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Effective Development Aid: Selectivity, Proliferation and Fragmentation, and the Growth Impact of Development Assistance

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Abstract

This paper examines several indicators of effective development aid, focusing on the contributions of major bilateral donors. The empirical analyses of selectivity for effective aid delivery revealed that, taking a long-term and regional perspective, some major donors including Japan have been as selective in delivering their aid as some countries well-known for their selective aid delivery, such as Denmark. Japan has provided higher aid for the countries with better policy and governance, and higher grant aid for the countries with lower income, particularly in Sub-Saharan Africa. Indexes for donor proliferation and aid fragmentation, which measure increased transaction costs of recipient countries, were calculated using methods set out in existing studies on the topic, but over the longer term and by region. It is demonstrated that aid from some major donors in Asia, the Pacific, and Europe, including Japan, has proliferated less than the aid programs of most other countries.

Official Development Assistance (ODA) provided by Japan since 1990 has been more closely correlated with the growth of GDP per capita of recipient countries than that of other donors. The growth acceleration effects of short-impact aid (SIA) such as aid for infrastructure have been stronger than those of other categories of aid such as aid for education, aid for health, or humanitarian emergency aid. While other major donors reduced the share of SIA in their total ODA in the 1990s and the early 2000s, Japan maintained its share of such aid to sustain the growth of recipient countries. The aid-growth nexus also demonstrates the larger contribution of Japan than those of other major donors to the growth of recipients. Overall, aid from some donor countries, including Japan, that ranked lower in short-term assessments has turned out to be of good quality in the longer run or from regional perspectives, a finding confirmed by recent literature on the quality of aid.

JEL Classification: F35, O10, O40, O43

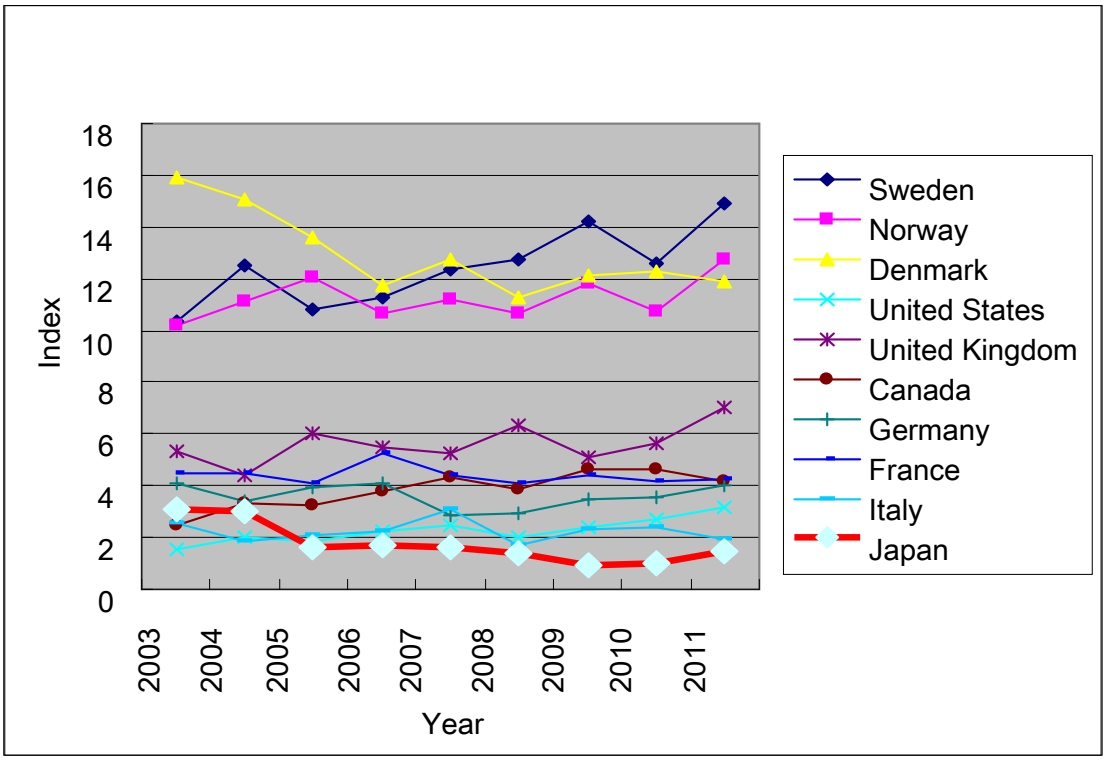
Contents

1. INTRODUCTION

Since 2003, the Center for Global Development (CGD), a Washington-based think tank, has been ranking the world's richest countries using its Commitment to Development Index (CDI). This measures countries' dedication to policies that benefit people in poor countries, in the areas of aid, trade, investment, migration, the environment, security, and technology.

In this context, CGD produces an index of donor performance, which measures "aid quality". The index of donor performance tracks gross aid as a share of gross domestic product (GDP), adjusted by subtracting debt servicing. It penalizes tied aid and project proliferation and rewards aid to poor but non-corrupt recipients (this is referred to as aid selectivity). In 2011, Japan was ranked bottom (21st) in the index of donor performance with a score of 1.5. Although its small share of tied aid (ranked 9th) and selectivity (ranked 4th) were evaluated as strengths, its very low net aid to GDP (ranked 21st), small tax deductions for charitable giving (ranked 14th), and "project proliferation" (ranked 21st) were deemed to be weaknesses (see Figure 1).

Figure 1: Index of Donor Performance (IDP)



Source: Center for Global Development (2011).

Dollar and Levin (2004), on the other hand, indicated that Japanese aid was less selective in terms of recipients' poverty and policies than that of other bilateral donors.[1]

However, some empirical studies, including studies presented here, seem to contradict the findings of the CGD.[2] A number of recent studies have ranked aid donors by various indicators

[1] See also section 3 of Chapter 2 below.

of their aid-giving and in some of these Japanese aid has been ranked toward the upper end of donor countries.[3] The main recipients of Japanese aid have been the countries and economies of Asia[4], a region that has exhibited strong growth in recent decades. This simple fact may suggest that Japanese aid has not been as ineffective as its CGD rankings imply. Thus, it is important to revisit this issue by looking at a set of indicators of effective development aid from angles different from those taken by CGD.

This paper examines some indicators of effective development aid, focusing on the contributions of major bilateral donors by empirical studies conducted to find their effectiveness. Chapter II and Appendix I analyze "selectivity" in donors' aid-giving to poor and well-governed countries, a major criteria for effective aid. Chapter 3, Appendixes II and III examine fragmentation and proliferation of aid delivery, which can be seen as burdens on recipient countries. Chapter IV describes the aid-growth nexus, in particular the short-term impacts of aid on per capita GDP growth rates. Chapter V concludes by rethinking the effectiveness of Japanese development assistance in light of the previous chapters. The indicators for aid effectiveness in the Paris Declaration on Aid Effectiveness and other indexes, as well as their rankings of donors, are briefly touched upon.

2. AID GIVING AND SELECTIVITY

2.1 Aid Works When There Are Good Policies and Institutions

In recent years, the notion that aid works better in countries with good policies and institutions has become conventional wisdom in donor countries. This is due partly to development practitioners' experience, and partly to empirical evidence. For instance, Burnside and Dollar (2000, 2004) and Collier and Dollar (2002) relate per capita growth rates to certain aid and policy variables. None of these studies judges the coefficient "aid" to be significant (aid alone does not work), but they do regard the coefficient "aid x (multiplied by) policy" (e.g., "aid x country policy and institutional assessment (CPIA)," or "aid x governance") to be significant and positive (aid works in good policy and institutional environments).

These results imply that aid is not effective when recipient countries do not have enough "absorptive capacity" as a result of their poor policies and/or weak institutions (e.g., macroeconomic policies, governance, legal system, financial system, business environment). If this is the case, aid should be allocated to low-income countries with good policies and institutions. In other words, aid allocation should be selective.[5]

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[2] There have been numerous criticisms of the CDI and the index of donor performance, in particular of its methods of scoring and its weighting methodology for selectivity or fragmentation. See Kawai (2005), Kohama et al. (2004), and Togo and Wada (2007).

[3] Easterly and Pfutze (2008); Knack, Rogers, and Eubank (2010); and Birdsall and Kharas (2010). See Concluding Remarks.

[4] The majority of net disbursements in Japanese bilateral aid went to Asia until the early 21st century (98.2% in 1970, 70.5% in 1980, 59.3% in 1990, and 54.8% in 2000). Although Asia's share of total net disbursements in 2009 is less than 50% (36.5%), gross disbursements to Asia are 59.3% of total gross disbursement by Japan (Ministry of Foreign Affairs [2011]. p. 41).

[5] IDA (2007a) indicates that the countries with higher CPIA for a decade (1995–2004, or 1985–1995) would have a higher Human Development Index (HDI) as compiled by the United Nations Development Programme (UNDP),

Although there have been criticisms of the robustness of the empirical results of Burnside and Dollar (2000), most recent literature that ranks aid quality has incorporated selectivity measures.[6]

2.2 Indicators of the Quality of Policies and Institutions

The indicator most frequently used by economists at the World Bank is the CPIA, which has a significant influence on the resource allocation of the International Development Association (IDA), the World Bank's "soft loan" facility, through its incorporation in the IDA country performance rating (CPR) exercise.

The World Bank's "performance-based allocation" is based on the CPIA. The CPIA (or the IDA Resource Allocation Index [IRAI]) is based on the evaluations of a country's policy and institutional framework to support sustainable growth and poverty reduction, and consequently its effective use of IDA funds. The index itself has been disclosed to the public only since 2005.

For each of 16 criteria grouped in four equally weighted clusters (A–D), countries are rated on a scale from 1 (low) to 6 (high). The scores are averaged to yield the cluster score first, then to determine the CPIA as the average of the scores of 4 clusters. The four clusters and 16 criteria are as follows:

> A. Economic Management: (i) macroeconomic management, (ii) fiscal policy, (iii) debt policy;
>
> B. Structural Policies: (iv) trade, (v) financial sector, (vi) business regulatory environment;
>
> C. Policies for Social Inclusion/Equality: (vii) gender equality, (viii) equity of public resource use, (ix) building human resources, (x) social protection and labor, (xi) policies and institutions for environmental sustainability;
>
> D. Public Sector Management and Institutions: (xii) property rights and rule-based governance; (xiii) quality of budgetary and financial management; (xiv) efficiency of revenue mobilization; (xv) quality of public administration; (xvi) transparency, accountability, and corruption in the public sector.

In 2010, Georgia was ranked the highest IDA-eligible country with a CPIA score of 4.4, while Zimbabwe was ranked the lowest (77th) with a CPIA score of 2.0. Of the Asia-Pacific IDA-eligible countries, Samoa was ranked 4th (CPIA of 4.1), Bhutan 5th (CPIA of 3.9), Viet Nam 14th (CPIA of 3.8), India 17th (CPIA of 3.7), Kyrgyz Republic 25th (CPIA 3.7), Bangladesh 29th (CPIA of 3.5), Cambodia 41st (CPIA of 3.4), and Lao People's Democratic Republic 49th (CPIA of 3.3) out of 77 countries.

A country's CPIA is reflected in its IDA country performance rating (CPR) according to the following formula:

CPR = 0.24 x (Cluster A, B, C average) + 0.68 x (Cluster D average) + 0.08 x (portfolio rating)

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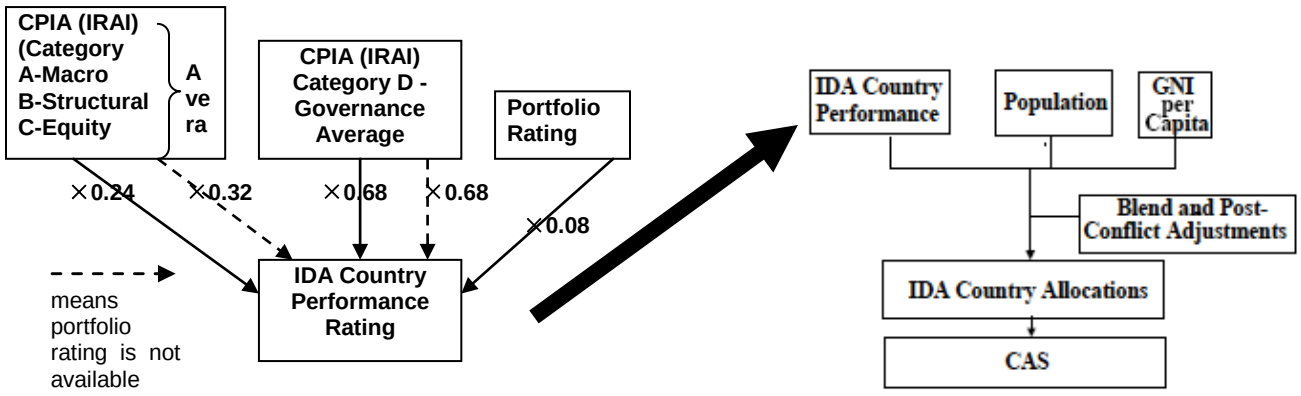
which means higher composite indexes for life expectancy, income level, and educational attainments, and would have higher GDP per capita growth rates. It also indicates the difficulties of development in Sub Saharan Africa (SSA) in terms of improvements in the HDI, improvements in terms of HIV/AIDS, and success rates in project performance.

[6] Not only the index of donor performance, but Easterly and Pfutze (2008); Knack, Rogers, and Eubank (2010); and Birdsall and Kharas (2010) include different selectivity measures to qualify the aid of each donor.

[If portfolio rating is not available, 0.32 x (Cluster A, B, C average) + 0.68 x (Cluster D average)]

The IDA country allocation per capita is decided after an adjustment of the CPR, taking into account gross national income (GNI) per capita, population, and other factors, including blend countries—which receive both International Bank for Reconstruction and Development (IBRD) and IDA loans—and countries that have recently experienced conflict (post-conflict countries).

Figure 2: IDA Country Allocations



Source: IDA website ("IDA'S PERFORMANCE-BASED ALLOCATION SYSTEM FOR IDA16")

As the World Bank CPIA indicators have been available to the public only since 2005, they are difficult to use for time-series or panel analysis. However, other popular and easily accessible indicators of institutional quality or governance are available.

The most widely known governance indicators are the "worldwide governance indicators" produced by Kaufmann, Kraay, and Mastruzzi (2010) (also referred to as "KKM"). KKM covers 213 countries and has measured six dimensions of governance between 1996 and 2010 based on 31 data sources. The six dimensions are: (i) voice and accountability, (ii) political stability and absence of violence or terrorism, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control of corruption.

Another indicator with a long time-series is the *Freedom in the World* index produced by Freedom House. This consists of two subcategories: political rights (freedom to participate in the political process) and civil liberties (freedom of expression, associational or organizational rights, rule of law, personal autonomy and individual rights). It evaluates 193 countries and 15 territories, which it scores from 1 (highest freedom) to 7 (lowest freedom). Since 1978, Freedom House has made available annual data dating back to 1972, which can be used to track long-term trends.

2.3 Is Japanese Aid Allocation Selective?

Selectivity in aid allocation means the extent to which development aid is delivered to low-income countries with good policies and institutions.

In their pioneering work, Dollar and Levin (2004) estimated the aid allocations of each donor by using the equation presented below. The coefficient GDP per capita (b_2) of the estimate for "selective" donors' aid allocation is expected to be significant and negative (poverty selectivity)[7],

[7] As indicated in Appendix I, it is truer for ODA grants than for ODA loans. ODA loans are granted to countries that have the capacity to repay and those countries tend to have higher income levels.

and the coefficient policy and institution (b_3) is expected to be significant and positive when CPIA is used as the indicator (policy selectivity).

$$Ln(Aid)=b_0+b_1Ln(population)+b_2Ln(GDP\ per\ capita)+b_3Ln(policy\ and\ institutions)$$

Dollar and Levin examined the selectivity of 41 donor organizations by looking into policy elasticity and poverty elasticity in their aid allocations. They regressed (the logarithm of) the gross disbursement amount of ODA (excluding emergency assistance) from a specific donor organization to each recipient country on (the logarithm of) population, real GDP per capita with purchasing power parity (PPP), and the CPIA of the recipient country.

They found that some donors, such as the IDA, Denmark, and the Netherlands, had both high policy elasticity and high poverty elasticity (see Table 1). They also found that multilateral organizations were generally more selective than bilateral donors, and that policy selectivity has become relevant in aid-giving in recent years (see Table 2).

Dollar and Levin did not find the aid allocations of France and the United States (US) to be selective. The policy selectivity of Japanese aid allocation was relatively high, although Japan allocated less aid to poor countries than other donors.

Table 1: Policy and Poverty Selectivity of Major Donors, 2000–2002

Donors	Policy Elasticity			Poverty Elasticity		
Year	**2000**	**2001**	**2002**	**2000**	**2001**	**2002**
Total ODA	**1.308**	**1.356**	**1.759**	**-0.417**	**-0.468**	**-0.490**
Bilateral aid	0.814	0.413	0.628	**-0.375**	**-0.334**	**-0.381**
Multilateral aid	**1.732**	**2.132**	**2.568**	**-0.744**	**-0.854**	**-0.833**
IDA	**4.918 (3)**	**4.138 (2)**	**4.233 (2)**	**-4.164 (1)**	**-4.208 (1)**	**-4.200 (1)**
IDB・SOF	−0.237 (31)	0.201 (30)	−0.240 (32)	**0.530 (41)**	**0.614 (42)**	**0.625 (42)**
ADF	−1.325 (39)	−0.583 (35)	−0.364 (33)	-0.042 (35)	-0.093 (34)	-0.133 (33)
AfDF	2.401 (15)	1.887 (16)	1.022 (22)	**-2.461 (3)**	**-2.598 (3)**	**-2.689 (2)**
UNDP	−0.369 (32)	−0.606 (36)	−0.531 (35)	**-1.288 (10)**	**-1.173 (14)**	**-1.311(8)**
EC	**1.702 (21)**	**2.204 (14)**	**2.440 (12)**	-0.219 (32)	**-0.526 (23)**	**-0.511(25)**
US	0.562 (28)	0.024 (32)	0.664 (27)	**-0.960 (16)**	**-0.558 (22)**	**-0.761 (20)**
Japan	**4.208 (5)**	**2.833 (8)**	1.901 (16)	-0.203 (34)	-0.212 (30)	0.012 (35)
Germany	**2.964 (10)**	**2.525 (11)**	**2.064 (14)**	**-0.447 (25)**	**-0.489 (24)**	**-0.474 (26)**
France	0.206 (29)	−0.494 (34)	−0.072 (30)	**-0.332 (29)**	-0.256 (28)	-0.279 (29)
UK	**4.028 (6)**	**3.407 (5)**	**3.657 (3)**	**-0.838 (18)**	**-1.184 (12)**	**-1.064 (16)**
Denmark	**4.690 (4)**	**4.789 (1)**	**4.767 (1)**	**-1.164 (12)**	**-1.303 (8)**	**-1.110 (12)**
Sweden	**3.177 (8)**	**3.321 (6)**	**3.315 (4)**	**-0.875 (17)**	**-0.914(17)**	**-1.023 (18)**
Netherlands	**5.109 (2)**	**3.472 (4)**	**2.647 (9)**	**-1.654 (7)**	**-1.208 (11)**	**-1.271 (10)**

IDB・SOF = Inter-American Development Bank- Fund for Special Operation; ADF = Asian Development Fund; AfDF = African Development Fund; UNDP = United Nations Development Programme; EC = European Commission.

Notes: Numbers in parentheses represent rankings in policy and poverty elasticity out of the 41 countries examined by Dollar and Levin (2004). Bolded elasticities are different from zero at a 10% significance level.

Source: Dollar and Levin (2004). pp.18–19

Table 2: Policy and Poverty Selectivity of Major Donors, 1984–1999

Donors	Policy Elasticity			Poverty Elasticity		
Year	1984–89	1990–94	1995–1999	1984–89	1990–94	1995–99
Total ODA	**0.057**	**0.297**	**1.046**	**-0.948**	**-0.535**	**-0.507**
Bilateral aid	0.152	0.128	**0.500**	**-0.869**	**-0.396**	**-0.372**
Multilateral aid	**-0.020**	**0.947**	**1.816**	**-1.432**	**-1.208**	**-1.063**
IDA	0.694(13)	0.914 (14)	**3.582 (6)**	**-3.752 (1)**	**-3.797 (1)**	**-3.928 (1)**
IDB・SOF	**-2.100(38)**	-1.346 (37)	**-2.908 (41)**	**1.028 (38)**	**0.589 (41)**	**0.670 (42)**
ADF	-1.027(34)	-0.901 (35)	0.357 (27)	0.041(34)	0.068 (38)	-0.155 (34)
AfDF	**3.631 (1)**	**2.821 (2)**	**3.384 (8)**	**-2.836(2)**	**-2.805(2)**	**-2.678 (2)**
UNDP	0.290 (19)	0.271 (22)	0.576 (26)	**-1.243 (17)**	**-1.525(5)**	**-1.433(10)**
EC	0.462 (17)	**1.134 (11)**	**2.325 (12)**	**-2.182(4)**	**-1.176(13)**	**-0.868(17)**
US	**-1.596 (36)**	-1.100 (36)	1.580 (21)	**-1.329(16)**	**-0.906(18)**	**-1.162(14)**
Japan	0.407 (18)	**2.182 (5)**	**2.029 (16)**	**-1.014(22)**	**-0.715(25)**	**-0.509(26)**
Germany	**0.868 (9)**	**1.236 (10)**	**1.789 (20)**	**-0.877(25)**	**-0.450(30)**	**-0.389(28)**
France	0.545 (16)	0.078 (26)	**-2.360 (39)**	**-1.016(21)**	**-0.727(23)**	**-0.230(32)**
UK	**2.175(4)**	**2.489 (4)**	**4.494 (2)**	**-1.864(6)**	**-1.230(12)**	**-1.326(11)**
Denmark	**2.389 (2)**	**4.450 (1)**	**6.302 (1)**	**-2.351(3)**	**-2.220(3)**	**-1.678(6)**
Sweden	0.775(11)	0.653 (18)	**2.258 (13)**	**-1.177(18)**	**-0.836(20)**	**-1.141(15)**
Netherlands	0.561 (15)	0.844 (15)	**1.369 (23)**	**-1.674(9)**	**-1.420(9)**	**-1.551(8)**

Notes: Numbers in parentheses represent rankings in policy and poverty elasticity among the 41 countries examined by Dollar and Levin (2004). Bolded elasticities are different from zero at a 10% significance level.

Source: Dollar and Levin (2004). pp.29–30.

2.4 Regional Perspectives on Selectivity

The aid allocation criteria of donor countries, where specified, often include recipients' poverty levels, populations, and qualities of governance. The method Dollar and Levin employed to measure selectivity reflects actual practices in aid allocation of donor countries.

