01)	(0.31)	(1.48)	(1.24)	(1.87)*	(0.79)
Population	-0.112	-0.202	-0.292	-0.131	-0.152	-0.205
	(2.58)**	(4.94)***	(6.03)***	(3.69)***	(3.90)***	(3.15)***
UN Voting similarity	2.207	0.348	-0.288	-0.652	-0.297	0.328
	(3.20)***	(0.65)	(0.39)	(1.45)	(1.13)	(1.24)
Years of this donor's colony	0.021	-0.001	0.172	-0.003	0.018	0.003
	(7.44)***	(0.07)	(2.10)**	(0.34)	(7.68)***	(0.16)
Years of other donor's colony	-0.003	-0.003	-0.005	-0.001	0.001	-0.002
	(1.68)*	(1.5)	(2.12)**	(0.78)	(0.58)	(0.8)
Constant	-0.04	2.773	4.186	2.368	1.924	3.062
	(0.05)	(4.12)***	(4.73)***	(4.20)***	(4.66)***	(4.93)***
Observations	98	98	98	98	98	98
R-squared	0.59	0.26	0.4	0.26	0.56	0.16
P-value for the same coefficient across donor			[0.003]			

Absolute value of t statistics in brackets;
* significant at 10%; ** significant at 5%; *** significant at 1%
Six equations in this table are jointly estimated by SUR. Each column number corresponds to the equation-by-equation estimation result reported in Table 8 with the same column number.

Table 15: SUR estimation: Colonial past and political alliances for six bilateral donors plus basic specification for other five bilateral donors (1996-1999)

	(1) France	(2) Germany	(3) Japan	(4) Netherlands	(5) UK	(6) US	(7) Canada	(8) Italy	(9) Finland	(10) Norway	(11) Sweden
Poverty Gap	0.077	0.014	0.102	0.043	-0.004	0.024	0.033	-0.001	0	0.025	0.015
	(3.18)***	(0.65)	(4.24)***	(2.38)**	(0.17)	(0.71)	(2.39)**	(0.12)	(0.03)	(1.78)*	(0.85)
Political Rights	-0.015	-0.018	-0.015	-0.028	-0.054	-0.047	-0.035	0.001	-0.013	-0.014	-0.02
	(0.44)	(0.54)	(0.4)	(0.99)	(1.74)*	(0.91)	(1.6)	(0.06)	(0.77)	(0.62)	(0.68)
Government Effectiveness	0.163	0.022	0.216	-0.122	-0.178	-0.118	0.005	-0.054	-0.013	-0.033	0
	(1.36)	(0.19)	(1.58)	(1.24)	(1.64)	(0.68)	(0.07)	(0.88)	(0.22)	(0.44)	(0)
Population	-0.094	-0.207	-0.283	-0.129	-0.149	-0.194	-0.07	-0.037	-0.039	-0.086	-0.103
	(2.25)**	(5.29)***	(5.89)***	(3.77)***	(3.94)***	(3.02)***	(2.77)***	(1.77)*	(1.97)**	(3.36)***	(3.13)***
UN Voting similarity	2.421	0.274	-0.162	-0.612	-0.142	0.432					
	(4.10)***	(0.66)	(0.23)	(1.64)	(0.6)	(1.69)*					
Years of this donor's colony	0.02	-0.013	0.172	-0.002	0.017	0.004					
	(8.30)***	(0.88)	(2.15)**	(0.23)	(8.27)***	(0.22)					
Years of other donor's colony	-0.001	-0.003	-0.004	-0.001	0.001	-0.002					
	(0.81)	(2.41)**	(1.79)*	(0.84)	(0.56)	(0.67)					
Constant	-0.402	2.889	3.97	2.311	1.858	2.948	1.105	0.483	0.516	1.116	1.376
	(0.57)	(5.18)***	(4.59)***	(4.69)***	(4.71)***	(4.83)***	(4.73)***	(2.51)**	(2.82)***	(4.74)***	(4.53)***
	98	98	98	98	98	98	98	98	98	98	98
	0.57	0.26	0.4	0.26	0.56	0.15	0.15	0.04	0.06	0.15	0.12
P-value for the same coefficient across donor					[0.000]						

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Eleven equations in this table are jointly estimated by SUR. Each column number from (1) to (6) corresponds to the equation-by-equation estimation result reported in Table 8 with the same column number while each column number from (7) to (11) corresponds to the equation-by-equation estimation result reported in Table 6 with the same column number.