However, as the Organisation for Economic Cooperation and Development (OECD 2005) noted, many donor countries tend to focus their aid allocation on their priority areas or priority countries, which are specified in their country assistance strategies or partnership agreements. It is therefore more appropriate to estimate tendencies in the aid allocations of a donor by region rather than to estimate it universally. If the long-term contribution of each donor to the development of recipients is to be assessed, long-term trends in selectivity also need be taken into consideration.

Kihara (2009a) estimated the aid allocation of major donor countries by:

(i) Segregating aid for Asia which consists of East Asia and the Pacific, South Asia and Central Asia, and aid for Sub-Saharan Africa (SSA).

(ii) Regressing both segregated parts of aid and total aid in a logarithmic form of the gross ODA disbursement to each recipient country from the donor organization, on the (logarithms of) population, GNI per capita (i.e., the same criteria as for IDA eligibility), and the Freedom House (FH) index (average of the Index of Political Liberty, and the Index of Civil Liberty of the Freedom of the World Index; larger values of the index mean worse governances; the lowest [best] is one, and the

highest [worst] is seven) as the index for policy and institutional quality of the relevant recipient country.[8]

(iii) Using long-term panel data and cross section data with averaged values in each 5-year period.

2.5 Regional Selectivity of Major Donors

The estimated results of policy and poverty elasticity in aid allocation for major donors are shown in Table 3. Panel data for 79 recipient countries (32 Asian and 47 Sub-Saharan African) during 1981–2006 subdivided into 6 periods (the average values for each period of 1981–1985, 1986–1991, 1996–2000, and 2001–2005, and the value in 2006) were constructed.

The gross ODA disbursements from each donor country or organization to recipients in Asia, in Sub-Saharan Africa, and in both regions taken together were estimated, based on the panel data mentioned above.[9]

The expected coefficients for explanatory variables, GNI per capita and the Freedom House index are negative. Selective aid would mean higher aid allocation for countries with lower per capita GNI and lower scores on the Freedom House index (i.e., to countries with a better policy and institutional environment). The estimated coefficients are generally significant and have the expected sign (negative).

The results above show that there are some similarities to and differences from those of Dollar and Levin. The absolute value of the sum of poverty elasticity (GNI per capita) and policy elasticity (FH index) may be considered the "total selectivity" of the donor if a single figure to indicate the selectivity of each donor is needed.[10]Some similarities with the regression results of Dollar and Levin can be observed:

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[8] Dollar and Levin (2004) regressed CPIA on the Freedom House Index and the International Country Risk Guide (ICRG) rule of law index, all in logarithmic forms to make a long term proxy of the CPIA index. The regression result for 1995–1999 is:

Log CPIA = constant - 0.165 log (Freedom House) + 0.364 log (ICRG rule of law) + year dummies
(5.62) (10.64)

Adj. R2 = 0.36 , F-test = 37.05, t values in parentheses.

FH index has significant and negative correlation with CPIA. The significant and negative correlation between CPIA and FH index is also confirmed with the recipient countries used for selectivity estimation in this paper [Appendix I, 2. (1)].

[9] Donors tend to allocate "concessional loans" to higher income countries, but to allocate "grants" to lower income countries. IDA is allocating its fund either in loans and/or grants depending on the "traffic light system," which reflects the debt sustainability of each recipient country measured by debt outstanding and CPIA. As the income level and the level of policy and institution clearly relate to the choice of aid modality, i.e., loans or grants, the estimates of selectivity may be better conducted for loan allocation and for grant allocation separately. Appendix I.3 shows selectivity of bilateral donors estimated for grants and for loans separately.

[10] GDP per capita and governance indexes such as the Freedom House index have different characters. Therefore, it can be argued that summing up both elasticities may not provide a correct indication of the selective tendency of each country. It is uncertain, however, how much weight should be allocated to policy selectivity and poverty selectivity to make the aid most effective. Half of the weight is allocated to each elasticity here, to be neutral. Dollar and Levin (2004) computed overall aid selectivity by equally weighting the policy and poverty elasticity estimates. Knack, Roger, and Eubank (2010) followed their methods, after standardizing both elasticity estimates to mean 0 and standard deviation equal to 1. (Knack, Roger, and Eubank (2010: 7) observed "because of the difficulties of establishing a robust empirical link between selectivity and recipient country growth or poverty reduction, there is no way of knowing for sure whether aid in the aggregate is yet selective 'enough' in either the poverty or policy dimension to maximize its impact on poverty reduction.")

(i) IDA is ranked as the most selective organization in the regression for "Asia and SSA total".
(ii) Multilateral organizations are generally more selective than bilateral donors.
(iii) The selectivity of France is quite low. This means the aid allocation of France is "inversely selective" (i.e., more aid for richer and worse governed countries). Japan exhibits high policy selectivity but is inversely selective for poverty (i.e., more aid is allocated to richer countries).

But some differences from the findings of Dollar and Levin can also be observed:

(i) The selectivity of the US is high, the highest among bilateral donors. Japan is more selective than Denmark.
(ii) More importantly, the selectivity of a specific donor varies by region, depending on where the recipients belong. The European Commission (EC), the United Kingdom (UK), and the US are more selective in Asia. Germany and Japan have a tendency to be more selective in SSA.
(iii) Thus, the selectivity rankings of donors vary according to the region to which they deliver their aid. In both Asia and SSA, IDA is ranked at the top and France at the bottom on the selectivity rankings of the eight donors compared here. However, the rankings of the other six donors differ depending on the region.

2.6 Structural Differences in Aid Allocations to Asia and SSA (Chow test)

Are there "structural" variations in aid allocations between regions? To find out if the null hypothesis (H0)—the coefficients of all explanatory variables to estimate aid allocations of each donor to Asian countries are the same as those to the countries in SSA—is valid, we conduct F tests (Chow tests) for various donors and in various periods.

The results of the Chow tests are shown in Table 4. "O" indicates the null hypothesis above (H0) is rejected (at a 10% significance level) and the coefficients of explanatory variables are considered to be different between equations to Asia and to SSA. "X" indicates (H0) is not rejected.

Table 3: Policy Elasticity and Poverty Elasticity, Panel Analysis for Six Periods (1981–2006)

Countries or Organizations	Total（Asia＋SSA）			Aid to Asia			Aid to SSA		
	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3	Policy Elasticity(b3)	Poverty Elasticity (b2)	b2+b3	Policy Elasticity(b3)	Poverty Elasticity (b2)	b2+b3
			sig.only			sig.only			sig.only
Total ODA	-0.406*** (-3.13)	-0.306*** (-4.87)	-0.714	-0.493*** (-2.95)	-0.025 (-0.24)	-0.518	-0.392* (-1.91)	-0.384*** (-4.45)	-0.776
			-0.714			-0.493			-0.776
Bilateral	-0.488*** (-3.66)	-0.146** (-2.25)	-0.634	-0.760*** (-4.11)	0.117 (1.02)	-0.643	-0.349* (-1.74)	-0.224*** (-2.61)	-0.573
			-0.634			-0.760			-0.573
Multilateral	-0.242* (-1.96)	-0.729*** (-12.16)	-0.971	-0.181 (-1.25)	-0.952*** (-10.18)	-1.133	-0.503*** (-2.62)	-0.610*** (-7.57)	-1.113
			-0.971			-0.952			-1.113
USA (2)	-0.951*** (-3.96)	-0.606*** (-5.19)	-1.557	-2.200*** (-5.15)	-0.543* (-1.97)	-2.743	-0.535** (-2.18)	-0.438*** (-4.14)	-0.973
			-1.557			-2.743			-0.973
Japan (4)	-1.344*** (-6.68)	0.203** (2.07)	-1.141	-0.868*** (-4.51)	0.437*** (3.57)	-0.431	-1.213*** (-4.10)	-0..180 (-1.43)	-1.393
			-1.141			-0.431			-1.213
Germany (7)	0.002 (0.01)	-0.371*** (-4.53)	-0.369	0.222 (0.35)	-0.324** (-2.22)	-0.102	-0.853*** (-3.83)	-0.399*** (-4.20)	-1.252
			-0.371			-0.324			-1.252
France (8)	0.909*** (3.59)	-0.046 (-0.38)	0.863	0.283 (0.929)	0.186 (1.01)	0.469	0.281 (0.88)	0.075 (0.55)	0.356
			0.909			0			0
UK (3)	-0.949*** (-3.92)	-0.529*** (-4.46)	-1.478	-0.752** (-2.12)	-0.706*** (-3.21)	-1.460	-1.193*** (-3.56)	-0.231 (-1.53)	-1.424
			-1.478			-1.460			-1.193
Denmark (5)	-0.546** (-2.06)	-0.540*** (-4.15)	-1.086	0.028 (0.07)	-0.446* (-1.85)	-0.418	-1.400*** (-3.56)	-0.550*** (-3.21)	-1.950
			-1.086			-0.446			-1.950
IDA (1)	-0.490 (-1.54)	-2.491*** (-16.16)	-2.981	-0.446 (0.36)	-2.876*** (-9.22)	-3.322	-0.793* (-1.72)	-2.393*** (-12.40)	-3.186
			-2.491			-2.878			-3.186
EC (6)	0.163 (1.00)	-0.567*** (-7.14)	-0.404	-0.006 (-0.02)	-0.957*** (-5.60)	-0.963	-0.309* (-1.77)	-0.257*** (-3.50)	-0.566
			-0.567			-0.957			-0.566

Notes: t value in parenthesis below the coefficient. The numbers in the upper box of the third column under each area of recipient ("b2+b3" indicate the summations of policy elasticity and poverty elasticity regardless of their significance. The numbers in the lower box ("sig. only") indicate the summations of the significant coefficients only. The number in parenthesis below the country name is the rank of (b2 + b3).

Source: Kihara (2010). p.34.

The last column ("o share") in Table 4 indicates the number of "O" results for the six periods for total ODA, bilateral donors, multilateral donors, and each donor respectively. In the majority of cases, except for IDA and Denmark, the null hypothesis is rejected, which means that the coefficients of explanatory variables in their magnitudes are *not* the same in estimates for the aid allocation in both Asia and SSA.

Table 4: Structural Differences in Aid Allocations to Asia and SSA (Chow Test)

Donors	1981–1985	1986–1990	1991–1995	1996–2000	2001–2005	2006	○Share
ODA total	○ (0.069)	× (0.122)	○ (0.011)	× (0.865)	○(0.016)	○ (0.037)	4／6
Bilateral donors	○ (0.072)	○ (0.096)	○ (0.047)	× (0.528)	○(0.000)	×(0.182)	4／6
Multilateral donors	○(0.054)	×(0.285)	○(0.001)	○(0.002)	○(0.000)	○(0.000)	5／6
USA	○(0.028)	○ (0.000)	○ (0.013)	× (0.171)	○(0.005)	○(0.006)	5／6
Japan	○(0.015)	○ (0.036)	○ (0.013)	○ (0.000)	○ (0.000)	○ (0.000)	6／6
Germany	○ (0.010)	○ (0.003)	○ (0.001)	○ (0.000)	○ (0.000)	○ (0.009)	6／6
France	○(0.011)	○(0.002)	○(0.000)	○(0.000)	○(0.000)	○(0.000)	6／6
UK	× (0.927)	× (0.410)	× (0.466)	○ (0.004)	○ (0.002)	○(0.029)	3／6
Denmark	× (0.497)	× (0.128)	× (0.162)	× (0.224)	× (0.309)	○ (0.095)	1／6
IDA	○(0.046)	×(0.823)	○(0.036)	×(0.608)	×(0.491)	×(0.292)	2／6
EC	○(0.001)	○(0.000)	○(0.000)	○(0.000)	○(0.000)	○(0.000)	6／6

Notes: Null hypothesis (H0): The coefficients of all explanatory variables to estimate aid allocations of each donor to Asian countries are the same as those for the countries in SSA. "○" is assigned if H0 is rejected at a 10% significance level, otherwise "x" is assigned. The p value of the Chow test in each regression is in parentheses.

Source: Kihara (2010). p.37.

2.7 Chronological changes in selectivity since the 1980s

The policy elasticity and poverty elasticity of each donor have been evolving over time. The chronological changes of elasticity in Danish and Japanese aid are shown in Table 5.

In the 1980s, development assistance from Japan was allocated more selectively than aid from Denmark. The poverty elasticity of Japanese aid has been "inversely" selective (i.e., more aid had been allocated to higher-income countries) in recent years. However, in terms of policy elasticity, the selectivity of Danish aid to Asia was also inversely selective (i.e., more aid was allocated to countries with worse governance).

In the long term and from a regional perspective, the selectivity of Japanese aid is not much different in value from that of Danish aid, although Denmark is judged by the estimates for recent years to be one of the most selective aid providers and has a high index of donor performance ranking.

Table 5: Chronological Changes in Policy and Poverty Elasticity of Aid Allocations of Japan and Denmark

Period	Japan			Denmark		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity (significant elasticity only)	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity (significant elasticity only)
1981－85 Total	-2.134*** (-3.32)	-0.456 (-1.45)	-2.590 (-2.134)	0.127 (0.19)	-1.026*** (-3.17)	-0.899 (-1.026)
Asia	-0.818	0.100	-0.718	0.602	-1.057*	-0.455
SSA	-1.356	-0.779**	-2.135	-1.280	-1.140***	-2.420
1986–90 Total	-2.449*** (-4.19)	-0.520* (-1.73)	-2.969 (-2.969)	0.022 (0.03)	-1.189*** (-2.72)	-1.167 (-1.189)
Asia	-1.511**	0.535	-0.976	-1.781	-1.148	-2.929
SSA	-2.112**	-0.988**	-3.100	-1.744	-1.266**	-3.010
1991–95 Total	-1.506*** (-2.90)	-0.023 (-0.09)	-1.529 (-1.506)	-1.024 (-1.36)	-0.639* (-1.79)	-1.663 (-0.639)
Asia	-1.800**	0.343	-1.457	-1.391	-0.804	-2.195
SSA	-0.672	-0.385	-1.057	-1.465	-0.392	-1.857
1996–2000 Total	-1.134*** (-2.66)	0.554** (2.58)	-0.580 (-1.134)	-0.739 (-1.21)	-0.443 (-1.43)	-1.182 (0)
Asia	-0.732*	0.628**	-0.104	0.174	-0.304	-0.478
SSA	-1.413**	0.054	-1.359	-1.634*	-0.285	-1.919
2001–05 Total	-1.066** (-2.36)	0.623*** (2.88)	-0.443 (-0.443)	-0.409 (-0.68)	-0.291 (-1.01)	-0.700 (0)
Asia	-0.286	0.542***	0.256	0.932	-0.045	0.877
SSA	-1.287*	0.351	-0.936	-1.266	-0.335	-1.601
2006 Total	-0.711 (-1.67)	0.300 (1.53)	-0.411 (0)	-0.758 (-1.24)	-0.344 (-1.22)	-1.102 (0)
Asia	-0.508	0.324	-0.184	0.482	-0.112	0.370
SSA	-0.631	0.134	-0.497	-1.472*	-0.134	-1.606

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis under "selectivity "is the sum of significant elasticity.

Source: Kihara (2010). p.38.

Appendix I further analyze the selective tendencies of "bilateral" donors in Development Assistance Committee (DAC) with the data extended to 2008 and selectivities measured not only by Gross ODA, but also by ODA grants and ODA loans. The panel estimates found that the magnitudes in poverty elasticity of grants are generally larger than those of gross ODA in most countries, and even Japanese aid is "poverty selective" when it is measured by the aid allocation of "ODA grants" which should be delivered to low income countries. The ODA loans are generally provided to the richer countries which tend to have more debt sustainability than lower income countries[11].

The panel estimates in Appendix I also indicate that aid would lead to more growth in GDP per capita when it is delivered to the recipient countries with better policy and governance, which is consistent with "policy selectivity". The regression results, however, indicate that aid would lead to more growth when it is delivered to the higher income countries, which is contradictory to

[11] See Appendix I, 3.

"poverty selectivity". Poverty selectivity may not be explained by its impact on growth, but by some other criteria such as value of equity and poverty alleviation.[12]

3. AID PROLIFERATION AND FRAGMENTATION

3.1 Aid Proliferation, Fragmentation, and Transaction Costs

One of the major challenges in recent aid trends is the "proliferation" of aid provided and the "fragmentation" of aid receipts. It is believed that these prevent aid from achieving its attempted development impacts. The OECD (2009a) warns against "aid that comes in too small slices from too many donors, creating unnecessary and wasteful administrative costs and making it difficult to target funds where they are needed most".[13]

Figure 3 shows the number of ODA projects (on a commitment basis) in a year and the average amount of ODA committed per project. As it clearly indicates, the number of ODA projects has been steadily increasing. The rate of increase has been accelerating since 1994, and reached 96,000 projects in 2007.

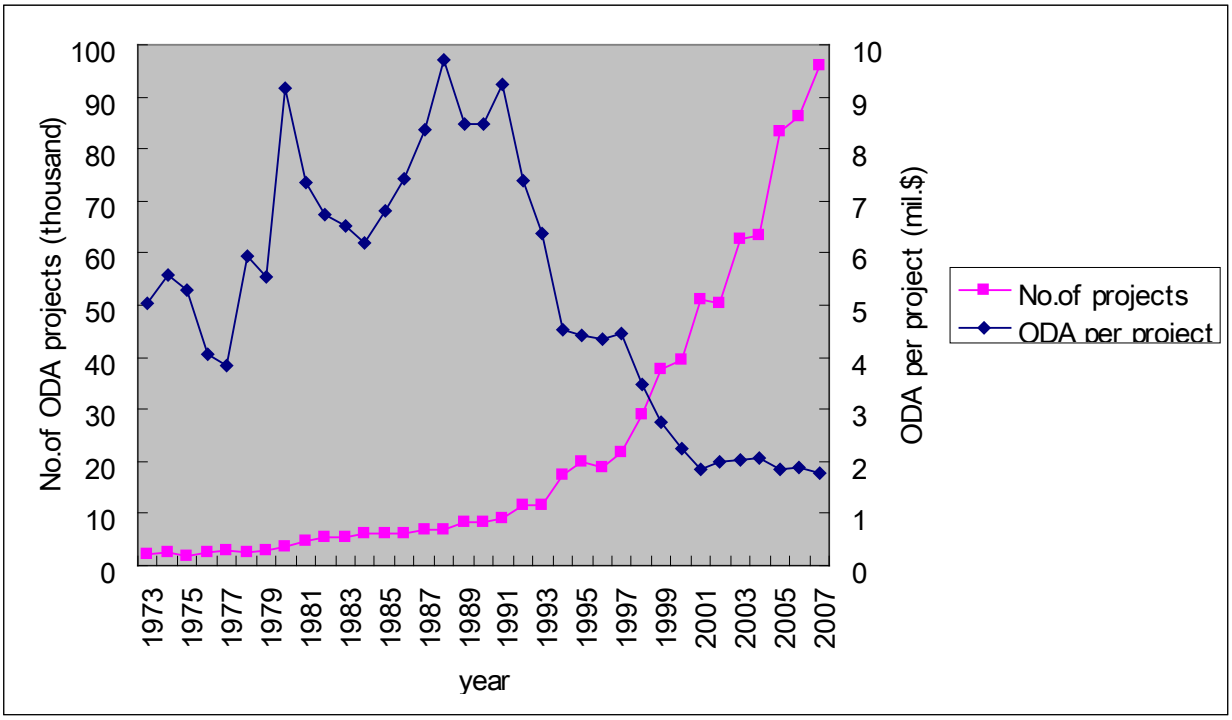
The average amount of ODA per project increased in the 1980s. It reached $9.73 million in 1988 and $9.25 million per project in 1991. Since then, the average amount of aid per project has declined sharply, to $1.77 million in 2007.

This means that many projects with relatively small average amounts of ODA have been operating in developing countries, which indicates that the number of countries and sectors a donor assists have been "proliferating" and amounts have become "fragmented."

[12] See Appendix I, 1 and 2 (2).

[13] OECD (2009a). p. 2

Figure 3: Number of Projects and ODA per Project, 1973–2007



Source: OECD (2009b).

Acharya et al. (2006) suggested that aid often underperforms because it flows through too many institutional channels. There are huge transaction costs associated with aid proliferation (an increase in the number of donors to a specific recipient country) and aid fragmentation (an increase in the number of projects and a decline in the amount per project) for both recipients and donors. The transaction costs can be classified as both direct and indirect.

Direct transaction costs entail the absorption of scarce resources, energies, and the attention of relatively senior government staff. These costs include separate and multiple negotiations, distinct management and reporting requirements, relations with a multiplicity of donor agencies, and adjusting to their different languages, forms, and fiscal years.

Indirect transaction costs relate to the dysfunctional bureaucratic and political behavior that is stimulated by aid proliferation. For instance, donors tend to recruit capable bureaucrats from the recipient government by offering higher salaries to work for specific aid agencies and projects, which may reduce the capacity of the government in question to handle huge volumes of aid.

As mentioned above, the Center for Global Development (CGD) indicated that Japan allows project proliferation (small average project size) and this has led to the low ranking of Japanese aid in the index of donor performance in the CGD's Commitment to Development Index (CDI).

Has Japanese aid contributed to aid proliferation? Does aid fragmentation vary by region? Do aid proliferation and fragmentation affect bureaucratic quality (government effectiveness) and negatively affect the GDP per capita growth rate?

Kihara (2009b) produced an index of donor proliferation using an (inverse) Theil index for each donor, and an index of the aid fragmentation of each recipient using an (inverse) Hirschman-Herfindahl index, as has been done in the existing literature, but in the longer term or from regional perspectives.

Using panel regression, Kihara (2009b) also confirmed the negative effects of aid proliferation and fragmentation on government effectiveness (bureaucratic quality), and its negative impacts on GDP per capita growth (see Appendix 2).

3.2 Index of Donor Proliferation (IDP)

Acharya et al. (2006) produced an index of donor proliferation using the inverse (multiplied by 100) of the Theil index of each donor's ODA delivered in 1999–2001 to its potential recipients.

The Theil index can be written as follows:

$$T = \log n - H(x) = \log n - \sum_{i=1}^{n} x_i \log\left(\frac{1}{x_i}\right) = \log n \times \sum_{i=1}^{n} x_i - \sum_{i=1}^{n} x_i \left(\log 1 - \log x_i\right) = \sum_{i=1}^{n} x_i \left(\log n + \log x_i\right) = \sum_{i=1}^{n} x_i \log n_{\ i}$$

where *n* is the number of all potential recipients of aid and x_i is the portion of a donor's total aid going to recipient i.

If all potential recipients (*n*) receive the same proportion of the donor's total ODA ($x_i = 1/n$), then T=0. The more equally the donor proliferates its aid to various countries, the lower the value of the Theil index becomes, and the higher the value of the inverse of the Theil index (i.e., the index of donor proliferation).

Table 6 indicates that the leading "proliferators" are Germany, Canada, the Netherlands, Switzerland, Norway, Belgium, the US, and Sweden, in that order. Acharya et al. (2006) also estimated the correlation between the index of donor proliferation (IDP) and the index of aid fragmentation (IAF) of their recipients and found a high degree of correlation between them. Australia, Japan, and the UK are labeled "others," i.e., "non-proliferators."

Table 6: Ranking of Bilateral Donors by Index of Donor Proliferation (1999–2001 average)

	Index of Donor Proliferation: absolute values		Ranking for bilateral donors by the value of their Index of Donor Proliferation (Highest value listed as 1)	
Aid data series used:	All aid events	Significant aid events	All aid events	Significant aid events
Germany	299	297	1	1
Canada	256	239	2	2
Netherlands	220	216	3	3
Switzerland	217	206	4	4
Norway	205	198	5	6
Belgium	200	189	6	7
United States	200	199	7	5
Sweden	191	185	8	8
France	183	181	9	9
Finland	166	147	10	13
Japan	162	162	11	10
Italy	160	154	12	12
United Kingdom	160	158	13	11
Luxembourg	160	128	14	17
New Zealand	150	107	15	18
Denmark	149	146	16	14
Spain	148	145	17	15
Austria	137	129	18	16
Ireland	120	104	19	20
Australia	107	105	20	19
Portugal	73	70	21	21
Greece	69	62	22	22

Source: Acharya. et al. (2006). p. 5

3.3 Index of Long-Term Donor Proliferation

Acharya et al. (2006) covered only a 3-year average, which may not reveal the long-term trends of each donor. Kihara (2009b) used the same method of calculating an inverse Theil index as Acharya et al. (2006) to create a longer-term (1980–2006) index of donor proliferation for 22 bilateral donors (and for 24 multilateral organizations which is not presented here).

As is indicated in Table 7, Kihara's results were similar to those of Acharya et al. (2006) over a longer time horizon. Canada, the Netherlands, Norway, Sweden, and Switzerland are proliferators both in the longer run (1980–2006) and in recent years (2000–2006) as seen in Acharya et al. (2006), while there is no evidence that Australia, Austria, France, Greece, Italy, Japan, New Zealand, and the UK were proliferators during those periods.

The low ranking of Japan (19th or 20th out of 22 countries) in terms of proliferation is noteworthy. Rather than proliferating, Japan appears to have been concentrating its aid-giving to fewer countries over the long term.

Table 7: Index of Donor Proliferation, 1980–2006 and 2000–2006

Prol. rank	1980–2006 average	Index	2000–2006 average	Index	Prol. rank	1980–2006 average	Index	2000–2006 average	Index
	ODA total	166.30	ODA total	191.19		Bilateral donors	158.94	Bilateral donors	181.91
1	Canada	405.85	Canada	705.74	12	Ireland	119.53	Spain	116.09
2	Switzerland	307.47	Switzerland	497.53	13	Spain	117.92	UK	104.94
3	Sweden	201.94	Sweden	304.16	14	UK	117.49	Ireland	104.03
4	Portugal	199.74	Netherlands	281.82	15	US	110.25	New Zealand	99.32
5	Netherlands	194.36	Norway	207.18	16	New Zealand	106.11	France	95.73
6	Luxembourg	163.52	Finland	193.00	17	France	102.40	Italy	91.47
7	Denmark	155.09	Denmark	181.29	18	Italy	102.33	Australia	88.55
8	Norway	146.27	Luxembourg	159.02	**19**	**Japan**	**70.32**	Austria	82.30
9	Finland	136.78	Belgium	148.42	**20**	Austria	69.31	**Japan**	**75.25**
10	Belgium	131.69	US	128.64	21	Australia	66.74	Greece	62.88
11	Germany	124.33	Germany	123.69	22	Greece	60.64	Portugal	60.52

Source: Kihara (2009b). pp. 10–11.

3.4 Trend of Bilateral Donor Proliferation

Table 8 indicates 5-year IDP averages for bilateral donors (calculated as an inverse Theil index). The “other” donors (non-proliferators) have consistently low IDP scores over many periods. However, “proliferators” such as the Nordic countries, Canada, and Switzerland have increased their IDP scores in recent years.

This finding suggests that the proliferators have tended to proliferate more in recent years, leading to higher aid fragmentation and greater transaction costs for the recipients.

Japan proliferates less than most countries according to these figures. Thus, the Japanese aid program cannot be condemned for raising the transaction costs of recipient countries through an increase in proliferation either recently or in the more distant past.

Table 8: Bilateral Donors' Index of Donor Proliferation (averages for each period)

Donors	1981–1985	1986–1990	1991–1995	1996–2000	2001–2005	2006	Donors	1981–1985	1986–1990	1991–1995	1996–2000	2001–2005	2006
ODA total	145.72	153.93	144.69	205.32	194.46	129.17							
Australia	49.34	54.66	62.42	74.37	97.61	65.74	**Japan**	**64.80**	**67.73**	**67.49**	**79.34**	**74.28**	**69.33**
Austria	47.40	61.13	67.28	96.89	83.60	44.33	Luxembourg	n.a.	259.38	158.97	155.50	162.46	135.78
Belgium	69.45	83.29	156.65	234.50	136.21	98.84	Netherlands	99.14	106.79	176.77	336.41	210.93	510.89
Canada	147.86	225.72	405.65	618.61	734.35	98.67	New Zealand	88.51	137.01	120.19	87.24	100.78	102.91
Denmark	90.96	141.30	190.28	180.50	185.19	152.36	Norway	115.13	100.65	129.94	173.56	195.44	283.22
Finland	93.18	99.04	138.18	169.67	194.53	153.41	Portugal	n.a.	1281.49	71.70	61.60	60.42	63.73
France	114.75	108.17	98.08	102.63	95.81	72.58	Spain	n.a.	167.12	88.28	120.13	116.54	114.25
Germany	133.35	132.12	105.23	141.80	122.14	93.31	Sweden	127.70	150.35	158.89	248.69	327.92	236.06
Greece	n.a.	n.a.	n.a.	54.23	63.01	80.87	Switzerland	175.94	190.97	289.15	349.90	535.42	423.75
Ireland	136.35	148.50	108.97	98.78	98.35	141.06	UK	99.95	121.47	135.58	135.52	109.47	66.14
Italy	106.32	122.12	99.03	100.08	97.78	49.68	US	89.58	105.68	103.82	134.07	124.80	88.31

n.a. = not available.

Source: Kihara (2009b). p. 11.

3.5 Indexes of Aid Fragmentation and Recipient Fragmentation

Knack and Rahman (2007) produced an index of aid fragmentation (IAF) by subtracting the Herfindahl index (which indicates "donor concentration in a recipient country") from one, i.e.,

> {1 – Herfindahl index (sum squared share of the aid by each donor in total aid received by respective recipient) } x 100.

The IAF average for 1982–2000 ranged from 28.4 in Gabon to 91.6 in Tanzania.

Acharya et al. (2006), on the other hand, produced an index of recipient fragmentation (IRF) as the inverse of the Herfindahl index, i.e.,

> {1/ Herfindahl index (sum squared share in percentage)}x 100,000.

In their calculation of the 3-year average for 1999–2001, the highest value of the recipients was 113 and the lowest was 10. The median of the IRF among recipient countries was 31 and the average was 40.

3.6 Indexes of Aid Fragmentation and Recipient Fragmentation in Total ODA and by Region

Kihara (2009b) calculated both IAF and IRF for 1980–2006 for ODA total (all developing countries) and for the following regions: Sub-Saharan Africa and Asia (North/East Asia, South/Central Asia). The source of the data was the OECD International Development Statistics (IDS) 2008 Database (OECD 2008). Gross ODA disbursed by each donor to specific recipients (or specific regions) is used to calculate the Herfindahl index. The results are shown in Table 9 and in Figures 4 and 5.

When the IAF and IRF are calculated for total ODA, there are increases for both indexes in the late 1980s which have declined only recently. This may suggest an increase in the number of donors in the late 1980s.

When the IAF and IRF are calculated for regions, the levels of aid fragmentation in Asia, and in East Asia in particular, have been consistently lower than those for Sub-Saharan Africa (except

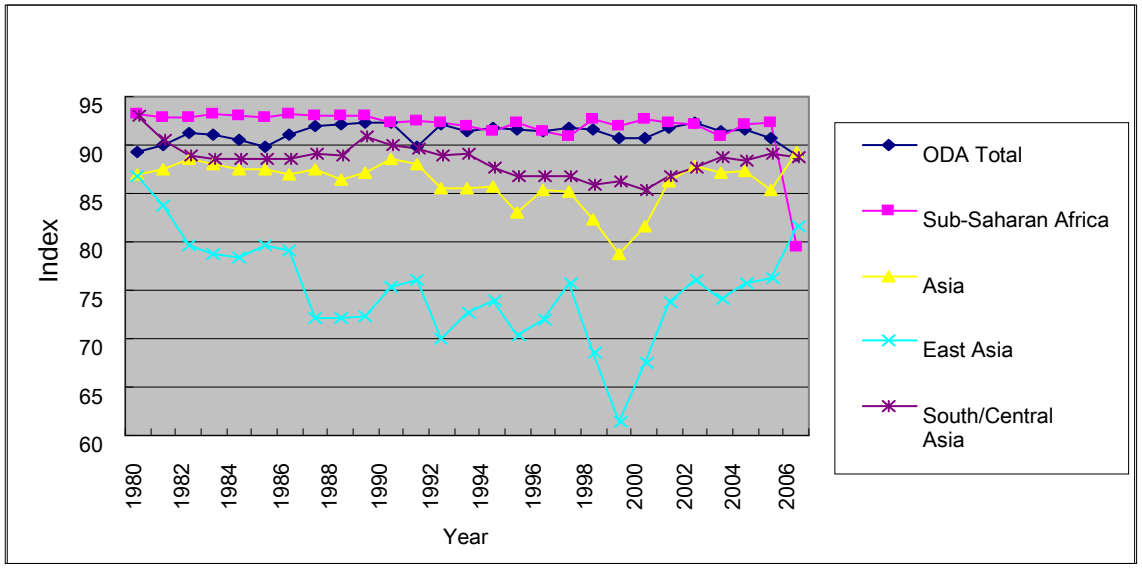
for 2006), although fragmentation for Asia has been rising recently. This implies that Asia as a region has suffered less from aid fragmentation than Sub-Saharan Africa. The bulk of Japanese ODA has been provided to Asia, where aid fragmentation has been comparatively low. It suggests that Japanese aid has caused neither aid fragmentation nor, therefore, a hike in transaction costs, in comparison with aid from other donors.

Table 9: Indexes of Aid Fragmentation and Recipient Fragmentation

	Index of Aid Fragmentation: IAF（1－HI）		**Index of Recipient Fragmentation: IRF（1/HI）**	
Average per year	1980–2006	2000–2006	1980–2006	2000–2006
ODA total	91.18	91.07	114.55	113.28
Sub-Saharan Africa	91.92	90.26	129.35	115.43
Asia	86.18	86.43	74.07	75.52
East Asia	74.96	74.98	41.88	40.94
South/Central Asia	88.45	87.84	88.53	82.97

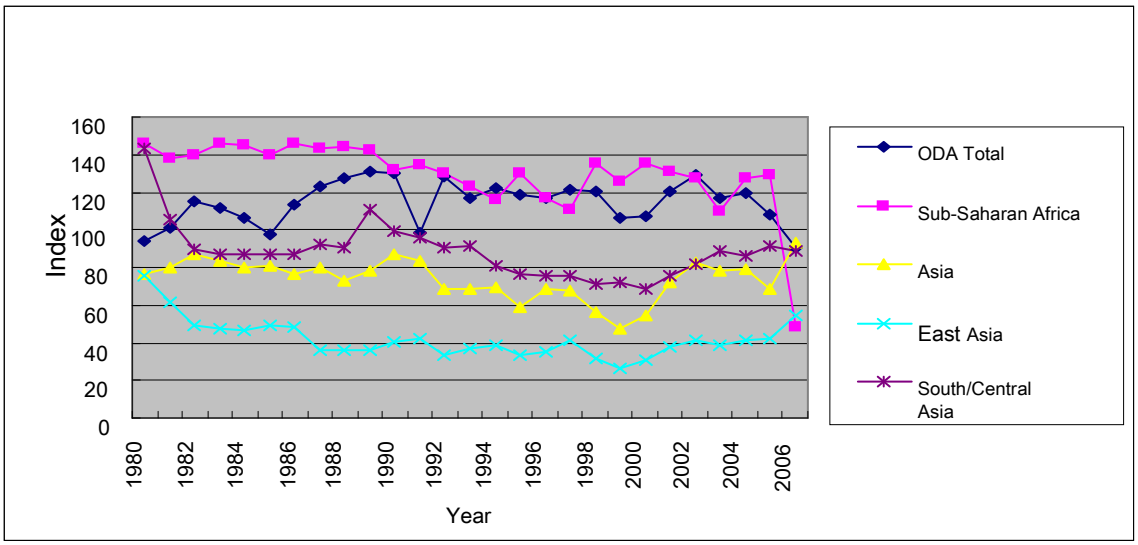
Source: Kihara (2009b). p. 14.

Figure 4: Index of Aid Fragmentation IAF＝（1-Herfindahl Index）×100



Source: Kihara (2009b). p. 13

Figure 5: Index of Recipient Fragmentation: IRF= (1/Herfindahl Index（%）×100000)



Source: Kihara (2009b). p.14

Tables A14 and A15 in Appendix II indicate IAF by recipient country. The values of the average IAF of the countries in a region are generally less than the values of the "regional IAF," which are calculated taking each region as a recipient. However, the regional attributes are the same in both calculations. The average IAF of Asian countries, of East and Central Asia in particular, are generally smaller than those of Sub-Saharan Africa.

4. EMPIRICAL ANALYSIS OF THE GROWTH IMPACT OF AID

4.1 Whose Aid is Correlated with Growth?

The performance of ODA is often assessed by its impact on GDP growth. Table 10 shows the Spearman's rank-order correlations between the ranking of countries which achieved higher average GDP per capita growth rates in 160 developing countries during 1990–2007, and the ranking of countries which received higher amounts of ODA, in total or in different sectors, provided by each donor during the same period.

The source of data for ODA is OECD/IDS 2009 (OECD 2009b). Gross ODA disbursements to each recipient country by each donor are used to rank ODA recipients for respective donors. Data for GDP per capita growth rates are from the World Development Indicators produced by the World Bank.

When total ODA is considered, of the ODA provided by members of the OECD Development Assistance Committee, only Japanese ODA had a positive and significant (at 5%) correlation in ranking with GDP per capita growth rates. Those countries to which Japan provided more ODA for social and economic infrastructure and for production sectors exhibit higher per capita growth.

The Netherlands, which has been ranked quite highly by the CGD (in fourth place for both CDI and the index of donor performance in 2011), does not have a significantly positive correlation coefficient for its ODA in total or in any particular sectors. ODA provided by the US, which has been ranked up in recent CGD publications, appears to be negatively correlated with the GDP

growth rate, i.e., more ODA has been delivered to countries with low growth rates, although the negative correlation is not significant.

Table 10: Spearman's Rank-order Correlations between Average GDP Per Capita Growth Rates and ODA amounts by Donor, 1990–2007

	Total (Gross)	Social Infra-structure	Economic Infra-structure	Pro-duction Sectors	Multi-sectors	Program Assis-tance	Action Related to Debt	Humani-tarian Aid
Australia	0.126 (1.590)	0.141* (1.779)	0.165** (2.087)	0.130 (1.642)	0.137 (1.722)	0.202** (2.577)	0.133 (1.671)	0.134* (1.684)
Austria	0.051 (0.633)	0.143* (1.806)	0.114 (1.438)	0.152* (1.921)	0.097 (1.212)	0.027 (0.338)	-0.027** (-2.228)	0.007 (0.090)
Belgium	-0.049 (-0.607)	-0.047 (-0.582)	-0.061 (-0.765)	-0.066 (-0.828)	-0.040 (-0.497)	0.005 (0.057)	-0.218*** (-2.795)	0.024 (0.305)
Canada	0.033 (0.418)	0.067 (0.836)	0.083 (1.042)	0.060 (0.753)	0.035 (0.441)	0.022 (0.278)	-0.083 (-1.035)	-0.034 (-0.430)
Denmark	0.082 (1.027)	0.087 (1.086)	0.228*** (2.921)	0.164** (2.083)	0.195** (2.485)	0.202** (2.577)	-0.045 (-0.566)	0.030 (0.374)
Finland	0.084 (1.054)	0.033 (0.409)	0.198** (2.529)	0.122 (1.539)	0.080 (1.007)	0.097 (1.217)	0.017 (0.208)	0.006 (0.075)
France	-0.059 (-0.734)	-0.003 (-0.042)	-0.021 (-0.259)	0.002 (0.019)	-0.052 (-0.647)	-0.147* (-1.859)	-0.222*** (-2.846)	-0.147* (-1.851)
Germany	0.079 (0.989)	0.099 (1.240)	0.056 (0.701)	0.008 (0.105)	0.038 (0.474)	-0.060 (-0.748)	-0.105 (-1.321)	-0.013 (-0.164)
Greece	-0.007 (-0.089)	-0.004 (-0.046)	0.143 (1.800)	0.080 (1.007)	-0.006 (-0.069)	-0.181** (-2.296)	NA NA	-0.018 (-0.230)
Ireland	-0.048 (-0.606)	-0.059 (-0.736)	0.043 (0.542)	-0.008 (-0.106)	-0.030 (-0.377)	-0.120 (-1.514)	-0.001 (-0.012)	-0.094 (-1.175)
Italy	0.012 (0.145)	0.058 (0.731)	0.028 (0.345)	0.056 (0.696)	0.063 (0.784)	0.028 (0.349)	-0.125 (-1.580)	-0.004 (-0.046)
Japan	0.159** (2.014)	0.133* (1.671)	0.172** (2.184)	0.161* (2.037)	0.082 (1.029)	-0.092 (-1.150)	-0.107 (-1.342)	0.074 (0.921)
Luxem-bourg	0.039 (0.494)	-0.021 (-0.260)	0.034 (0.424)	-0.038 (-0.481)	0.045 (0.566)	-0.115 (-1.446)	NA NA	0.019 (0.239)

	Total (Gross)	Social Infra-structure	Economic Infra-structure	Pro-duction Sectors	Multi-sectors	Program Assis-tance	Action Related to Debt	Humani-tarian Aid
Nether-lands	0.015 (0.192)	0.054 (0.674)	0.032 (0.394)	-0.006 (-0.071)	0.127 (1.598)	-0.034 (-0.423)	-0.079 (-0.985)	-0.007 (-0.091)
New Zealand	0.067 (0.840)	0.077 (0.970)	0.162** (2.054)	0.066 (0.831)	0.078 (0.976)	-0.070 (-0.875)	-0.080 (-0.998)	0.041 (0.508)
Norway	0.047 (0.586)	0.020 (0.252)	0.131 (1.648)	0.064 (0.806)	0.054 (0.672)	0.015 (0.193)	-0.163 (-2.059)	-0.014 (-0.180)
Portugal	0.074 (0.931)	0.030 (0.371)	0.035 (0.437)	0.179** (2.277)	0.067 (0.838)	0.065 (0.808)	0.133* (1.671)	0.263*** (3.404)
Spain	0.071 (0.889)	0.050 (0.628)	0.127 (1.604)	0.095 (1.190)	0.134* (1.684)	0.067 (0.844)	-0.089 (-1.118)	0.022 (0.274)
Sweden	0.093 (1.162)	0.064 (0.804)	0.177 (2.251)	0.117 (1.470)	0.140* (1.767)	0.000 (0.001)	-0.106 (-1.329)	0.010 (0.128)
Switzer-land	0.029 (0.364)	0.020 (0.249)	-0.026 (-0.326)	0.031 (0.383)	0.017 (0.216)	-0.039 (-0.484)	-0.228*** (-2.924)	-0.012 (-0.149)
UK	0.086 (1.075)	0.060 (0.755)	0.211*** (2.702)	0.105 (1.314)	0.070 (0.878)	-0.048 (-0.599)	-0.067 (-0.836)	-0.063 (-0.784)
US	-0.081 (-1.011)	-0.006 (-0.071)	-0.010 (-0.131)	-0.073 (-0.912)	-0.143* (-1.809)	-0.087 (-1.090)	-0.016 (-0.199)	-0.117 (-1.468)
DAC (Bi-lateral)	-0.008 (-0.095)	0.070 (0.873)	0.126 (1.586)	0.086 (1.078)	0.016 (0.203)	-0.092 (-1.158)	-0.063 (-0.784)	-0.036 (-0.447)
Multi-lateral Donors	-0.044 (-0.544)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Donor Total	-0.012 (-0.156)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Source: OECD (2009) and author's estimates.

4.2 What Type of Aid is Correlated with Growth?

Table 11 shows the rank order correlation between the ranking of countries with higher GDP growth rates (GDP per capita growth and GDP per capita growth in purchasing power parity terms) and the ranking of countries which received more ODA from all donors in each subsector. A positive and significant correlation can be found in the energy subsector (under economic infrastructure and services) and in the trade and tourism subsector (under production sectors).

Action related to debt, and humanitarian aid seem to be provided to countries with lower GDP per capita growth rates (i.e., negative correlations), which probably reflects the difficult situations of the recipient countries.

It should be noted that these results indicate *correlations* between growth and ODA rankings and do *not* aim to show *causality* from ODA to growth, or vice versa. Thus, although we could not conclude from this evidence that Japanese ODA has accelerated the growth of the recipients, we could say that the ODA provided by Japan since 1990 has been more highly correlated with GDP per capita growth in the recipient countries than ODA provided by other donors.

Table 11: Spearman's Rank-Order Correlations (Between Average GDP Per Capita Growth Rates of Developing Countries and Total ODA Amounts Provided to these Developing Countries in Each Sector), 1990–2007

		GDP Per Capita Growth (160 countries)		GDP Per Capita in PPP Growth (129 countries)	
Sectors		**Correlation**	**t values**	**Correlation**	**t values**
Social Infrastructure		0.070	0.873	0.067	0.751
	Education	0.073	0.909	0.084	0.950
	Health and Population	-0.023	-0.286	-0.095	-1.070
	Water Supply and Sanitation	0.126	1.586	0.151*	1.720
Economic Infrastructures and Services		0.126	1.586	0.159*	1.813
	Energy	0.159**	2.011	0.163*	1.856
	Transportation and Communication	0.098	1.226	0.104	1.177
Production Sectors		0.086	1.078	0.073	0.822
	Agriculture, Forestry and Fishery	0.059	0.739	0.041	0.459
	Industry, Mining and Construction	0.105	1.321	0.116	1.310
	Trade and Tourism	0.183**	2.328	0.201**	2.298
Multi Sector		0.016	0.203	0.044	0.514
Program Assistance		-0.092	-1.158	-0.109	-1.232
	Food Aid	-0.026	-0.330	-0.090	-1.019
Action related to Debt		-0.063	-0.784	-0.181**	-2.069
Humanitarian Aid		-0.036	-0.447	-0.089	-1.005

Source: OECD (2009) and author's estimates.