Table 16: SUR estimation: Colonial past and political alliances for six bilateral donors plus political alliances for other five bilateral donors (1996-1999)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.078	0.016	0.103	0.045	-0.003	0.022	0.031	0.001	0.003	0.025	0.019
	(3.12)***	(0.77)	(4.25)***	(2.42)**	(0.15)	(0.64)	(2.12)**	(0.11)	(0.24)	(1.67)*	(1.02)
Political Rights	-0.015	-0.016	-0.015	-0.027	-0.054	-0.047	-0.036	0.002	-0.012	-0.014	-0.017
	(0.44)	(0.49)	(0.39)	(0.96)	(1.75)*	(0.91)	(1.65)*	(0.13)	(0.67)	(0.62)	(0.58)
Government Effectiveness	0.167	0.04	0.218	-0.113	-0.177	-0.125	-0.008	-0.036	0.006	-0.034	0.033
	(1.36)	(0.35)	(1.6)	(1.13)	(1.63)	(0.72)	(0.1)	(0.54)	(0.1)	(0.43)	(0.32)
Population	-0.093	-0.203	-0.283	-0.127	-0.149	-0.195	-0.073	-0.033	-0.035	-0.086	-0.097
	(2.20)**	(5.15)***	(5.87)***	(3.71)***	(3.94)***	(3.03)***	(2.81)***	-1.54	(1.72)*	(3.27)***	(2.84)***
UN Voting similarity	2.473	0.503	-0.126	-0.504	-0.141	0.385	-0.146	0.212	0.241	-0.02	0.474
	(3.77)***	(0.99)	(0.17)	(1.16)	(0.6)	(1.48)	(0.44)	(0.65)	(0.81)	(0.05)	(1)
Years of this donor's colony	0.02	-0.013	0.171	-0.002	0.017	0.003					
	(8.31)***	(0.87)	(2.14)**	(0.21)	(8.44)***	(0.19)					
Years of other donor's colony	-0.001	-0.003	-0.004	-0.001	0.001	-0.002					
	(0.82)	(2.41)**	(1.79)*	(0.87)	(0.61)	(0.59)					
Constant	-0.454	2.658	3.934	2.207	1.854	2.959	1.251	0.269	0.272	1.136	0.89
	(0.6)	(4.19)***	(4.48)***	(4.09)***	(4.73)***	(4.82)***	(3.10)***	(0.7)	(0.77)	(2.58)**	(1.55)
Observations	98	98	98	98	98	98	98	98	98	98	98
R-squared	0.57	0.25	0.4	0.25	0.56	0.15	0.16	0.03	0.06	0.15	0.11
P-value for the same coefficient across donor					[0.000]						

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Eleven equations in this table are jointly estimated by SUR. Each column number from (1) to (6) corresponds to the equation-by-equation estimation result reported in Table 8 with the same column number. The equation-by-equation estimation results for columns (7) to (11) in this table are available on request.

Table 17: SUR estimation, Basic specification, six major bilateral donors (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)
	France	Germany	Japan	Netherlands	UK	US
Poverty Gap	0.075	0.034	0.096	0.058	0.077	0.006
	(2.78)***	(1.49)	(4.26)***	(3.05)***	(3.50)***	(0.17)
Political Rights	0.024	-0.003	0.009	-0.036	0.02	-0.039
	(0.56)	(0.08)	(0.26)	(1.17)	(0.55)	(0.71)
Government Effectiveness	0.209	0.1	0.169	-0.127	0.022	-0.424
	(1.42)	(0.80)	(1.36)	(1.22)	(0.18)	(2.26)**
Population	-0.143	-0.183	-0.223	-0.116	-0.132	-0.229
	(2.88)***	(4.34)***	(5.37)***	(3.33)***	(3.26)***	(3.64)***
Constant	2.063	2.712	3.001	1.737	1.684	3.47
	(4.44)***	(6.86)***	(7.70)***	(5.31)***	(4.44)***	(5.87)***
# of Obs	98	98	98	98	98	98
R-squared	0.14	0.19	0.33	0.24	0.21	0.19
P-value for the same coefficient across donor			[0.171]			

Absolute value of t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Six equations in this table are jointly estimated by SUR. Each column number corresponds to the equation-by-equation estimation result reported in Table 7 with the same column number.