4.3 What is the Impact of Aid on Growth?

Has development aid contributed to per capita growth in recipient countries? Radelet (2006) identified three broad views on the relationship between aid and growth (which is still the subject of debate):

(1) Aid has a positive relationship with growth on average across countries (although not in every country), but with diminishing returns as the volume of aid increases.

This view argues that aid has a "diminishing marginal productivity." Hansen and Tarp (2000) took this position. This view is consistent with a neo-classical growth model. (i) Aid will supplement the savings of recipient countries and can be used for investment, thereby increasing the capital stock per unit of labor. This will translate into growth and a higher level of per capita income. (ii) Aid that is used for investment in health and education will enhance workers' productivity. (iii) Technical assistance provided as development aid will involve a transfer of technology and knowledge. According to this view, development aid will enhance growth, on average, controlling for other variables (e.g., geography, policies, institutions, political conflicts), and allowing for diminishing returns.

(2) Aid has no effect on growth, and may actually undermine growth

According to this view, development aid will (i) be wasted and encourage corruption, (ii) keep bad governments in power and postpone reform, (iii) be ineffective due to the limited absorptive capacity of the recipients, (iv) reduce domestic (private, government) saving, and (v) undermine private sector incentives for investment ("Dutch disease"). Easterly, Levin, and Roodman (2004) are proponents of this view.

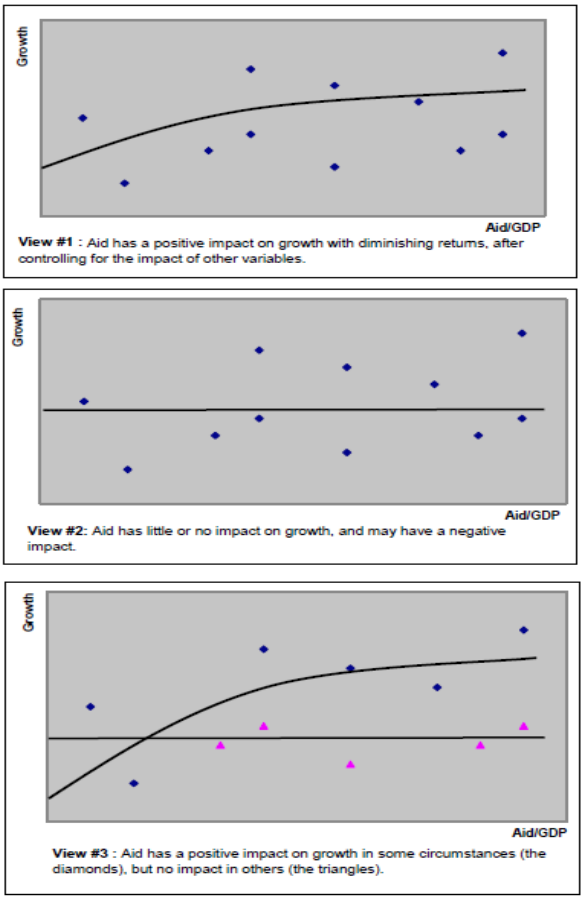
(3) Aid has a conditional relationship with growth, helping to accelerate growth under certain circumstances

The conditions may include (i) the characteristics of the recipient country（e.g., civil liberty, policy and institutions, terms of trade, tropical climate）, (ii) donor practices (e.g., multilateral or bilateral aid, untied or tied aid, aid coordination, recipients' greater ownership, recipients' broader participation), and (iii) type of development aid.

The type of development aid can be classified by its impacts on growth. Clemens, Radelet, and Bhavnani (2004) of the Center for Global Development make a distinction between (i) emergency and humanitarian aid which may have a negative relation with growth; (ii) aid for health, education, the environment which has long-term impacts; and (iii) "short-impact aid," which includes aid for infrastructure, production sectors, and agriculture.

Figure 6 shows that, even with the same data (dotted in the figures), different conclusions can be drawn, depending on the model to be estimated, which illustrates the difficulties of settling the debate.

Figure 6: Three Views on Aid and Growth



Source: Radelet (2006), p. 1.

4.4 Growth Effects of "Short-Impact Aid"

The problems of causality mentioned in section 2 of this chapter, or the problem of endogenous variables, may be dealt with by adopting lagged explanatory variables in time-series or panel estimates. Table 12 shows the results of panel regression, conducted by Kihara (2010), for per capita GDP growth of developing countries in Asia and Sub-Saharan Africa (SSA) on explanatory variables, including lagged demographic and aid (in a quadratic form) variables as instruments in a two-stage least square (2SLS) model. Data for aid variables are from OECD/IDS 2009 (OECD 2009b).

Table 12: Growth Regression with Demography and Aid

Explanatory variables	1	2	3	4	5	6	7	8	9
Constant.	0.0830*** (5.39)	0.0855*** (7.02)	0.0818*** (6.46)	0.0618 (1.00)	0.0809 (1.31)	0.0469 (0.72)	0.0438 (0.71)	0.0564 (1.02)	0.0108 (0.17)
Ln (initial working age population ratio)	0.121*** (10.41)	0.106*** (6.68)	0.0935*** (6.25)	0.113*** (5.20)	0.102*** (4.55)	0.0882*** (4.27)	0.119*** (7.16)	0.102*** (5.65)	0.0839*** (4.85))
Growth of working – age population ratio	1.262*** (4.14)	1.528*** (8.34)	1.763*** (8.33)	1.399*** (5.40)	1.678*** (10.38)	1.725*** (10.20)	1.370*** (4.41)	1.525*** (8.59)	1.719*** (7.79)
Ln（initial GDP per Capita）	0.000694 (0.30)	-0.00110 (-1.10)	-0.00218** (-2.02)	0.000577 (0.36)	-0.00132 (-1.39)	-0.00229* (1.82)	-0.000748 (-0.29)	-0.00151** (-2.44)	-0.00314*** (-3.80)
Ln（initial life expectancy）				0.00388 (0.31)	0.000662 (0.05)	0.00916 (0.65)	0.0111 (0.79)	0.00715 (0.80)	0.0176 (1.18)
Ln（1+CPI inflation）	-0.0159*** (-4.72)	-0.0204*** (-7.21)	-0.0217*** (-7.31)	-0.0165*** (-4.45)	-0.0210*** (-7.35)	-0.216*** (-6.87)	-0.0159*** (-5.19)	-0.0201*** (-6.87)	-0.0207*** (-6.96)
East Asian dummy	0.0216*** (5.39)	0.0222*** (7.21)	0.0180*** (5.12)	0.0221*** (6.96)	0.0219*** (6.78)	0.0184*** (5.24)	0.0199*** (4.44)	0.0218*** (7.26)	0.0174*** (4.89)
Tropical dummy	-0.0185*** (-4.06)	-0.0160*** (-5.53)	-0.0132*** (-3.88)	-0.0171*** (-4.30)	-0.0131*** (-5.12)	-0.0108*** (-3.42)	-0.0172*** (3.50)	-0.0157*** (-5.70)	-0.0130*** (-3.93)
Short impact aid/ GDP	0.540*** (5.39)			0.546*** (3.38)			0.543*** (5.09)		
Short impact aid/GDP 2	-2.494*** (-4.36)			-2.662*** (-3.42)			-2.490*** (-4.32)		
Net ODA/GDP		0.164*** (8.07)			0.147*** (4.75)			0.163*** (8.15)	
(Net ODA/GDP) 2		-0.278*** (-7.07)			-0.268*** (-5.51)			-0.272*** (-7.19)	
Gross ODA/GDP			0.118*** (7.25)			0.0674*** (2.95)			0.115*** (7.21)
Gross ODA/GDP 2			-0.0123*** (-7.13)			-0.0928*** (-3.29)			-0.118*** (-7.62)
Ln(Repayment/GDP)	-0.00121 (-0.58)	-0.00181* (-1.86)	-0.00431*** (-3.39)				-0.00205 (-0.81)	-0.00193* (-1.90)	-0.00446*** (-3.18)
Adj. R-squared	0.427	0.501	0.459	0.399	0.471	0.436	0.411	0.509	0.463
Observations/ No. of countries	427/70	427/70	427/70	442/72	442/72	442/72	427/70	427/70	427/70

Note: The dependent variable is GDP per Capita Growth Rate. Panel Analysis (2SLS) with 72 Developing Countries from Asia and Sub-Saharan Africa) and Nine Periods (1973–2008; 4-Year Averages) is conducted.

Source: Kihara (2010). p. 288

This regression is unique in two senses:

(i) It includes demographic variables such as the level and growth rate of the working-age population ratio, as adopted by Bloom and Canning (2004). This means that a larger working age population has a positive effect on per capita GDP growth, leading to a "demographic dividend".

(ii) It includes a unique aid variable "short–impact aid" (SIA) which was introduced by Clemens et al. (2004), as mentioned above.[14]

[14] The aid items corresponding to SIA are drawn from the "purpose code" of the CRS database composed of 795,093 committed aid projects during 1973–2007. As data for SIA "disbursements" are not available, SIA disbursements/GDP are calculated on the assumption that the committed share of SIA in the total commitment would be the same as the disbursement share of SIA in total disbursement. The results of preceding regression with the same variables, but with different samples and estimated period, are shown in Kihara (2009a, p. 84). The results are essentially the same, although the coefficient of aid variables of the estimation in Kihara (2010) are

SIA is aid which is expected to have a short-term impact on growth-enhancement within four years. It includes (a) budget support and program aid, as well as (b) infrastructure investment and project aid directly supporting the following sectors: transportation (including road), telecommunications, energy, banking, agriculture and industry. The definition of short-impact aid is described in more detail in Appendix IV.

The quadratic form (inverse U shape) of the relation between each aid item and the growth rate of GDP per capita indicates a diminishing return of aid on growth (positive linear coefficient, and negative quadratic coefficient). Alternative regressions for per capita GDP growth on "net ODA" and "gross ODA" were also conducted.

In addition to demographic variables, initial GDP per capita (to see "convergence"), initial life expectancy (to see the level of human capital), CPI inflation rate (to see "bad" economic policy) and geographical dummies (East Asia and tropics) were introduced in the regressions as control variables.

The estimated results are shown in Table 12. The coefficients of demographic variables, inflation, and geographical dummies are robustly significant with expected signs. Among the linear coefficients of aid variables, the coefficients of SIA (0.54–0.55) are the largest and more than three times the coefficients of net ODA and gross ODA (0.07–0.16). The linear terms of all aid variables are significantly positive and the quadratic terms are significant and negative, which clearly indicates a "diminishing return of aid to growth." It is also shown that the repayment of ODA debt would reduce per capita GDP growth, but in log-form, which means that the impact of repayment on growth may not be symmetrical to that of aid-giving.

4.5 Growth Acceleration Effects of SIA, Net ODA, and Gross ODA

Table 13 suggests that the growth impact of SIA will be maximized when the level of SIA reaches 11.5% of GDP. Clemens et al. (2004) found a similar SIA level (8%) maximized growth impacts in their empirical study.[15] Compared with the aid levels at which the growth impacts of net ODA (30% of GDP) and gross ODA (49% of GDP) are maximized, SIA, while sharply raising the growth rate, would face the constraint of aid absorptive capacity at a lower percentage of GDP.

generally larger in absolute terms, and the estimated coefficients of initial GDP per capita and initial life expectancy are generally significant at the 1% level in Kihara (2009a).

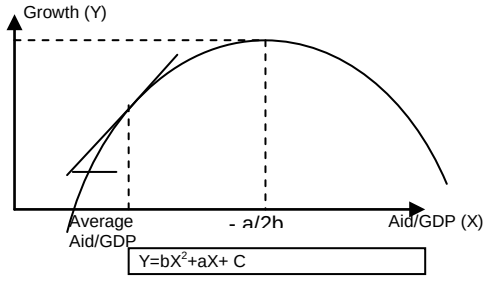
[15] Clemens, et al. (2004). p. 40.

However, the average level of SIA as a percentage of GDP in Asia and SSA has not reached the level at which it would have a maximum effect on GDP per capita growth (the peak of quadratic function), so there is scope for donors to provide countries receiving around the average level of SIA with more aid to enhance their growth. This is also true for net ODA and gross ODA (See Table 13 and Figure 7).

Table 13: Growth Acceleration Effects of Each Aid Category [16]

	Short-Impact Aid	Net Aid	Gross Aid
Linear coefficient (a)	0.543	0.163	0.115
Quadratic coefficient (b)	-2.490	-0.272	-0.118
Aid level at peak effect (%) (c)	10.901	29.935	49.107
Average Aid/GDP (%)	6.360	12.267	13.760
Slope at average Aid/GDP (d)	**0.226**	**0.096**	**0.083**

Source: Author's calculation.

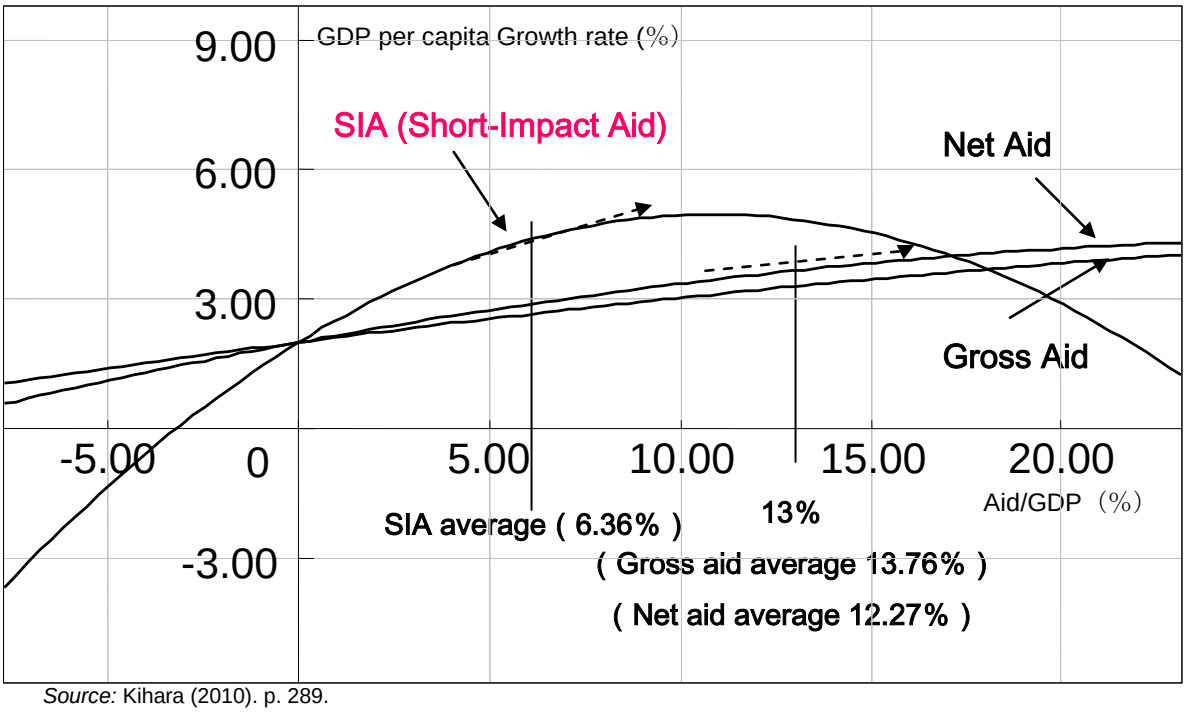


The growth acceleration effect of a rise in SIA is more than two times larger than the effects of increase in "gross aid (ODA)" or "net aid (ODA)". The slope of the quadratic function at the average of each aid item in relation to GDP is largest with SIA (0.226), which is more than twice the slopes of the function with gross aid (0.083) and net aid (0.098).

[16] The quadratic function of the relation between aid and growth is shown as follows:

Growth = a (aid) + b $(aid)^2$ +A. Therefore, an aid level with maximum growth effect can be obtained by partially differentiating the growth equation with respect to aid, and by setting it zero, i.e., a +2 b (aid) =0, max aid level* = -a/2b. The slope (growth/aid) at average aid/GDP (d) is obtained by calculating {a+2b(average aid/GDP)}

Figure 7: Growth Impacts of SIA, Net Aid, and Gross Aid (Estimated Results)



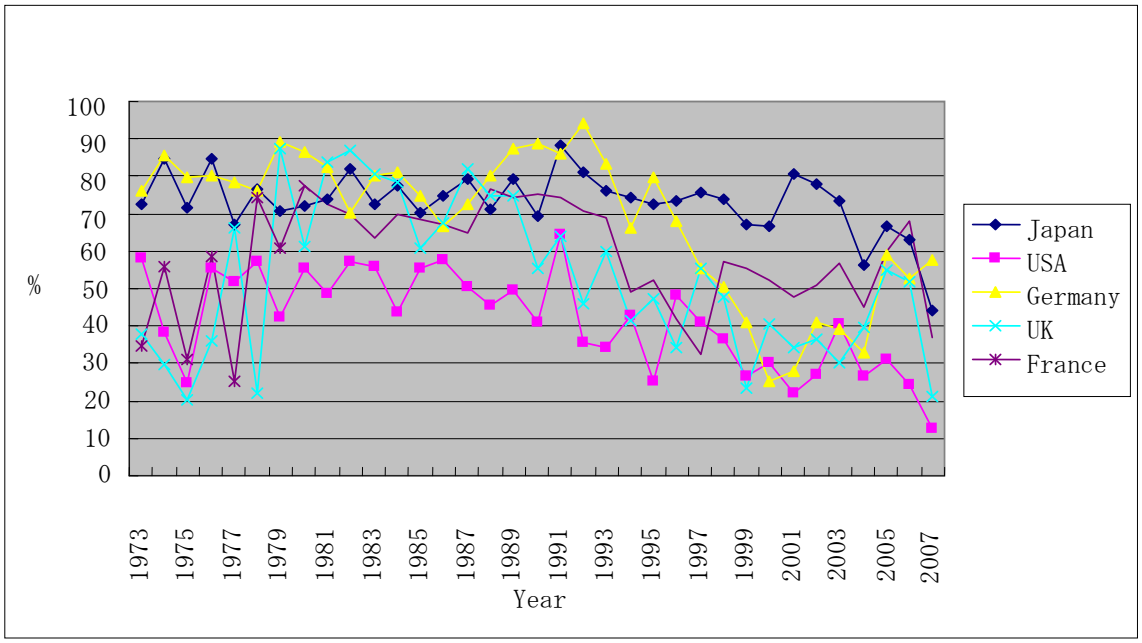
Source: Kihara (2010). p. 289.

As Figure 8 and Table 14 show, Japan has consistently delivered SIA, which constitutes more than 70% of its total ODA, since 1973.

While other major donors reduced the share of SIA in their total ODA during the 1990s and the first decade of 2000, Japan maintained its share.

Taking together the results of Spearman's rank order correlation between Japanese aid and recipients' growth, and the results of panel regression of their growth on SIA, ODA provided by Japan has contributed to the development of recipient countries, and Japanese aid has been effective in recent decades, assuming its impact on per capita growth is relevant to "aid effectiveness".

Figure 8: Short–Impact Aid as a Percentage of ODA, G-5 countries



Source: Kihara (2010). p. 292.

Table 14: Short-Impact Aid as a Percentage of ODA, G5 Countries, Various Periods

Period	Japan	US	Germany	France	UK	G5 Total
1973–2007	73.20	41.64	68.43	58.31	52.39	58.65
1973–1976	78.70	45.35	81.02	45.98	32.64	59.23
1977–1980	71.85	52.35	84.44	60.66	47.86	65.46
1981–1984	76.64	50.98	78.97	69.23	82.33	65.27
1985–1988	73.67	52.74	74.12	70.06	73.19	65.04
1989–1992	80.19	50.99	90.79	73.80	55.86	71.59
1993–1996	73.00	37.16	74.85	52.60	43.44	62.55
1997–2000	71.07	31.95	42.45	50.54	39.86	49.92
2000–2004	70.71	30.11	35.85	50.56	35.43	43.64
2005–2007	58.17	23.02	56.55	54.71	43.06	42.37

Source: Kihara (2010). p. 292.

5. CONCLUDING REMARKS

Are the Commitment to Development Indexes, and in particular the indexes of donor performance, appropriate indicators for evaluating donors' contributions to the development of recipients? Has Japanese aid been as ineffective as these indexes imply? The results presented in this paper and other literature suggest it may be necessary to rethink our answers to the above questions.

Chapter II dealt with "selectivity" in aid-giving to poor and well-governed countries, one of the major criteria for effective aid. Aid allocations of major donors were estimated following Dollar and Levin (2004), but over a longer time horizon and by region to take donors' long-range contributions to development and their priority areas into account.

This analysis revealed that, taking a long-term and regional perspective, Japan has been as selective in delivering its aid as Denmark, a country well-known for its selective aid delivery. Selective aid provided by Japan should have enhanced its effect on growth and poverty reduction.

Chapter III examined fragmentation and proliferation of aid delivery, which are often seen as burdens on recipient countries. Indexes for donor proliferation (IDP) and aid fragmentation (IAF and IRF) were calculated following Knack and Rahman (2007) and Acharya *et al*. (2006), but, again, over the long term and by region.

Japan's aid has proliferated less than the aid programs of most countries. The bulk of Japanese ODA has been provided to Asia, and aid fragmentation in Asia has been at a low level. That implies that Japanese aid has not caused aid fragmentation which might have negatively affected government effectiveness and, in turn, growth.

Chapter IV demonstrated the aid-growth nexus, in particular the short-term impacts of aid on per capita GDP growth rates. Spearman rank order correlations between the ranking of recipients' GDP per capita growth rates and the ranking of recipients to whom the respective donor delivered ODA were calculated for each donor. A correlation was also calculated for each sector between the ranking of recipients' growth and the ranking of sectors to which total ODA was delivered.

Of the DAC countries, only Japanese ODA has had a positive and significant (at 5% level) correlation in ranking with GDP per capita growth rates. ODA provided by Japan since 1990 has been more closely correlated with the growth of GDP per capita of recipient countries than that of other donors.

Panel regressions were carried out for the growth rate of GDP per capita on different types of aid variables, including short-impact aid (SIA) which is expected to have a short-term impact on growth, in as short a period as four years.

Japan has consistently delivered SIA, which represents more than 70% of its total ODA. The growth acceleration effects of SIA have been larger than those of other categories of aid. While other donors reduced the share of SIA in their total ODA in 1990s and on, Japan maintained its share of such aid to sustain the growth of recipient countries.

Japanese aid has contributed to the development of recipient countries. In fact, the quality of Japanese aid has been confirmed in other recent literature listed below.

Table 15: Ranking of Japan by Aid Quality in Recent Studies

1. William Easterly and Tobias Pfutze. 2008. Where Does the Money Go? Best and Worst Practices in Foreign Aid. *Journal of Economic Perspectives* 22 (2)					
Overall	Overhead Costs (e.g. Salary)	Specialization/Fragmentation (Herfindahl)	Ineffective Aid Channels (tied aid, food, TA)	Transparency (e.g. operating costs and report)	Selectivity (ICRG, FH, Low income)
Rank; **8/39**	5	12	13	16	23

2. Stephan Knack, F. Halsey Rogers, Nicholas Eubank (2010). "Aid Quality and Donor Rankings" Policy Research Working Paper 5290, World Bank				
Overall	Alignment (e.g. country system)	Selectivity (regression results)	Specialization (e.g. Herfindahl Index)	Harmonization (e.g. program aid)
Rank; **27/38**	8	22	24	35

3. Nancy Birdsall, Homi Kharas and Rita Perakis. 2011. Measuring the Quality of Aid—QuODA second edition				
Rank out of 31 donors	Fostering Institution (e.g. country system)	Maximizing Efficiency (e.g. selectivity)	Transparency and learning (e.g. data, report)	Reducing Burden (e.g. fragmentation)
	7	7	13	23

(Ref.) Index of Donor Performance (David Roodman. 2011a. An Index of Donor Performance. Center for Global Development)					
Overall	Strengths		Weakness		
Rank; **21 /22**	Selectivity (e.g .KK index)	Tied Aid	Tax incentive	Net Aid/GDP	Proliferation (size weight)
	4	9	14	21	21

Table 15 indicates the ranking of Japan by its aid quality in some recent studies. The recent literature, items 2 and 3 listed in Table 15 in particular, makes it explicit how their rankings could relate to the indicators of the "Paris Declaration on Aid Effectiveness" signed up to by 35 donor countries, 26 international organizations, and 56 partner (recipient) countries in March 2005. Knack, Roger, and Eubank (2010) used eight indicators which were monitored under the Paris Declaration to construct their Alignment and Harmonization indicators.[17] Birdsall, Kharas, and Perakis (2011) indicated correspondence between their Quality of ODA dimensions and Paris Declaration Principles.[18]

Under the declaration, donors and partner countries have committed to step up efforts on Ownership, Alignment, Harmonization, Managing for results, and Mutual accountability ("five common-sense tenets").[19] Signatory countries also committed to monitor their progress in

[17] Knack, Roger, and Eubank (2010) used the indicators monitored in the 2008 survey for "aid predictability", "use of PFM systems", "use of procurement systems", "use of PIUs" and "technical cooperation coordinated with country programs" to construct their "Alignment" indicator. They also used the 2008 survey indicators for "use of program-based approaches", "coordinated missions as share of all missions", and "coordinated country analytic reports as a share of all reports" to construct their "Harmonization" indicator (Knack, Roger, and Eubank (2010), p. 30).

[18] Their dimensions for "Maximizing efficiency ", "Fostering institutions", "Reducing burden", and "Transparency and learning" correspond to the tenets of the Paris Declaration, namely "Managing for results", "Ownership", "Alignment", and "Mutual accountability", respectively.

[19] More specifically:

(1) Ownership means that partner countries exercise effective leadership over their development policies and strategies, and coordinate development actions. Under this tenet, the indicator for "operational development

improving aid effectiveness. They agreed on 56 specific actions and 12 indicators, against which they would measure this progress, setting targets for 2010. The progress has been monitored in three successive rounds of the Surveys (in 2006, 2008, and 2011). According to the Survey 2011, only one (coordinated technical cooperation) out of 13 targets established for 2010 has been met.

According to the Survey 2011, the quality of Japanese aid is above the average for donor countries and organizations in most of indicators. (See Table 16).

Table 16: Progress in Indicators for the Paris Declaration

(78 countries and territories in 2010)

Donors/Indicators	2010 Target	Total average	**Japan**	US	UK	Germany	France	Denmark
Ind. 3: Are government **budget estimates** comprehensive and realistic?	85%	41%	**40%**	32%	42%	45%	42%	60%
Ind.4: How much **TA is coordinated** with country programs?	50%	57%	**80%**	49%	39%	74%	57%	88%
Ind.5a: How much aid **uses country PFM systems**?	80%	51%	**69%**	11%	68%	44%	69%	62%
In.5b: How much aid **uses country procurement systems**?	80%	44%	**69%**	13%	69%	60%	74%	78%
Ind.6: How many **PIUs are parallel** to country structures? (the fewer the better)	611	2,358 .	**0**	448	56	35	12	24
Ind.7: Are **disbursements on schedule and recorded** by government?	71%	37%	37%	28%	53%	40%	37%	48%
Ind. 8: How much bilateral aid is **untied?**	Progres s overtime	86%	**92%**	78%	100%	99%	80%	97%
Ind. 9: How much aid is **program-based**?	66%	45%	**50%**	20%	52%	39%	50%	65%
Ind.10a: How many donor **missions are coordinated**?	40%	19%	5%	7%	43%	37%	13%	42%
Ind. 10b: How much country **analysis is coordinated**?	66%	43%	48%	42%	57%	51%	29%	72%

Source: OECD (2011).

strategies" (indicator 1) is monitored.

(2) Alignment means that donors base their overall support on partner countries' national development strategies, institutions, and procedures. Under this tenet, the indicators for "reliable PFM systems" (indicator 2a) and "reliable procurement systems" (indicator 2b) "aligned on national priority (aid recorded to budget)" (indicator 3), "coordinated TA" (indicator 4), "use of country PFM systems (indicator 5a)", "use of country procurement system"(indicator 5b), "avoiding parallel PIUs" (indicator 6), "aid predictability" (indicator 7), and "untied aid" (indicator 8) are monitored.

(3) Harmonization means that donors' actions are more harmonized, transparent, and collectively effective. Under this tenet, the indicators for "use of common arrangement and procedures" (indicator 9), "joint mission" (indicator 10a), and "joint country analytic work" (indicator 10b) are monitored.

(4) Managing for Results means managing and implementing aid in a way that focuses on the desired results and uses information to improve decision-making Under this tenet, the indicator for "monitorable results-based frameworks" (indicator 11) is monitored.

(5) Mutual Accountability means that donors and partners are accountable for development results. Under this tenet, the indicator for "reviews of mutual accountability" (indicator 12) is monitored.

Although many indicators to value aid quality are applied universally, "one size" development assistance may not fit all. Aid effectiveness differs by region, country, and its policy and institutions. It has been empirically confirmed that aid works better in countries with good policy and governance. Better growth prospects and stronger aid effects can be observed in East Asia in comparison with those in Sub Saharan Africa or tropical countries.

Each region has its own aid demands; thus development assistance should reflect the specific demands in each region. Some aid-recipient countries and economies may not have traditional demands for aid to reduce poverty, but have been faced with new and growing challenges, such as population aging, which will deprive East Asia of the "demographic dividends," i.e., a large working age population, high savings and investment ratios, and rapid economic growth. East Asia will need technical assistance and regional cooperation to deal with these new challenges if it is to maintain its growth momentum.

It may be more important to identify the aid demands and the appropriate delivery mechanisms for each region than to rank donors according to universal criteria[20]. The practices of aid donors should be evaluated according to the demands and modalities required in each recipient's circumstances.

[20] There have been attempts to evaluate the qualities of donors by taking into account "regional" requirements or the tendency to provide assistance of each donor in recent ranking exercises. Knack, Rogers, and Eubank (2010) explicitly considered the limited geographical mandate of multilateral organizations, and ranked Asian Development Bank (ADB) 2nd only after IDA out of 38 donors in terms of selectivity, which led to a top overall aid quality ranking for ADB. The regional rankings of the Index of Donor Performance started being published in Roodman (2010). The Index of Donor Performance also considers the contribution of bilateral donors to multilateral organizations to be included in the contribution of each bilateral donor by allocating the quality-adjusted aid totals of multilaterals back to each bilateral in proportion to its net contribution to the multilateral.

REFERENCES

Acharya, A., A. Teresa, F de Lima, and M. Moore. 2006. Proliferation and Fragmentation: Transaction Costs and Value of Aid. *Journal of Development Studies* (42)1: 1-21

Birdsall, N. and H. Kharas. 2010. Quality of Official Development Assistance Assessment. Center for Global Development

Birdsall N, H. Kharas and R. Perakis. 2011. Measuring the Quality of Aid—QuODA second edition. World Bank

Bloom, D. E. and D. Canning. 2004. Global demographic change: Dimensions and economic significance. *NBER Working Paper Series* 10817.

Burnside, C. and D. Dollar. 2000. Aid, Policies, and Growth. *The American Economic Review* .90 (4)

Burnside, C. and D. Dollar. 2004. Aid, Policies, and Growth: Revisiting the Evidence World Bank

Center for Global Development. 2011. The Commitment to Development Index 2011.

Clemens, M., S. Radelet, and R. Bhavnani. 2004. Counting chickens when they hatch: The Short term effect of aid on growth. Center for Global Development Working Paper No. 44

Collier, P. and D. Dollar. 2000. Can the World Cut Poverty in Half? How Policy Reform and Effective Aid Can Meet the International Development Goals. World Bank

Collier, P. and D. Dollar 2002. Aid Allocation and Poverty Reduction. *European Economic Review*

Dollar, D. and V. Levin. 2004. The Increasing Selectivity of Foreign Aid, 1984–2002. World Bank

Dollar, D. and V. Levin (2005) "Sowing and Reaping: Institutional Quality and Project Outcomes in Developing Countries" World Bank

Easterly, W., V. Levin, and D. Roodman. 2004. New Data, New Doubts: A Comment on Burnside and Dollar's 'Aid, Policies, and Growth. *American Economic Review* 94(3) (June)

Easterly, W. 2006. *The White Man's Burden.* Harlow, UK: Penguin Books

Easterly, W. and T. Pfutze. 2008. Where Does the Money Go? Best and Worst Practices in Foreign Aid. *Journal of Economic Perspectives* (22) 2: 29–52

Freedom House. 2008. Freedom in the World Country Rating: 1972–2007

Freedom House. 2011. Freedom in the World Country Rating: 1972–2010

Hansen, H. and F. Tarp. 2000. Aid Effectiveness Disputed. *Journal of International Development* (12)

IDA. 2007a. Selectivity and Performance: IDA's Country Assessment and Development Effectiveness

IDA. 2007b. Aid Architecture: an Overview of the Main Trends in Official Development Assistance Flows

Kaufmann, D., A. Kraay, and M. Mastruzzi. 2008 Governance Matters VII: Governance Indicators for 1996–2007. World Bank Policy Research Working Paper No. 4654

Kaufmann, D., A. Kraay, and M. Mastruzzi. 2010. The Worldwide Governance Indicators; Methodology and Analytical Issues. World Bank Policy Research Working Paper 5430

Kawai, M. 2005. Policy coherence for Development in Japan. Report of Study Group on "Policy Coherence Analysis based on regional economic approach: Experience of East Asia and Policies of other Donors". JBIC

Kihara, T. 2003. Prologue of Economics on Aid Coordination—Is Aid Coordination in the National Interest? MOF/PRI Discussion Paper Series 03A-06、

Kihara, T. 2005. The new wave of Development Finance—Relevance of "Policy and Institutional Environment" and Tailor-made Aid. MOF/PRI Discussion Paper Series 05A-24

Kihara, T. 2009a. Effective Development Aid—Has not Japanese Aid contributed to the Development of East Asia? *Financial Review*, Vol.93, MOF/PRI

Kihara, T. 2009b. Proliferation and Fragmentation of Development Aid and Effective Aid Coordination. MOF/PRI Discussion Paper Series 09A-04

Kihara, T. 2010. *Economics of Aid Donors.* Nippon Hyouron-sya.

Knack, S. and A. Rahman. 2003. Aid Intensity, Donor Fragmentation and the Quality of Governance. Mimeo. World Bank

Knack, S. and A. Rahman 2007. Donor fragmentation and bureaucratic quality in aid recipients. *Journal of Development Economics* 83 (2007): 176–197

Knack, S., F. Halsey Rogers, and N. Eubank. 2010. Aid Quality and Donor Rankings. Policy Research Working Paper 5290. World Bank

Kohama, H., Y. Sawada, H. Takano, and M. Ikegami. 2004. Commitment to Development Index (CDI): Critical Comments. FASID Discussion Paper Number 1

Ministry of Foreign Affairs. 2011. *Japan's Official Development Assistance White paper 2010—Japan's International Cooperation*. Ministry of Foreign Affairs

OECD. 2004. *Development Cooperation Report 2003.* OECD/DAC

OECD. 2005. Aid Allocation Criteria: Managing for Development Results and Difficult Partnerships. Reported by Oxford Policy Management, DCD(2005)4

OECD. 2008a. Scaling Up: Aid Fragmentation, Aid Allocation and Aid Predictability—Report of 2008 Survey of Aid Allocation Policies and Indicative Forward Spending Plans

OECD. 2008b. *International Development Statistics*. CD-ROM

OECD. 2008c. 2008 Survey on Monitoring the Paris Declaration—Making aid more effective by 2010

OECD. 2009a. Development Co-operation Report 2009. Summary. OECD

OECD 2009b International Development Statistics 2009—Revised Edition. OECD

OECD. 2010. International Development Statistics 2010. OECD

OECD, 2011, Aid Effectiveness 2005–10: Progress in implementing the Paris Declaration. OECD

Radelet, S. 2006. A Primer on Foreign Aid. *Center for Global Development Working Paper* Number 92

Roodman, D. 2006a. Aid Project Proliferation and Absorptive Capacity. Center for Global Development Working Paper Number 75

Roodman, D. 2006b. Competitive Proliferation of Aid Projects: A Model. Center for Global Development Working Paper Number 89

Roodman, D. 2007. Macro Aid Effectiveness Research: A Guide for the Perplexed" Center for Global Development Working Paper Number 135

Roodman, D. 2008. An Index of Donor Performance. Center for Global Development Working Paper Number 67. December 2008 Edition

Roodman, D. 2011a. The Commitment to Development Index: 2011 Edition. Center for Global Development

Roodman, D.2011b. An Index of Donor Performance: October 2011 Edition. Working Paper Number 67. Center for Global Development

Roodman, D., C. Prieto, and P. Abarcar. 2011. Commitment to Development Index 2011: Japan. Center for Global Development

Togo, K., and Y. Wada. 2006. Index of Donor Performance 2006: Selectivity and Project Proliferation. RIETI

United Nations. 2007. World Population Prospects: 2006 Revision

World Bank *World Development Indicators* various issues and online

APPENDIX I: FURTHER ANALYSES ON SELECTIVITY OF BILATERAL DONORS

1. Growth Impacts of Aid on Countries with Good Policy and with Poverty

Does aid really enhance per capita growth of the recipient country with good policy or with poverty? The growth rates of GDP per capita of developing countries in Asia and Sub Saharan Africa (SSA) are regressed on explanatory variables common to the neo-classical growth model, and a policy variable—the Freedom House (FH) index—as well as aid- interactive terms with initial income levels and FH index. The estimated results are shown in Table A1.

Table A1: Neo-classical Growth Model with Policies, Poverty, and Aid

(Dependent Variable: GDP per capita growth rate (⊿y/y)(%), Panel estimates with 70 countries and 9 periods (4 years in each period during 1973–2008); Fixed effect model)

Indep. Var.	Const.	Ln (k)	Ln (h)	Ln (n+d+g)	Ln y0	Ln (fh)	Ln y0 x A	Ln (fh) x A	Adj. R2 Obs.
Model 1	15.750*** (4.72)	3.265*** (21.51)	0.627** (2.02)	-1.595 (-1.57)	-1.714*** (-3.37)	-0.796*** (-3.84)			0.634 505
Model 2	13.751*** (3.75)	3.320*** (23.71)	0.623** (2.13)	-1.715** (-2.02)	-1.605*** (-2.69)	-0.036 (-0.10)	1.072* (1.90)	-4.404* (-1.78)	0.636 495

Notes: "Ln" denotes natural log; "k" is gross fixed capital formation per GDP; "h" is the (initial) gross enrollment ratio for secondary school; "n" is the population growth rate; "g" is technological advancement; and "d" is the depreciation rate ((g+d), (fixed at 5% each year); "y0" is initial GDP per capita; "fh" is the FH index; "A" is gross ODA disbursement in relation to recipient's GDP.

Model 1 shown in Table A1 indicates that the human-capital augmented neo-classical growth model with initial income levels and policy variables would well explain the growth of GDP per capita among developing countries in Asia and Sub-Saharan Africa. Physical (k) and human (h) capital are significantly and positively related to the GDP per capita growth rate, whereas population growth is negatively related to the GDP per capita growth rate. "Conditional convergence" can be clearly observed from the negative and significant coefficient on the initial income levels (y0), i.e., the lower the countries' income levels, the faster the country will grow. The policy variable identified by the FH index has a negative and significant coefficient, as expected, because the better (or the freer) a country is, the lower the FH index becomes, and the more growth is spurred.

To investigate the effect of aid on growth in a country with good policy or with a low income level, two interactive terms are added to Model 1, i.e., Ln(y0) x A and Ln(fh) x A. Model 2 specifies the estimation equation as follows:

$$\triangle y/y = a + b1Ln(i) + b2Ln(h) + b3Ln\,(n+d) + b4Ln\ y0 + b5Ln\,(fh) + b6Ln\,(y0) \times A + b7Ln\,(fh) \times A + e$$

The effect of aid on the growth rate of per capita GDP can be found using this equation by partially differentiating it by aid (A), i.e.,

$$\delta\ (\triangle y/y)\ /\ \delta A = b6\ Ln\,(y0) + b7\ Ln\,(fh)$$

From Model 2, the coefficient of initial income level (b6) is estimated to be positive (1.072), whereas the coefficient of the FH index is estimated to be negative (- 4.404); both are significant at the 10% level. The negative coefficient of the FH index (b7) indicates that the smaller the value of Ln (fh) (i.e., the better the policy), the greater the effect of aid on the per capita GDP growth rate. This result is consistent with the recent trend of development assistance being delivered to well-governed countries for it to be more effective (i.e., policy selectivity). But the positive coefficient of initial income levels (y0) in model 2 is contradictory to the proposition that aid should be given to lower income countries. The estimated results show that aid would lead to more growth when given to countries with higher income (larger y0).

Therefore, as far as aid effectiveness in terms of the growth impact on GDP per capita is concerned, the estimated results suggest that "policy selectivity" would make sense as a means of heightening the impact of aid on per capita growth by giving it to better-governed countries. However, "poverty selectivity" could not be explained by the effect of aid on GDP growth, because aid given to higher income countries resulted in a higher growth rate than that given to lower income countries. Poverty selectivity may be better explained by the value of equity and poverty alleviation for which the poor should receive aid. According to the above estimate, "policy selective aid" is more effective when "effectiveness" is gauged by the impact of aid on per capita GDP growth.[21]

[21] If we evaluate the effect of gross aid on GDP per capita growth rates with the sample means of Ln (y0) and Ln(FH), a 1% increase in gross aid in relation to GDP would result in an average increase of the GDP per capita growth rate of 0.43%.[δ ($\triangle$ y/y)/ δ (A)=b6Ln(y0)+b7Ln(fh)=1.072x6.278 – 4.404x1.431=0.430].

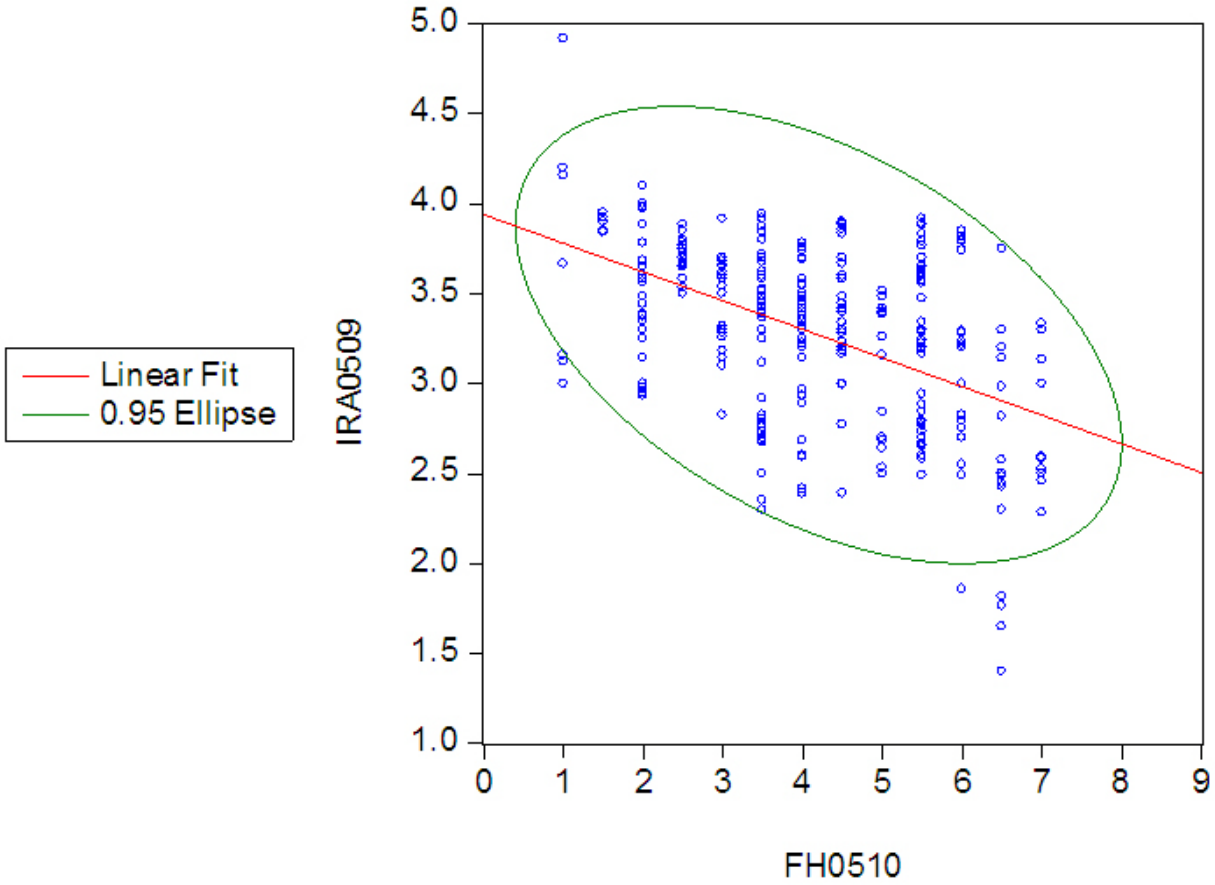
2. Correlations between FH Index, CPIA, and GNI Per Capita

Does the Freedom House Index (FH index) adequately represent the governance or policy environment of the countries where aid is effective? This section illustrates the correlations between the FH index and the most commonly used "policy and institutional" index (World Bank's CPIA), and correlations between the FH index and GNI per capita, to see whether both objectives (targeting both poorly-governed and well-governed countries) can be attained by using one criterion.