Table 18: SUR estimation, Basic specification, 11 bilateral donors (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.075	0.034	0.096	0.058	0.077	0.006	0.024	0.016	0.006	0.017	0.022
	(2.78)***	(1.49)	(4.26)***	(3.05)***	(3.50)***	(0.17)	(1.89)*	(1.26)	(0.70)	(1.38)	(1.25)
Political Rights	0.024	-0.003	0.009	-0.036	0.02	-0.039	-0.018	0.008	-0.007	0.002	-0.012
	(0.56)	(0.08)	(0.26)	(1.17)	(0.55)	(0.71)	(0.89)	(0.40)	(0.50)	(0.09)	(0.44)
Government Effectiveness	0.209	0.1	0.169	-0.127	0.022	-0.424	-0.045	-0.042	0.039	-0.07	-0.023
	(1.42)	(0.80)	(1.36)	(1.22)	(0.18)	(2.26)**	(0.65)	(0.62)	(0.79)	(1.04)	(0.23)
Population	-0.143	-0.183	-0.223	-0.116	-0.132	-0.229	-0.095	-0.045	-0.038	-0.064	-0.092
	(2.88)***	(4.34)***	(5.37)***	(3.33)***	(3.26)***	(3.64)***	(4.11)***	(1.97)**	(2.33)**	(2.84)***	(2.81)***
Constant	2.063	2.712	3.001	1.737	1.684	3.47	1.28	0.577	0.502	0.827	1.264
	(4.44)***	(6.86)***	(7.70)***	(5.31)***	(4.44)***	(5.87)***	(5.92)***	(2.71)***	(3.28)***	(3.92)***	(4.14)***
# of Obs	98	98	98	98	98	98	98	98	98	98	98
R-squared	0.14	0.19	0.33	0.24	0.21	0.19	0.2	0.08	0.08	0.13	0.1
P-value for the same coefficient across donor					[0.000]						

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Eleven equations in this table are jointly estimated by SUR. Each column number corresponds to the equation-by-equation estimation result reported in Table 7 with the same column number.

Table 19: SUR estimation, Colonial past and political alliances, six bilateral donors (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)
	France	Germany	Japan	Netherlands	UK	US
Poverty Gap	0.043	0.049	0.063	0.062	0.044	0.001
	(2.08)**	(1.97)**	(2.63)***	(3.00)***	(2.16)**	(0.02)
Political Rights	-0.012	0.025	-0.027	-0.032	-0.015	-0.034
	(0.35)	(0.61)	(0.70)	(0.95)	(0.44)	(0.59)
Government Effectiveness	0.129	0.151	0.083	-0.107	-0.095	-0.456
	(1.16)	(1.14)	(0.69)	(0.97)	(0.86)	(2.33)**
Population	-0.14	-0.185	-0.268	-0.112	-0.062	-0.253
	(3.69)***	(4.02)***	(6.09)***	(2.90)***	(1.63)	(3.61)***
UN Voting similarity	0.419	0.785	1.979	0.194	-0.005	-0.165
	(0.84)	(1.52)	(2.93)***	(0.44)	(0.01)	(0.49)
Years of this donor's colony	0.019	-0.036	0.218	0.005	0.015	0.007
	(7.39)***	(1.82)*	(2.93)***	(0.67)	(6.45)***	(0.34)
Years of other donor's colony	-0.003	-0.002	-0.002	0.001	0.003	-0.002
	(1.52)	(0.82)	(0.84)	(0.33)	(1.71)*	(0.54)
Constant	1.711	2.122	1.688	1.515	0.826	3.76
	(2.95)***	(3.24)***	(2.35)**	(2.76)***	(1.63)	(5.36)***
Observations	98	98	98	98	98	98
R-squared	0.58	0.19	0.4	0.24	0.42	0.19
P-value for the same coefficient across donor			[0.4]			

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Eleven equations in this table are jointly estimated by SUR. Each column number corresponds to the equation-by-equation estimation result reported in Table 9 with the same column number.