(1) Correlation between FH Index and CPIA (IRA)

Is the FH Index well correlated with the CPIA or IRA (IDA resources allocation) Index (often used by World Bank staff to assess the policy environment of developing countries)? The figure below depicts the correlation between the FH Index and the IDA Resources Allocation (IRA) Index of the recipient countries in Asia and SSA during 2005–2009. It clearly indicates that both are negatively and significantly correlated. The correlation coefficient is -0.477 and the regression result of the panel estimate (period random effects) of IRA on FH Index shows a significant (at 1% level) and negative coefficient (-0.159). This means a better (i.e., smaller) FH index is significantly correlated with a better (i.e., larger) IRA index. The FH Index adquately represents the policy and institutional environment IRA measures, and may be used as a proxy for IRA.

Figure A1: Correlation between FH Index (horizontal axis) and IRA (vertical axis)



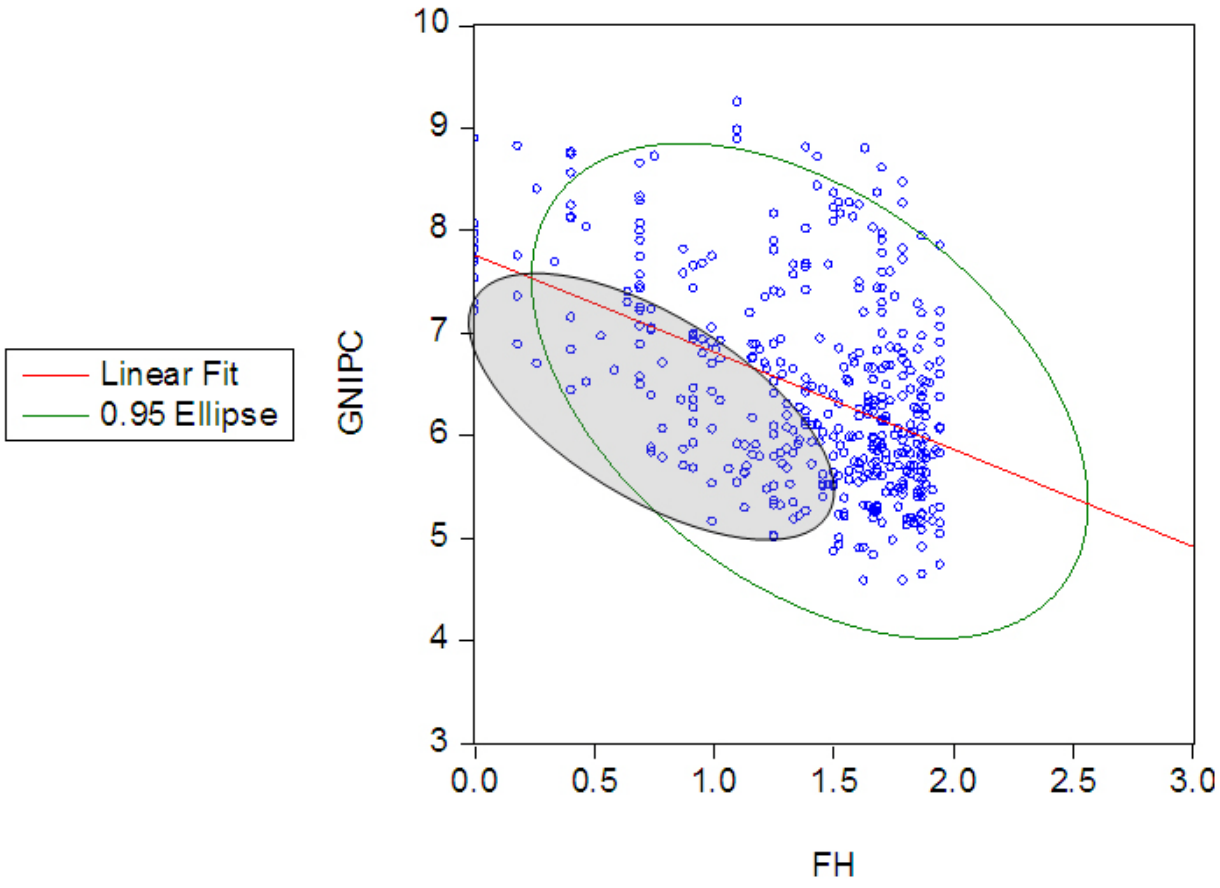
Source: Freedom House (2011), IDA website; and Author's calculations.

(2) Correlation between GNI per capita and FH Index

Figure A2 depicts the correlation between the logarithm of the FH Index (horizontal axis) and the logarithm of GNI per capita (vertical axis) in the observations used for selectivity estimation. It clearly indicates that both are negatively and significantly correlated. The correlation coefficient is -0.456 and the regression result of the panel estimate (period fixed effects model) of Ln (GNI per capita) on Ln (FH Index) shows a significant (at 1% level) and negative coefficient (-0.911). This means that countries with higher income levels tend to have better policy environment (smaller FH Index). Therefore, it would make sense to deliver aid to richer countries if a policy of allocating more aid to the countries with a better policy environment is pursued. This figure also reinforces the estimated results in Table A1 which shows that aid has a greater positive effect on growth in countries with a higher income. This may be due to better governance in such countries

However, for the purpose of poverty reduction, the poorer countries should be targeted on equity grounds. If both objectives should be pursued simultaneoulsy, low-income developing countries with good governance, such as the countries in the gray area of Figure A2, should be targeted.

Figure A2: Correlation between Ln (FH Index) (horizontal axis) and Ln (GNI per capita) (vertical axis)



Source: Freedom House (2011). World Development Indicators; and Author's calculations.

3. Policy and Poverty Selectivity in ODA Grants and ODA Loans

(1) Poverty elasticity of ODA grants and ODA loans

Evaluating selectivity by looking at Gross ODA is misleading because ODA loans are provided to countries with higher debt sustainability, which tend to be the countries with higher income levels. The poverty target may be pursued by providing poor countries with ODA grants. Therefore, poverty selectivity should be measured by grant allocation rather than by allocation of gross ODA.

Tables A1, A2, and A3 show policy elasticity and poverty elasticity of each bilateral donor in its delivery of Gross ODA, ODA grants, and ODA loans to the recipient countries in Asia and SSA, Asia only, and SSA only, respectively. The period of estimation is extended to 2008 (from 2006) owing to the availability of more recent data for bilateral donors (not multilateral donors) in IDS/OECD (OECD 2010). Due to the extended period of estimation and some revisions of old figures in the new data set, the estimated coefficients are different from those presented in the tables of Chapter II of this paper (which were estimated using IDS/OECD data (OECD, 2008b), though the general trend is the same.

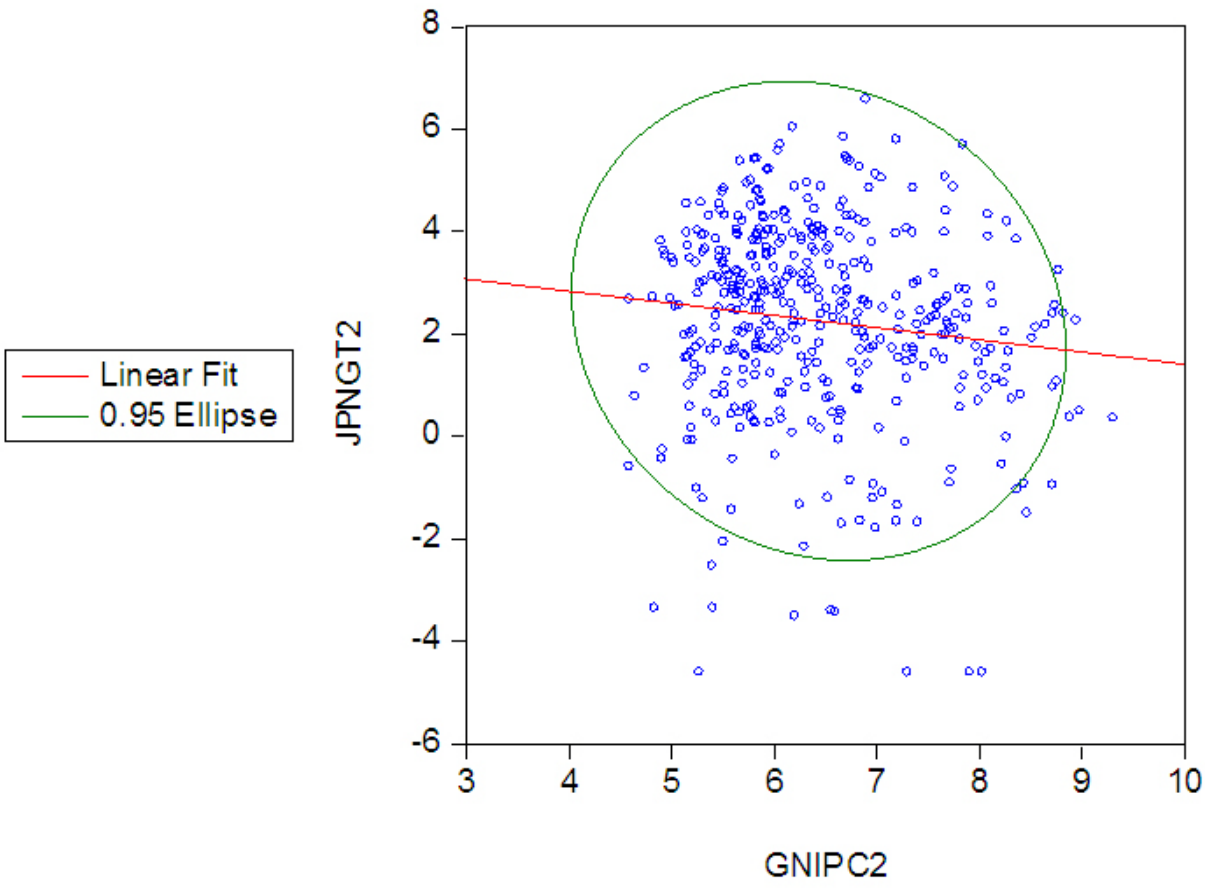
These estimated results clearly show that the magnitudes (absolute values of negative coefficients) of poverty elasticity of grants are generally higher than those of gross ODA in most countries. And selectivity measured by ODA grants delivered by major loan providers, like Japan, is clearly different from selectivity measured by Gross ODA. Japanese income elasticity of grants turns out to be negative (but not significant) compared with the significantly positive elasticity of Gross ODA in the estimations of Asia and SSA taken together, and in the estimations of Asia only. The magnitude of poverty selectivity (negative and significant coefficient) of Japanese grant aid becomes higher than the magnitude of poverty selectivity of Gross ODA in the case of SSA. It is also noteworthy that ODA loans are provided to richer countries (significant and positive income [poverty] elasticity), not only by Japan, but also by Germany and the UK.

This means that Japanese aid is even “poverty selective” when it is measured by the aid allocation of grant which should be delivered to low income countries. The ODA loans are generally provided to the richer countries which tend to have more debt sustainability than lower income countries.

Indeed, the following simple analysis suggests that Japanese ODA grants are in fact poverty selective. Figure A3 depicts the correlation between logarithm of GNI per capita (horizontal axis) and logarithm of Japanese ODA grants (vertical axis) in the observations used for selectivity estimation (Asia and SSA). It indicates that both are negatively and significantly correlated. The correlation coefficient is -0.122, and the regression result of a panel estimate (period fixed effects model) of Ln (Japanese ODA grant) on Ln (GNI per capita) shows a significant (at 1% level) and negative coefficient (-0.359).

This means that higher amounts of Japanese ODA grants have been delivered to countries with lower income levels, and that Japanese grant aid is poverty selective.

Figure A3: Correlation between Ln (GNI per capita) (horizontal axis) and Ln (Japanese ODA Grants) (vertical axis)



Source: OECD (2010), World Development Indicators; and Author's calculations.

(2) Policy and Poverty Selectivity in Aid Allocation to Asia and SSA

Tables A2, A3, and A4 show policy and poverty selectivity in aid allocation (Gross ODA, ODA grants, ODA loans) to recipient countries in Asia and SSA, to recipient countries in Asia only, and to recipient countries in SSA only. The elasticity of ODA loans are estimated only for the five largest ODA donors (US, UK, Germany, France, and Japan).

From these tables, the bilateral donor countries may be classified according to their selective tendencies into the following 4 categories: (1) policy selective (negative coefficient on FH, positive or insignificant coefficient on income), (2) poverty selective (negative coefficient on income, positive or insignificant coefficient on FH), (3) policy and poverty selective (negative coefficients on both FH and income), and (4) not selective (both coefficients are insignificant or with opposite signs).

Table A2: Policy Elasticity and Poverty Elasticity of Bilateral Donors in Gross ODA, ODA grants, and ODA Loans to Asia and Sub-Saharan Africa (Total),

Panel Analysis for Six Periods (1981–2008)

Countries	Gross ODA			ODA Grant			ODA Loans		
	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only
Australia	**-1.522*** (-4.65)**	**0.479*** (3.03)**	-1.043 -1.043	**-1.522*** (-4.65)**	**0.479*** (3.03)**	-1.043 -1.043			
Austria	-0.234 (-1.11)	**-0.431*** (-4.22)**	-0.665 -0.431	-0.050 (-0.25)	**-0.437*** (-4.50)**	-0.487 -0.437			
Belgium	0.122 (0.54)	**-0.522*** (-4.73)**	-0.4 -0.522	0.123 (0.53)	**-0.583*** (-5.23)**	-0.46 -0.583			
Canada	-0.095 (-0.52)	**-0.248*** (-2.80)**	-0.343 -0.248	-0.106 (-0.58)	**-0.292*** (-3.29)**	-0.398 -0.292			
Denmark	**-0.569** (-2.11)**	**-0.585*** (-4.49)**	-1.154 -1.154	**-0.687** (-2.48)**	**-0.684*** (-5.09)**	-1.371 -1.371			
Finland	-0.065 (-0.30)	**-0.335*** (-3.16)**	-0.4 -0.335	-0.105 (-0.49)	**-0.405*** (-3.87)**	-0.51 -0.405			
France	**0.501** (1.99)**	-0.185 (-1.52)	0.316 0.501	**0.714*** (2.78)**	**-0.346*** (-2.77)**	0.368 0.368	-0.193 (-0.52)	0.202 (1.14)	0.009 0
Germany	-0.063 (-0.37)	**-0.385*** (-4.69)**	-0.448 -0.385	-0.056 (-0.32)	**-0.509*** (-5.95)**	-0.565 -0.509	**-0.803** (-2.48)**	**0.923*** (5.86)**	0.12 0.12
Greece	0.101 (0.83)	-0.019 (-0.32)	0.082 0	0.101 (0.83)	-0.019 (-0.32)	0.082 0			
Ireland	-0.023 (-0.11)	**-0.705*** (-6.64)**	-0.728 -0.705	-0.023 (-0.11)	**-0.705*** (-6.64)**	-0.728 -0.705			
Italy	**0.400* (1.70)**	**-0.780*** (-6.83)**	-0.38 -0.780	0.285 (1.28)	**-0.859*** (-7.94)**	-0.574 -0.859			
Japan	**-1.344*** (-6.97)**	**0.183* (1.95)**	-1.161 -1.161	**-1.158*** (-6.31)**	-0.091 (-1.03)	-1.249 -1.158	**-1.393*** (-3.73)**	**0.937*** (5.16)**	-0.456 -0.456
Luxembourg	**-0.760*** (-3.69)**	**-0.552*** (-5.53)**	-1.312 -1.312	**-0.760*** (-3.69)**	**-0.552*** (-5.53)**	-1.312 -1.312			
Netherlands	**-0.624*** (-2.99)**	**-0.824*** (-8.19)**	-1.448 -1.448	**-0.560*** (-2.63)**	**-0.844*** (-8.16)**	-1.404 -1.404			
New Zealand	**-1.149*** (-4.74)**	**0.241** (2.05)**	-0.908 -0.908	**-1.149*** (-4.74)**	**0.241** (2.05)**	-0.908 -0.908			
Norway	-0.041 (-0.18)	**-0.635*** (-5.91)**	-0.676 -0.635	0.034 (0.15)	**-0.678*** (-6.31)**	-0.644 -0.687			
Portugal	-0.144 (-0.58)	-0.183 (-1.52)	-0.327 0	-0.144 (-0.60)	-0.176 (-1.51)	-0.32 0			
Spain	-0.004 (-0.01)	**-0.307** (-2.48)**	-0.311 -0.307	-0.155 (-0.69)	**-0.440*** (-4.04)**	-0.595 -0.440			
Sweden	-0.212 (-0.81)	**-0.672*** (-5.31)**	-0.884 -0.672	-0.212 (-0.82)	**-0.672*** (-5.31)**	-0.884 -0.672			
Switzerland	-0.042 (-0.21)	**-0.915*** (-3.78)**	-0.957 -0.915	-0.064 (-0.32)	**-0.944*** (-9.72)**	-1.008 -0.944			
UK	**-0.725*** (-2.98)**	**-0.431*** (-3.64)**	-1.156 -1.156	**-0.720*** (-2.94)**	**-0.532*** (-4.48)**	-1.252 -1.252	**-1.146*** (-4.16)**	**0.708*** (5.30)**	-0.438 -0.438
US	**-1.044*** (-4.22)**	**-0.631*** (-5.26)**	-1.675 -1.675	**-1.052*** (-4.31)**	**-0.642*** (-5.42)**	-1.694 -1.694	-0.112 (-0.33)	0.024 (0.15)	-0.088 0

Notes: t value in parenthesis. The number below the country name is the order of (b2 + b3).

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A3: Policy Elasticity and Poverty Elasticity of Bilateral donors in Gross ODA, ODA Grants and ODA Loans to Asia,

Panel Analysis for Six Periods (1981–2008)

Countries	Gross ODA			ODA Grant			ODA Loans		
	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only
Australia	**-1.846*** (-4.34)**	0.022 (0.09)	-1.824 -1.846	**-1.844*** (-4.33)**	0.021 (0.09)	-1.824 -1.844			
Austria	-0.163 (-0.63)	-0.234 (-1.55)	-0.397 0	-0.131 (-0.55)	**-0.466*** (-3.05)**	-0.597 -0.466			
Belgium	-0.344 (-1.21)	**-0.298* (-1.73)**	-0.642 -0.298	-0.341 (-1.19)	-0.190 (-1.13)	-0.531 0			
Canada	-0.452 (-1.59)	**-0.321* (-1.76)**	-0.773 -0.321	-0.429 (-1.51)	**-0.333* (-1.84)**	-0.762 -0.333			
Denmark	-0.176 (-0.47)	**-0.549** (-2.30)**	-0.725 -0.549	-0.155 (-0.41)	**-0.630*** (-2.61)**	-0.785 -0.630			
Finland	0.206 (0.84)	**-0.714*** (-4.57)**	-0.508 -0.714	0.204 (0.83)	**-0.794*** (-5.04)**	-0.59 -0.794			
France	0.131 (0.45)	0.100 (0.58)	0.231 0	0.416 (1.45))	0.104 (0.62)	0.52 0	**-1.155*** (-2.66)**	0.274 (0.99)	-0.881 -1.155
Germany	0.126 (0.53)	**-0.299** (-2.11)**	-0.173 -0.299	0.062 (0.24)	**-0.264* (-1.72)**	-0.202 -0.264	**-1.403*** (-3.30)**	0.359 (1.44)	-1.044 -1.403
Greece	0.153 (0.78)	-0.017 (-0.14)	0.136 0	0.153 (0.78)	-0.017 (-0.14)	0.136 0			
Ireland	-0.220 (-0.98)	**-0.825*** (-5.66)**	-1.045 -0.825	-0.220 (-0.98)	**-0.825*** (-5.66)**	-1.048 -0.825			
Italy	**-0.652** (-2.46)**	**-0.327** (-1.99)**	-0.979 -0.979	**-0.620** (-2.53)**	**-0.390** (-2.49)**	-1.01 -1.01			
Japan	**-1.027*** (-5.23)**	**0.401*** (3.35)**	-0.626 -0.626	**-0.763*** (-3.81)**	-0.023 (-0.18)	-0.786 -0.763	**-1.647*** (-4.02)**	**1.040*** (3.98)**	-0.607 -0.607
Luxembourg	-0.224 (-0.87)	**-0.638*** (-3.87)**	-0.862 -0.638	-0.224 (-0.87)	**-0.638*** (-3.87)**	-0.862 -0.638			
Netherlands	**-0.487* (-1.66)**	**-0.757*** (-4.37)**	-1.244 -1.244	-0.458 (-1.56)	**-0.744*** (-4.28)**	-1.202 -0.744			
New Zealand	**-1.076*** (-3.11)**	-0.155 (-0.70)	-1.231 -1.076	**-1.076*** (-3.11)**	-0.155 (-0.70)	-1.231 -1.076			
Norway	0.201 (0.76)	**-0.937*** (-5.52)**	-0.736 -0.937	0.228 (0.86)	**-0.969*** (-5.72)**	-0.741 -0.969			
Portugal	-0.061 (-0.25)	-0.051 (-0.32)	-0.112 0	-0.061 (-0.25)	-0.051 (-0.32)	-0.112 0			
Spain	-0.549 (-1.64)	0.197 (0.92)	-0.352 0	**-0.515* (-1.92)**	-0.048 (-0.28)	-0.563 -0.515			
Sweden	-0.167 (-0.56)	**-1.154*** (-6.00)**	-1.321 -1.154	-0.168 (-0.56)	**-1.152*** (-6.00)**	-1.32 -1.152			
Switzerland	0.155 (0.59)	**-1.291*** (-7.65)**	-1.136 -1.291	0.079 (0.29)	**-1.323*** (-7.68)**	-1.244 -1.323			
UK	-0.497 (-1.44)	**-0.628*** (-2.96)**	-1.125 -0.628	-0.488 (-1.41)	**-0.809*** (-3.82)**	-1.297 -0.809	**-1.323*** (-3.82)**	**1.095*** (5.22)**	-2.418 -2.418
US	**-2.223*** (-5.18)**	**-0.576** (-2.10)**	-2.799 -2.799	**-2.235*** (-5.36)**	**-0.564** (-2.12)**	-2.799 -2.799	-0.823 (-1.65)	-0.104 (-0.33)	-0.927 0

Notes: t value in parenthesis. The number below the country name is the order of (b2 + b3).

Source: OECD (2010). World Development Indicators; and Author's calculations.

Table A4: Policy Elasticity and Poverty Elasticity of Bilateral donors in Gross ODA, ODA Grants and ODA Loans to Sub-Saharan Africa,

Panel Analysis for Six Periods (1981–2008)

Countries	Gross ODA			ODA Grant			ODA Loans		
	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only	Policy Elasticity (b3)	Poverty Elasticity (b2)	b2+b3 sig.only
Australia	-0.170 (-0.44)	**0.287* (1.72)**	0.117 0.287	-0.170 (-0.44)	**0.287* (1.72)**	0.117 0.287			
Austria	-0.403 (-1.22)	**-0.287** (-2.01)**	-0.69 -0.287	0.078 (0.24)	-0.221 (-1.61)	-0.143 0			
Belgium	0.108 (0.37)	-0.196 (-1.57)	-0.088 0	0.102 (0.35)	**-0.246** (-1.99)**	-0.144 -0.246			
Canada	-0.148 (-0.66)	-0.006 (-0.06)	-0.154 0	-0.210 (-0.93)	-0.049 (-0.50)	-0.259 0			
Denmark	**-1.267*** (-3.16)**	**-0.574*** (-3.31)**	-1.841 -1.841	**-1.596*** (-3.84)**	**-0.703*** (-3.94)**	-2.299 -2.299			
Finland	-0.368 (-1.05)	-0.135 (-0.88)	-0.503 0	-0.476 (-1.39)	-0.200 (-1.34)	-0.676 0			
France	-0.121 (-0.39)	-0.030 (-0.22)	-0.151 0	0.131 (0.41)	-0.117 (-0.86)	0.014 0	-0.280 (-0.50)	0.311 (1.31)	0.031 0
Germany	**-0.788*** (-3.61)**	**-0.364*** (-3.90)**	-1.152 -1,152	**-0.733*** (-3.37)**	**-0.469*** (-5.07)**	-1.202 -1.202	-0.754 (-1.50)	**0.922*** (4.33)**	0.168 0.922
Greece	0.095 (0.56)	0.062 (0.87)	0.157 0	0.095 (0.56)	0.062 (0.87)	0.157 0			
Ireland	0.141 (0.41)	-0.265* (-1.82)	-0.124 -0.265	0.141 (0.41)	-0.265* (-1.82)	-0.124 -0.265			
Italy	**0.606** (1.99)**	**-0.502*** (-3.89)**	0.104 0.104	0.421 (1.46)	**-0.600*** (-4.89)**	-0.179 -0.600			
Japan	**-1.237*** (-4.39)**	**-0.231* (-1.92)**	-1.468 -1.468	**-1.134*** (-4.08)**	**-0.323*** (-2.72)**	-1.457 -1.457	**-1.257** (-2.23)**	0.161 (0.67)	-1.096 -1.257
Luxembourg	**-1.722*** (-5.55)**	**-0.483*** (-3.69)**	-2.205 -2.205	**-1.722*** (-5.55)**	**-0.483*** (-3.69)**	-2.205 -2.205			
Netherlands	**-1.068*** (-3.59)**	**-0.688*** (-5.28)**	-1.756 -1.756	**-1.118*** (-3.77)**	**-0.716*** (-5.51)**	-1.834 -1.834			
New Zealand	-0.120 (-0.55)	0.127 (1.38)	0.007 0	-0.120 (-0.55)	0.127 (1.38)	0.007 0			
Norway	**-0.898*** (-2.74)**	**-0.433*** (-2.95)**	-1.331 -1.331	-0.428 (-1.20)	**-0.490*** (-3.26)**	-0.918 -0.490			
Portugal	-0.595 (-1.42)	-0.216 (-1.22)	-0.811 0	-0.589 (-1.46)	-0.211 (-1.24)	-0.8 0			
Spain	0.159 (0.43)	-0.203 (-1.32)	-0.057 0	-0.029 (-0.09)	-0.193 (-1.42)	-0.222 0			
Sweden	-0.664 (-1.57)	**-0.412** (-2.31)**	-1.076 -0.412	-0.663 (-1.57)	**-0.411** (-2.31)**	-1.074 -0.411			
Switzerland	**-0.608** (-2.02)**	**-0.765*** (-5.94)**	-1.373 -1.373	**-0.590** (-1.97)**	**-0.783*** (-6.12)**	-1.373 -1.373			
UK	**-1.040*** (-3.09)**	-0.127 (-0.83)	-1.167 -1.040	**-1.040*** (-3.09)**	-0.184 (-1.21)	-1.224 -1.040	**-0.906** (-2.21)**	**0.616*** (3.35)**	-0.29 -0.29
US	**-0.512* (-1.96)**	**-0.447*** (-4.06)**	-0.959 -0.959	**-0.544** (-2.08)**	**-0.458*** (-4.15)**	-1.002 -1.002	0.779 (1.58)	0.048 (0.23)	0.827 0

Notes: t value in parenthesis. The number below the country name is the order of (b2 + b3).

Source: OECD (2010), World Development Indicators; and Author's calculations.

Bilateral donors can be identified through the following classifications by aid allocations to **Asia and SSA total** (Table A2):

(i) Policy selective—Japan, Australia, New Zealand. This may reflect the fact that aid delivery is focused on a particular area, i.e. Asia.

(ii) Poverty selective—EU donors, including Austria, Belgium, Finland, Germany, Ireland, Italy, Norway, Spain, Sweden, and Switzerland, as well as Canada.

(iii) Policy-Poverty selective—Denmark, Luxembourg, Netherlands, UK, US.

(iv) Not selective—France, Greece, Portugal.

However, these tendencies tend to vary between different recipient regions in particular in the cases of the underlined countries below. For **Asian allocation**, the bilateral donor countries may be classified as follows (Table A3):

(i) Policy selective—Japan, Australia, New Zealand. Spain's grant delivery is also policy selective in Asia.

(ii) Poverty selective—European donors, including Austria (significant only for Grants), Belgium (significant only for Gross ODA), Denmark (different from those in total which is policy-poverty selective), Finland, Germany, Ireland, Luxembourg (different from those in total which is policy-poverty selective), Norway, Sweden, Switzerland, and UK (different from those in total which is policy-poverty selective) as well as Canada.

(iii) Policy-Poverty selective—Italy (different from those in total which is poverty selective), Netherlands, US.

(iv) Not selective—France, Greece, Portugal.

For aid **allocation to SSA,** the bilateral donor countries may be classified as follows (Table A4):

(i) Policy selective—UK (different from those in total which is policy-poverty selective, and from those in Asia which is poverty selective).

(ii) Poverty selective—Austria (significant only for Gross ODA, which is different from total (both Gross ODA and Grant) and from Asia (only for Grant)), Belgium (significant only for Grant, which is different from total (both), and from Asia (only for Gross ODA), Ireland, Italy (reverse policy selectivity which is different form Asia), Sweden.

(iii) Policy-Poverty selective – Denmark (different from Asia in which the policy selectivity is not significant), Germany (different from total and Asia, in both of which the policy selectivity is not significant), Japan (different from total and Asia, in which the policy selectivity is reversely positive or insignificant), Luxembourg (different from Asia, in which the policy selectivity is not significant), Netherlands, Norway (different from total and Asia , in both of which the policy selectivities are not significant), Switzerland (different from total and Asia , in both of which the policy selectivities are not significant), US.

(iv) Not selective—Australia, Canada, Finland, France, Greece, New Zealand, Spain, Portugal.

(3) Regional selective tendencies of bilateral donors

The selective tendencies of many donors in SSA are substantially different from those in total or from those in Asia, suggesting **regional variations in aid deliveries:**

Poverty elasticity of French "grants" aid allocated to Asia and SSA total turns out to be significantly negative, which may mean that France is poverty selective on the basis of grant allocation. However, the poverty elasticities (coefficients of income) of grant delivery within a region (Asia only or SSA only) are estimated as insignificant. This may mean that the significant and negative coefficient of income in total grant delivery merely reflects more aid allocation to SSA which has more low-income countries than Asia (regional difference).

It can also be observed that selective allocations of total aid in each country may reflect regional selective tendencies (significant coefficients) of aid allocation. For instance:

1) **Australian** Policy selectivity in total may reflect significant policy selectivity in Asia, whereas the "reverse" poverty selectivity in total may reflect significant "reverse" poverty selectivity in SSA in both Gross ODA and Grant.

2) **Austrian** Poverty selectivity of Gross ODA in total may reflect significant poverty selectivity in SSA, whereas poverty selectivity of Grants in total may reflect significant poverty selectivity in Asia.

3) **Belgian** Poverty selectivity of Gross ODA in total may reflect significant poverty selectivity in Asia, whereas poverty selectivity of Grants in total may reflect significant poverty selectivity in SSA.

4) **Canadian** Poverty selectivity of both Gross ODA and Grants in total may reflect significant poverty selectivity in Asia.

5) **Danish** Policy selectivity of both Gross ODA and Grants in total may reflect significant policy selectivity in SSA, whereas poverty selectivity in total of both Gross ODA and Grant may reflect significant poverty selectivity in both Asia and SSA.

6) **Finnish** Poverty selectivity of both Gross ODA and Grants in total may reflect significant poverty selectivity in Asia.

7) Although **French** aid in total indicates the significant reverse policy selectivity for both Gross ODA and Grants and significant poverty selectivity for Grants, the estimated coefficients in each region are not significant (This may mean French selectivity captures the differences between regions—more aid to richer Asia, but more grant aid to poorer SSA.)

8) **German** poverty selectivity of both Gross ODA and Grant in total may come from both aid deliveries to Asia and SSA. German policy elasticities are not significant in total due to the positive coefficient in Asia, although negative and significant coefficients for both Gross ODA and Grants can be observed in SSA. For ODA loans, the negative and significant coefficient on policy elasticity may reflect that in Asia, whereas the positive and significant coefficient on poverty elasticity reflects that in SSA.

9) **Irish** poverty selectivity of both Gross ODA and Grants in total may reflect significant poverty selectivity in Asia.

10) **Italian** poverty selectivity of both Gross ODA and Grants in total may reflect significant poverty selectivity in both Asia and SSA. The positive coefficient of policy elasticity in total reflects that in SSA.

11) **Japanese** policy selectivity in total may reflect significant negative coefficient on policy selectivity in both Asia and SSA for all ODA categories. The positive and significant coefficient on poverty elasticity of Gross ODA in total may reflect that in Asia. However, this coefficient turns negative for Grants in total, reflecting that in SSA, the coefficient of which is significant and negative. In SSA, the coefficient of poverty elasticity of Gross ODA is also significant and negative. Japan is poverty selective in aid delivery to SSA. As for ODA loans, the positive and significant poverty (income) elasticity in total may reflect that in Asia.

12) The poverty selectivity of **Luxembourg** of both Gross ODA and Grants in total may reflect significant poverty selectivity in both Asia and SSA. The negative coefficient of policy elasticity in total may reflect that in SSA.

13) **Dutch** policy and poverty selectivity of Gross ODA and Grants in total may reflect those of both Asia and SSA.

14) Although **Spanish** aid in total indicates significant poverty selectivity of Gross ODA as well as Grants, the estimated coefficient in each region is not significant (This may mean that Spanish selectivity captures the differences between regions—more aid to poorer SSA than to richer Asia.)

15) **Swedish** poverty selectivity of Gross ODA and Grants in total may reflect those of both Asia and SSA.

16) **Swiss** insignificant coefficients of policy selectivity for Gross ODA and Grants in total may reflect those of Asia. Both policy and poverty elasticities of Gross ODA and Grants to SSA are significantly negative.

17) **British** significant coefficients on policy selectivity in total may reflect those in SSA, whereas its significant coefficients of poverty selectivity in total may reflect those in Asia for both Gross ODA and Grants. Regardless of the regions, British ODA loans are consistently provided to those countries with better policy environment (negative coefficients on policy variable) and with higher income level (positive coefficients on poverty [income] variable).

18) **American** significant coefficients of policy and poverty selectivity of Gross ODA and Grants in total may reflect those in both Asia and SSA, although the values of the coefficients are different between regions (more policy elastic in Asia than SSA).

(4) Structural Differences in Aid Allocation to Asia and SSA

Tables A5, A6, and A7 present the results of Chow tests to identify the structural variation by region in allocating Gross ODA, ODA grants, and ODA loans. The Chow test (Table A5) still shows structural differences in gross ODA allocations to Asia compared with to SSA taking account of the extended sample up to 2008.

The structural differences in ODA grant allocations as well as allocations of ODA loans among Asia and SSA are also investigated by using the Chow test. As Table A6 indicates, the pattern of rejections (indicated by "O") of the null hypothesis (H0: the coefficients of all explanatory variables in the estimated equations for aid allocation to Asia are the same as those to SSA) in gross ODA are quite similar to those of ODA grants, but not to those of ODA loans. This may mean that the structural differences in gross ODA reflect the differences of aid delivery through ODA grants.

The Chow test of ODA loans (Table A7) indicates that the allocation patterns of ODA loans by the US, Germany, and UK are indifferent between recipient countries in Asia and SSA. France used to distinguish the loan delivery patterns between Asia and SSA until mid-1990. On the

other hand, Japan has been regionally differentiating ODA loan delivery patterns among Asia and SSA since 1990.

Table A5: Structural Differences in Aid Allocations to Asia and SSA (Chow test)(Gross ODA)

Donors	1981–1985	1986–1990	1991–1995	1996–2000	2001–2005	2006–2008	○share
US	○ (0.027)	○ (0.000)	○ (0.042)	× (0.249)	○ (0.004)	○ (0.005)	5／6
Japan	○ (0.027)	○ (0.017)	○ (0.018)	○ (0.000)	○ (0.000)	○ (0.000)	6／6
Germany	○ (0.020)	○ (0.002)	○(0.001)	○ (0.000)	○ (0.000)	○ (0.003)	6／6
France	○ (0.004)	○ (0.003)	○ (0.000)	○ (0.000)	○ (0.000)	○ (0.000)	6／6
UK	×(0.917)	× (0.505)	×(0.576)	○ (0.006)	○ (0.001)	○ (0.027)	3／6
Denmark	× (0.504)	○ (0.096)	× (0.161)	× (0.250)	× (0.662)	○(0.054)	2／6

Note: Null hypothesis (H0): The coefficients of all explanatory variables to estimate aid allocations of each donor to Asian countries are the same as those for the countries in SSA. "○" is assigned if H0 is rejected at a 10% significance level, otherwise "x" is assigned. The p value of the Chow test in each regression is presented in parentheses.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A6: Structural Differences in Aid Allocations to Asia and SSA (Chow test) (ODA Grant)

Donors	1981–1985	1986–1990	1991–1995	1996–2000	2001–2005	2006–2008	○share
US	○ (0.012)	○ (0.000)	○ (0.039)	× (0.183)	○ (0.004)	○ (0.005)	5／6
Japan	○ (0.086)	○(0.013)	× (0.126)	○ (0.008)	○ (0.000)	○ (0.000)	5／6
Germany	○ (0.033)	○ (0.001)	○ (0.000)	○ (0.000)	○ (0.000)	○ (0.002)	6／6
France	○ (0.004)	○ (0.009)	○ (0.000)	○ (0.000)	○ (0.000)	○ (0.000)	6／6
UK	× (0.955)	× (0.570)	× (0.494)	○ (0.006)	○ (0.002)	○ (0.020)	3／6
Denmark	× (0.540)	○ (0.097)	× (0.151)	× (0.277)	× (0.668)	○ (0.097)	2／6

Note: Null hypothesis (H0): The coefficients of all explanatory variables to estimate aid allocations of each donor to Asian countries are the same as those for the countries in SSA. "○" is assigned if H0 is rejected at a 10% significance level, otherwise "x" is assigned. The p value of the Chow test in each regression is presented in parentheses.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A7: Structural Differences in Aid Allocations to Asia and SSA (Chow test) (ODA Loan)

Donors	1981–1985	1986–1990	1991–1995	1996–2000	2001–2005	2006–2008	○share
US	× (0.990)	× (0.807)	× (0.605)	× (0.778)	× (0.565)	× (0.780)	0／6
Japan	× (0.433)	× (0.313)	○ (0.057)	○ (0.001)	○ (0.002)	○ (0.000)	4／6
Germany	× (0.614)	× (0.307)	× (0.739)	× (0.224)	×(0.775)	× (0.196)	0／6
France	○ (0.007)	○ (0.003)	○ (0.002)	× (0.116)	× (0.542)	× (0.244)	3／6
UK	× (0.421)	× (0.429)	× (0.602)	× (0.767)	× (0.749)	× (0.208)	0／6

Note: Null hypothesis (H0): The coefficients of all explanatory variables to estimate aid allocations of each donor to Asian countries are the same as those for the countries in SSA. "○" is assigned if H0 is rejected at a 10% significance level, otherwise "x" is assigned. The p value of the Chow test in each regression is presented in parentheses.

Source: OECD (2010), World Development Indicators; and Author's calculations.

(5) Chronological Changes in selectivity of major donors and Denmark

Tables A8 to A13 present the chronological changes of elasticity in five major donor countries and Denmark up to 2008. Because the revisions of figures and the extension of the estimation period, the coefficients are different from those presented in Table 5 of this paper.

However, quite large chronological changes in poverty and policy elasticity even within donor countries can be observed, as presented in Table 5.

United States: Poverty elastic aid in total in the 1980s mainly reflected poverty elastic aid to SSA. Policy elastic aid in total since the latter half of the 1990s reflected policy elastic aid to Asia.

Japan: In 1980s, poverty elasticities of Japanese gross ODA and grants were negative and significant, in particular for SSA. It generally indicates the poverty selectivity of grant allocation is more than that of gross ODA. Policy elasticities of gross ODA, ODA grants and ODA loans are constantly negative and generally significant. The poverty elasticity of ODA grant to Asia has been negative in 2000s, and recently significant.

Germany: The poverty selectivity of grant allocation is constantly more than that of gross ODA. By 1995, gross ODA allocations to SSA seemed to have contributed to poverty selectivity in total. In more recent years, those to Asia seem to have contributed to poverty selectivity in total.

France: French aid to SSA might have been determined by criteria other than policy, poverty, or population from 1981 to 2000(according to the F test for the estimated equations)

United Kingdom: In 1980s, the UK delivered its aid on the basis of policy rather than poverty. The UK has constantly provided more ODA loans to richer countries with better policy environments. The poverty elastic aid in total has mainly reflected aid to Asia rather than to SSA since 1990s.

Denmark: Denmark recorded a good performance in significance of selectivity in 1980s, but not so much after that. The absolute values of poverty elasticity for ODA grants are generally larger than those for gross ODA.

Table A8: Chronological Changes in Policy and Poverty Elasticity of Aid Allocations (USA)

Period	Gross ODA			ODA Grants			ODA Loans		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}
1981–85 Total	0.044 (0.05)	**-0.898*** (-1.97)	-0.854 {-0.898}	0.104 (0.11)	**-0.891** (-2.03)**	-0.787 {-0.891}	-0.673 (-0.53)	-0.040 (-0.07)	-0.713 {0}
Asia	-2.182	-0.286	-2.468	-2.233	-0.240	-2.473	-0.605	-0.326	-0.931
SSA	-0.961	**-1.076*** **	-2.037	-1.001	**-1.073*** **	-2.074	[-0.840]	[0.011]	[-0.829]
1986–90 Total	-0.318 (-0.34)	**-1.164** (-2.50)**	-1.482 {-1.164}	-0.291 (-0.32)	**-1.157** (-2.53)**	-1.448 {-1.157}	-1.176 (-1.10)	-0.421 (-0.79)	-1.597 {0}
Asia	**-4.115** **	-0.746	-4.861	**-4.081** **	-0.714	-4.795	-2.860	-0.350	-3.21
SSA	0.028	**-1.125*** **	-1.097	0.019	**-1.125*** **	-1.106	0.061	-0.298	-0.237
1991–95 Total	-0.861 (-1.22)	-0.462 (-1.42)	-1.323 {0}	-0.946 (-1.35)	-0.486 (-1.50)	-1.432 {0}	0.208 (0.23)	0.312 (0.75)	0.52 {0}
Asia	[-1.912]	[-0.350]	[-2.262]	[-2.008]	[-0.360]	[-2.368]	-0.625	-0.135	-0.76
SSA	-0.148	-0.033	-0.181	-0.219	-0.064	-0.283	1.817	0.654	2.471
1996–2000 Total	**-1.787*** ** (-3.97)	**-0.619*** ** (-2.79)	-2.406 {-2.406}	**-1.912*** ** (-4.30)	**-0.663*** ** (-3.03)	-2.575 {-2.575}	**1.560** ** (2.03)	0.568 (1.50)	2.128 {1.560}
Asia	**-2.445*** **	-0.772	-3.217	**-2.571*** **	-0.741	-3.312	[0.942]	[0.211]	[1.153]
SSA	-0.746	-0.266	-1.012	**-0.853***	-0.298	-1.151	**[2.223** *]**	[0.584]	[2.807]
2001–05 Total	**-0.051** ** (-2.40)	**-0.608*** ** (-2.84)	-1.659 {-1.659}	-0.105** (-2.40)	**-0.611** ** (-2.87)	-1.659 {-1.659}	0.240 (0.36)	-0.119 (-0.36)	0.121 {0}
Asia	**-1.312***	-0.653	-1.965	**-1.289***	-0.657	-1.955	[-0.618]	[0.197]	[-0.421]
SSA	-0.369	-0.283	-0.652	-0.381	-0.282	-0.663	[1.087]	[-0.263]	[0.824]
2006–08 Total	**-1.410*** ** (-3.29)	**-0.453** ** (-2.26)	-1.863 {-1.863}	**-1.405*** ** **(-3.28)**	**-0.453** ** **(-2.25)**	-1.858 {-1.858}	-0.583 (-1.09)	-0.168 (-0.67)	-0.751 {0}
Asia	**-1.825** **	-0.522	-2.347	**-1.817** **	-0.523	-2.34	[-1.059]	[-0.301]	[-1.36]
SSA	-0.684	-0.124	-0.808	-0.681	-0.122	-0.803	[-0.240]	[-0.242]	[-0.482]