Table 20: SUR estimation: Colonial past and political alliances for six bilateral donors plus basic specification for other five bilateral donors (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.051	0.044	0.062	0.057	0.049	-0.003	0.024	0.016	0.006	0.017	0.022
	(2.51)**	(1.81)*	(2.61)***	(2.89)***	(2.41)**	(0.08)	(1.89)*	(1.26)	(0.70)	(1.38)	(1.25)
Political Rights	-0.004	0.019	-0.032	-0.036	-0.012	-0.03	-0.018	0.008	-0.007	0.002	-0.012
	(0.11)	(0.47)	(0.84)	(1.11)	(0.38)	(0.52)	(0.89)	(0.40)	(0.50)	(0.09)	(0.44)
Government Effectiveness	0.161	0.127	0.085	-0.126	-0.08	-0.478	-0.045	-0.042	0.039	-0.07	-0.023
	(1.47)	(0.97)	(0.70)	(1.17)	(0.74)	(2.45)**	(0.65)	(0.62)	(0.79)	(1.04)	(0.23)
Population	-0.133	-0.19	-0.263	-0.118	-0.07	-0.271	-0.095	-0.045	-0.038	-0.064	-0.092
	(3.54)***	(4.25)***	(6.08)***	(3.19)***	(1.88)*	(3.92)***	(4.11)***	(1.97)**	(2.33)**	(2.84)***	(2.81)***
UN Voting similarity	0.672	0.48	2.119	-0.037	-0.045	-0.28					
	(1.49)	(1.14)	(3.46)***	(0.12)	(0.14)	(0.90)					
Years of this donor's colony	0.018	-0.039	0.206	0.005	0.013	0.005					
	(7.48)***	(2.20)**	(3.00)***	(0.76)	(6.76)***	(0.27)					
Years of other donor's colony	-0.002	-0.002	-0.001	0	0.003	-0.003					
	(1.16)	(1.15)	(0.64)	(0.19)	(2.05)**	(1.19)					
Constant	1.415	2.43	1.507	1.775	0.948	3.994	1.28	0.577	0.502	0.827	1.264
	(2.60)***	(4.20)***	(2.25)**	(3.94)***	(2.07)**	(5.84)***	(5.92)***	(2.71)***	(3.28)***	(3.92)***	(4.14)***
Observations	98	98	98	98	98	98	98	98	98	98	98
R-squared	0.56	0.19	0.39	0.24	0.42	0.19	0.20	0.08	0.08	0.13	0.10
P-value for the same coefficient across donor					[0.057]						

Six equations in this table are jointly estimated by SUR. Each column number from (1) to (6) corresponds to the equation-by-equation estimation result reported in Table 9 with the same column number while each column number from (7) to (11) corresponds to the equation-by-equation estimation result reported in Table 7 with the same column number.

Table 21: SUR estimation: Colonial past and political alliances for six bilateral donors plus political alliances for other five bilateral donors (2001-2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	France	Germany	Japan	Netherlands	UK	US	Canada	Italy	Finland	Norway	Sweden
Poverty Gap	0.047	0.048	0.06	0.061	0.048	-0.001	0.015	0.021	0.009	0.025	0.031
	(2.27)**	(1.95)*	(2.52)**	(2.98)***	(2.37)**	(0.03)	(1.13)	(1.55)	(0.99)	(1.96)*	(1.69)*
Political Rights	-0.011	0.025	-0.034	-0.031	-0.013	-0.027	-0.031	0.015	-0.002	0.014	0.003
	(0.31)	(0.62)	(0.88)	(0.93)	(0.39)	(0.47)	(1.49)	(0.73)	(0.16)	(0.69)	(0.08)
Government Effectiveness	0.139	0.147	0.082	-0.11	-0.081	-0.463	-0.084	-0.019	0.053	-0.031	0.023
	(1.26)	(1.11)	(0.68)	(1.00)	(0.74)	(2.37)**	(1.19)	(0.27)	(1.04)	(0.45)	(0.23)
Population	-0.136	-0.186	-0.264	-0.116	-0.07	-0.266	-0.102	-0.041	-0.036	-0.057	-0.083
	(3.63)***	(4.16)***	(6.11)***	(3.10)***	(1.88)*	(3.84)***	(4.43)***	(1.76)*	(2.15)**	(2.52)**	(2.53)**
UN Voting similarity	0.353	0.738	2.218	0.18	-0.064	-0.167	-0.586	0.333	0.211	0.515	0.76
	(0.71)	(1.46)	(3.45)***	(0.42)	(0.17)	(0.51)	(1.86)*	(1.05)	(0.92)	(1.88)*	(1.51)
Years of this donor's colony	0.018	-0.039	0.209	0.005	0.013	0.006					
	(7.52)***	(2.18)**	(3.03)***	(0.76)	(6.76)***	(0.34)					
Years of other donor's colony	-0.002	-0.002	-0.001	0	0.003	-0.003					
	(1.14)	(1.15)	(0.67)	(0.18)	(2.07)**	(1.17)					
Constant	1.712	2.183	1.431	1.568	0.963	3.924	1.847	0.252	0.297	0.331	0.527
	(2.97)***	(3.42)***	(2.08)**	(2.94)***	(1.96)*	(5.71)***	(4.98)***	(0.67)	(1.10)	(0.98)	(0.92)
Observations	98	98	98	98	98	98	98	98	98	98	98
R-squared	0.57	0.19	0.39	0.24	0.42	0.19	0.24	0.08	0.09	0.15	0.12
P-value for the same coefficient across donor					[0.043]						

Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Eleven equations in this table are jointly estimated by SUR. Each column number from (1) to (6) corresponds to the equation-by-equation estimation result reported in Table 9 with the same column number. The equation-by-equation estimation results for columns (7) to (11) in this table are available on request.