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis { } under "selectivity" is the sum of significant elasticity. The values in parenthesis [ ] indicates the coefficients of the estimated equations in which the null hypothesis "*the coefficients of all explanatory variables are zero"* is not rejected.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A9: Chronological Changes in Poverty and Policy Elasticity of Aid Allocations (Japan)

Period	Gross ODA			ODA Grants			ODA Loans		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}
1981–85 Total	**-2.105**** **(-3.23)**	**-0.545*** **(-1.74)**	-2.65 {-2.65}	**-1.692***** **(-2.92)**	**-0.651**** **(-2.33)**	-2.343 {-2.343}	**-1.831*** **(-1.88)**	-0.082 (-0.17)	-1.913 {-1.831}
Asia	-0.877	0.074	-0.803	-0.564	-0.193	-0.757	-1.216	0.351	-0.865
SSA	-1.195	**-0.852****	-2.047	-1.137	**-0.895****	-2.032	-0.341	-0.265	-0.606
1986–90 Total	**-2.241***** **(-3.57)**	**-0.619*** **(-1.99)**	-2.86 {-2.86}	**-1.732***** **(-2.78)**	**-0.877***** **(-2.83)**	-2.609 {-2.609}	**-2.568**** **(-2.53)**	0.138 (0.27)	-2.43 {-2.568}
Asia	**-1.624****	0.524	-1.1	**-1.097***	0.167	-0.93	**-4.201*****	**1.561***	-2.64
SSA	-1.424	**-1.074*****	-2.498	-0.790	**-1.268*****	-2.058	-1.644	-0.236	-1.88
1991–95 Total	**-1.727***** **(-3.28)**	0.046 (0.19)	-1.681 {-1.727}	**-1.452***** **(-3.10)**	-0.100 (-0.46)	-1.552 {-1.452}	**-3.212***** **(-3.06)**	0.240 (0.50)	-2.972 {-3.212}
Asia	**-1.829****	0.426	-1.403	**-1.437****	0.212	-1.225	**-4.537*****	0.470	-4.067
SSA	-0.937	-0.321	-1.258	-0.932	-0.320	-1.252	-0.660	-0.129	-0.85
1996–2000 Total	**-1.056**** **(-2.48)**	**0.582***** **(2.78)**	-0.474 {-0.474}	**-0.901**** **(-2.28)**	0.278 (1.43)	-0.623 {-0.901}	**-1.635*** **(-1.91)**	**1.368***** **(3.23)**	-0.267 {-0.267}
Asia	**-0.729***	**0.681****	-0.048	-0.518	0.350	-0.168	-0.810	**0.846***	0.036
SSA	**-1.379****	0.023	-1.356	**-1.163***	-0.052	-1.215	**-3.047****	0.412	-2.635
2001–05 Total	**-0.895**** **(-2.06)**	**0.666***** **(3.14)**	-0.229 {-0.229}	**-0.996**** **(-2.28)**	0.312 (1.46)	-0.684 {-0.996}	-0.106 (-0.13)	**1.568***** **(3.85)**	1.462 {1.568}
Asia	**-0.503***	**0.438****	-0.065	-0.463	-0.099	-0.562	-0.559	**1.485*****	0.926
SSA	**-1.398****	0.303	-1.095	**-1.499****	0.226	-1.273	-0.275	0.642	0.367
2006–08 Total	**-0.724**** **(-2.34)**	0.182 (1.25)	-0.542 {-0.742}	**-0.540*** **(-1.731)**	-0.188 (-1.29)	-0.728 {-0.540}	-0.209 (-0.25)	**1.318***** **(3.32)**	1.109 {1.318}
Asia	**-1.006****	0.073	-0.933	-0.597	**-0.478***	-1.075	-0.628	**1.477****	0.849
SSA	-0.559	-0.018	-0.577	-0.409	-0.152	-0.561	[-0.743]	[0.141]	[-0.602]

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis { } under "selectivity" is the sum of significant elasticity. The values in parenthesis [ ] indicates the coefficients of the estimated equations in which the null hypothesis "*the coefficients of all explanatory variables are zero"* is not rejected.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A10: Chronological Changes in Policy and Poverty Elasticity of Aid Allocations (Germany)

Period	Gross ODA			ODA Grant			ODA Loans		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity (significant only)	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity (significant only)	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity (significant only)
1981–85 Total	-0.017 (-0.03)	**-0.891*** (-2.85)**	-0.908 {-0.891}	0.200 (0.32)	**-1.014*** (-3.36)**	-0.814 {-1.014}	-0.938 (-0.94)	0.510 (1.03)	-0.428 {0}
Asia	-1.333	-0.408	-1.741	-1.112	-0.517	-1.629	-1.090	0.087	-1.003
SSA	-0.677	**-1.066*** **	-1.743	-0.507	**-1.176*** **	-1.683	[-1.495]	[0.573]	[-0.922]
1986–90 Total	0.082 (0.15)	**-0.608** (-2.30)**	-0.526 {-0.608}	0.123 (0.22)	**-0.891*** (-3.23)**	-0.761 {-0.891}	-0.882 (-0.86)	0.471 (0.92)	-0.411 {0}
Asia	-0.207	0.349	0.142	-1.141	-0.024	-1.165	-3.523**	0.722	-2.801
SSA	-0.876	**-1.016*** **	-1.892	-0.145	**-1.191*** **	-1.336	[0.578]	[0.559]	[1.137]
1991–95 Total	-0.119 (-0.33)	-0.186 (-1.12)	-0.305 {0}	-0.365 (-0.77)	**-0.386* (-1.77)**	-0.751 {-0.386}	-0.140 (-0.14)	0.460 (0.10)	0.32 (0)
Asia	-0.288	0.239	-0.049	-0.897	0.262	-0.635	-0.852	0.554	-0.298
SSA	**-0.639***	**-0.311** **	-0.95	-0.630	**-0.441** **	-1.071	0.152	0.610	0.762
1996–2000 Total	0.207 (0.63)	-0.229 (-1.41)	-0.022 {0}	0.287 (0.87)	**-0.361** (-2.22)**	-0.074 {-0.361}	-1.020 (-1.33)	**1.104*** (2.93)**	0.084 {1.104}
Asia	0.540	-0.336	0.204	**0.808***	-0.431	0.377	-1.251	0.548	-0.703
SSA	-0.574	-0.128	-0.702	**-0.653***	-0.221	-0.874	-1.387	**1.062***	-0.325
2001–05 Total	-0.278 (-0.88)	**-0.441*** (-2.85)**	-0.719 {-0.441}	-0.306 (-0.98)	**-0.544*** (-3.55)**	-0.85 {-0.544}	-0.932 (-1.44)	**1.098*** (7.36)**	0.166 {1.098}
Asia	0.262	**-0.755*** **	-0.493	0.224	**-0.812** **	-0.572	-1.382	0.545	-0.837
SSA	**-0.751** **	-0.092	-0.843	**-0.798** **	-0.246	-1.044	-0.436	**1.393*** **	0.957
2006–08 Total	-0.514 (-1.34)	-0.265 (-1.47)	-0.779 {0}	-0.434 (-1.170	**-0.309* (-1.77)**	-0.743 {-0.309}	**-1.074* (-1.78)**	**1.331*** (4.72)**	0.257 {0.257}
Asia	0.136	-0.475	-0.339	0.238	-0.531	-0.293	-1.104	0.972	-0.132
SSA	**-1.009** **	0.024	-0.985	**-0.917** **	0.007	-0.91	-1.292	**1.076*** **	-0.216

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis { } under "selectivity" is the sum of significant elasticity. The values in parenthesis [ ] indicates the coefficients of the estimated equations in which the null hypothesis "*the coefficients of all explanatory variables are zero"* is not rejected.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A11: Chronological Changes in Policy and Poverty Elasticity of Aid Allocations (France)

Period	Gross ODA			ODA Grants			ODA Loans		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity (significant only)
1981–85 Total	**1.654*** **(1.92)**	-0.236 (-0.57)	1.418 {1.654}	**2.049**** **(2.45)**	-0.220 (-0.55)	1.829 {2.049}	1.271 (1.24)	-0.226 (-0.46)	1.045 {0}
Asia	**-1.235**	0.221	-1.014	-0.718	-0.067	-0.785	-1.994	0.384	-1.61
SSA	[1.533]	[-0.317]	[1,216]	[1.846]	[-0.189]	[1.657]	[1.310]	[-0.353]	[0.957]
1986–90 Total	1.237 (1.65)	-0.214 (-0.57)	1.023 {0}	**1.517**** **(2.16)**	-0.375 (-1.09)	1.142 {1.517}	1.121 (1.06)	0.307 (0.58)	1.428 {0}
Asia	-0.327	0.425	0.098	0.156	0.234	0.39	-1.885	1.162	-0.723
SSA	[0.974]	[-0.488]	[0.486]	[1.038]	[-0.589]	[0.449]	[1.453]	[0.037]	[1.19]
1991–95 Total	0.337 (0.45)	-0.176 (-0.51)	0.161 {0}	0.686 (0.91)	-0.454 (-1.31)	0.232 {0}	-0.101 (-0.10)	0.559 (1.24)	0.458 {0}
Asia	-0.837	-0.004	-0.841	-0.168	-0.220	-0.388	**-2.438****	0.831	-1.607
SSA	[-0.194]	[-0.028]	[-0.222]	[-0.349]	[-0.324]	[-0.673]	[1.341]	[0.955]	[2.896]
1996–2000 Total	0.179 (0.31)	-0.217 (-0.75)	-0.038 {0}	0.258 (0.43)	-0.399 (-1.35)	-0.141 {0}	-0.053 (-0.07)	0.695* (1.77)	0.642 {0.695}
Asia	-0.044	0.070	0.026	0.058	-0.004	0.054	-0.432	-0.016	-0.416
SSA	[-0.073]	[0.105]	[0.032]	[0.022]	[-0.043]	[-0.021]	[-0.006]	[1.255**]	[1.249]
2001–05 Total	-0.140 (-0.26)	-0.338 (-1.29)	-0.478 {0}	-0.103 (-0.19)	-0.411 (-1.55)	-0.514 {0}	-0.903 (-1,12)	-0.034 (-0.09)	-0.937 {0}
Asia	0.270	0.001	0.271	0.326	-0.036	0.29	-1.049	0.080	-0.969
SSA	-0.358	0.110	-0.248	-0.288	0.083	-0.205	[-0.646]	[0.251]	[-0.395]
2006–08 Total	0.252 (0.49)	-0.162 (-0.67)	0.09 {0}	0.388 (0.76)	-0.232 (-0.96)	0.156 {0}	-1.222 (-1.37)	-0.031 (-0.07)	-1.253 {0}
Asia	**1.078***	0.078	1.156	**1.040***	0.018	1.058	-0.616	-0.008	-0.624
SSA	-0.314	0.221	-0.103	0.008	0.189	0.197	[-1.958]	[-0.027]	[-1.985]

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis { } under "selectivity" is the sum of significant elasticity. The values in parenthesis [ ] indicates the coefficients of the estimated equations in which the null hypothesis "*the coefficients of all explanatory variables are zero"* is not rejected.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A12: Chronological Changes in Policy and Poverty Elasticity of Aid Allocations (UK)

Period	Gross ODA			ODA Grants			ODA Loans		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity (significant only)
1981–85 Total	**-2.945*** (-3.50)**	-0.666 (-1.64)	-3.611 {-3.611}	**-2.994*** (-3.63)**	**-0.818** (-2.06)**	-3.812 {-3.812}	[-0.448] (-0.48)	**[0.974**] (2.15)**	[0.526] {0.974}
Asia	**-3.141****	-0.906	-4.047	**-3.159****	-1.057	-4.216	[0.569]	**[1.965**]**	[2.534]
SSA	**-3.667****	-0.584	-4.251	**-3.555****	-0.736	-4.291	[-2.583]	[0.522]	[-2.061]
1986–90 Total	**-2.654*** (-3.54)**	-0.454 (-1.22)	-3.108 {-2.654}	**-2.336*** (-3.05)**	-0.495 (-1.30)	-2.831 {-2.336}	**-1.842** (-2.48)**	**0.691* (1.88)**	-1.151 {-1.151}
Asia	**-3.407****	0.362	-3.045	**-2.782***	0.262	-2.52	**-3.220*****	**1.429****	-1.791
SSA	**-2.904****	-0.568	-3.472	**-2.920****	-0.621	-3.541	[-1.149]	[0.544]	[-0.605]
1991–95 Total	-0.603 (-1.09)	-0.018 (-0.07)	-0.621 {0}	-0.539 (-0.97)	-0.094 (-0.37)	-0.633 {0}	**-1.535** (-2.22)**	**0.854*** (2.68)**	-0.681 {-0.681}
Asia	-1.069	-0.246	-1.315	-0.921	-0.383	-1.304	**-2.285****	**1.198****	-1.087
SSA	-0.102	0.320	0.218	-0.177	0.283	0.106	[-0.860]	[0.690]	[-0.17]
1996–2000 Total	0.021 (0.04)	-0.250 (-0.99)	-0.229 {0}	0.041 (0.08)	-0.285 (-1.13)	-0.244 {0}	**-1.472** (-2.50)**	**0.832*** (2.87)**	-0.64 {-0.64}
Asia	0.086	**-0.645***	-0.559	0.148	**-0.683***	-0.535	**-1.864*****	**0.806****	-1.058
SSA	-0.161	0.312	0.151	-0.190	0.268	0.078	-1.093	**1.032****	-0.061
2001–05 Total	0.004 (0.01)	**-0.572** (-2.39)**	-0.558 {-0.572}	0.072 (0.14)	**-0.641*** (-2.65)**	-0.569 {-0.641}	**-0.153*** (-2.72)**	**0.572** (2.01)**	0.419 {0.419}
Asia	0.273	**-0.940****	-0.667	0.207	**-1.081****	-0.874	**-1.430***	**0.841***	-0.589
SSA	0.161	0.157	0.318	0.377	0.109	0.486	-1.526	0.696	-0.83
2006–08 Total	**-0.796* (-1.78)**	**-0.683*** (-3.21)**	-1.479 {-1.479}	**-0.939* (-2.05)**	**-0.877*** (-4.00)**	-1.816 {-1.816}	**-0.923* (-1.69)**	**0.549* (2.14)**	-0.374 {-0.374}
Asia	0.419	**-0.707***	-0.288	-0.664	**-1.200*****	-1.864	**-1.121***	**1.048****	-0.073
SSA	-0.920	**-0.483***	-1.403	-0.919	**-0.510***	-1.429	-0.665	0.348	-0.317

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis { } under "selectivity" is the sum of significant elasticity. The values in parenthesis [ ] indicates the coefficients of the estimated equations in which the null hypothesis "*the coefficients of all explanatory variables" are zero* is not rejected.

Source: OECD (2010), World Development Indicators; and Author's calculations.

Table A13: Chronological Changes in Policy and Poverty Elasticity of Aid Allocations (Denmark)

Period	Gross ODA			ODA Grants		
	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity = sum of the elasticity {significant only}	Ln(FH Index) = policy elasticity	Ln(GNI per capita) = poverty elasticity	Selectivity =sum of the elasticity {significant only}
1981–85 Total	-0.293 (-0.43)	**-1.091*** (-3.30)**	-1.384 {-1.091}	-0.560 (-0.84)	**-1.200*** (-3.72)**	-1.76 {-1.200}
Asia	0.425	**-1.133***	-0.708	0.050	**-1.324****	-1.274
SSA	-1.750	**-1.194*****	-2.944	**-2.095***	**-1.249*****	-3.344
1986–90 Total	-0.220 (-0.25)	**-1.226*** (-2.81)**	-1.446 {-1.226}	-0.521 (-0.62)	**-1.538*** (-3.67)**	-2.059 {-1.538}
Asia	-0.999	-1.207	-2.206	-0.827	**-1.412***	-2.239
SSA	-1.367	**-1.298****	-2.665	-1.959	**-1.685*****	-3.644
1991–95 Total	-0.910 (-1.19)	**-0.664* (-1.89)**	-1.574 {-0.664}	-0.920 (-1.19)	**-0.718** (-2.01)**	-1.638 {-0.718}
Asia	-1.447	-0.625	-2.072	-1.405	-0.663	-2.068
SSA	-1.168	-0.475	-1.643	-1.256	-0.522	-1.778
1996–2000 Total	-0.668 (-1.06)	-0.432 (-1.40)	-1.1 {0}	-0.730 (-1.11)	-0.446 (-1.38)	-1.176 {0}
Asia	0.150	-0.253	-0.103	0.082	-0.312	-0.23
SSA	-1.548*	-0.283	-1.831	-1.625	-0.280	-1.905
2001–05 Total	-0.339 (-0.54)	-0.287 (-0.94)	-0.626 {0}	-0.507 (-0.79)	-0.371 (-1.19)	-0.878 {0}
Asia	0.380	-0.245	0.135	0.332	-0.335	-0.003
SSA	-0.885	-0.238	-1.123	-1.237	-0.405	-1.642
2006–08 Total	-0.703 (-1.21)	**-0.600**** (-2.20)	-1.303 {-0.600}	-0.830 (-1.37)	**-0.632** (-2.23)**	-1.462 {-0.632}
Asia	0.217	-0.512	-0.295	0.227	-0.528	-0.301
SSA	-1.195	-0.329	-1.524	**-1.495***	-0.428	-1.923

Notes: t value in parentheses under "poverty elasticity" and "policy elasticity". Significance levels are indicated with *** at 1%, ** at 5% and * at 10%. The number in parenthesis { } under "selectivity" is the sum of significant elasticity. The values in parenthesis [ ] indicates the coefficients of the estimated equations in which the null hypothesis "*the coefficients of all explanatory variables are zero"* is not rejected.

Source: OECD (2010), World Development Indicators; and Author's calculations.

APPENDIX II: INDEX OF AID FRAGMENTATION BY COUNTRY

Table A14: IAF of Asian countries

Period/ Country	1980–2006	2000–06	1981–85	1986–90	1991–95	1996–2000	2001–05	2006
Cambodia	87.58	89.88	81.87	85.71	90.54	90.37	89.70	91.29
Lao PDR	86.09	86.56	87.85	85.38	86.54	82.52	87.16	89.59
Mongolia	61.54	83.25	15.19	70.63	70.11	74.68	84.24	87.44
Myanmar	71.89	83.06	76.73	69.82	59.72	66.04	83.08	91.54
Papua New Guinea	45.30	43.51	30.13	48.27	55.75	54.16	42.02	42.21
Solomon Islands	70.45	47.19	78.67	81.85	79.07	73.17	44.85	47.58
Timor-Leste	47.18	85.08	38.83	0.00	27.66	60.53	85.79	87.35
Viet Nam	83.26	81.42	81.48	84.47	86.23	80.46	83.37	85.01
PRC	74.17	69.34	73.21	78.96	76.28	72.38	68.31	72.09
Fiji	77.05	71.88	82.14	79.60	79.33	71.92	71.45	78.66
Indonesia	70.28	75.30	83.20	69.80	62.76	55.48	75.24	84.30
Marshall Islands	34.30	30.30	0.00	0.00	32.92	42.30	31.58	14.79
Micronesia, Fed. Sts.	27.08	21.28	0.00	0.00	33.60	28.89	20.71	17.31
Philippines	62.43	53.28	71.32	63.90	62.92	57.64	52.96	57.34
Samoa	82.22	80.51	86.75	84.55	81.71	77.28	79.96	79.44
Thailand	51.20	36.85	69.66	60.39	52.81	30.71	32.98	73.32
Tonga	80.34	77.66	83.99	80.57	79.57	80.04	77.53	77.78
Vanuatu	77.75	76.62	74.29	81.85	81.67	79.65	75.52	75.42
Malaysia	43.45	29.20	62.20	52.63	47.43	24.21	29.07	25.48
Northern Mariana Islands	17.64	0.00	5.97	13.14	26.18	31.06	0.00	0.00
Palau	33.24	48.57			5.97	36.62	50.05	41.37
Kyrgyz Republic	78.95	87.08			60.49	83.69	87.98	83.93
Tajikistan	77.20	86.18			56.31	83.17	85.53	89.30
Uzbekistan	71.15	78.29			64.51	66.73	78.35	83.77
Turkmenistan	67.49	71.84			49.53	75.78	74.59	62.39
Kazakhstan	75.07	74.66			75.86	73.99	74.71	79.19
Afghanistan	81.59	84.72	76.02	77.40	80.27	89.10	84.86	75.82
Bangladesh	88.32	86.68	90.18	88.86	89.25	87.01	86.52	88.43
Bhutan	86.12	88.29	80.99	88.68	85.79	88.78	88.42	85.01
India	81.07	78.77	79.31	85.43	81.13	78.31	79.02	81.02
Maldives	80.89	85.25	82.30	80.89	84.12	77.30	84.91	89.75
Nepal	88.89	89.85	89.62	88.95	86.62	88.28	90.33	90.83
Pakistan	85.67	80.70	90.70	88.21	87.27	82.93	79.66	83.20
Sri Lanka	84.42	80.93	90.43	87.63	82.88	78.38	81.39	84.94
Average of total Asian countries	**68.57**	**68.94**	**54.79**	**55.22**	**66.55**	**68.34**	**68.88**	**70.50**
Average of East Asian	**61.16**	**60.51**	**56.36**	**56.74**	**60.89**	**60.48**	**60.27**	**62.82**
Average of Central Asian	**73.97**	**79.61**			**61.34**	**76.67**	**80.23**	**79.72**
Average of South Asian	**84.62**	**84.40**	**84.94**	**85.76**	**84.67**	**83.76**	**84.39**	**84.88**

Source: Kihara (2009b). pp. 15–16.

Table A15: IAF of Sub-Sahara African Countries

Period/Countries	1980–2006	2000–06	1981–85	1986–90	1991–95	1996–2000	2001–05	2006
Angola	88.5	85.8	87.6	89.6	90.5	91.8	83.7	89.5
Benin	87.8	86.2	88.9	86.2	88.6	89.4	90.5	64.7
Botswana	86.7	82.4	88.9	91.0	89.9	82.9	82.7	75.0
Burkina Faso	87.9	86.5	87.7	89.3	87.1	88.2	90.6	71.1
Burundi	88.9	88.0	89.0	89.5	88.0	90.1	87.7	90.9
Cameroon	77.5	83.4	81.2	81.8	62.7	76.1	83.1	84.1
Cape Verde	90.2	87.1	90.7	90.7	92.9	90.7	87.2	83.3
Central African Republic	74.9	77.9	65.8	79.2	76.1	78.7	77.4	77.3
Chad	83.5	86.6	79.8	83.2	82.0	86.3	85.3	89.9
Comoros	73.6	67.2	82.9	72.2	78.0	68.1	69.2	59.3
Congo, Dem. Rep.	86.4	85.5	86.6	87.5	84.3	90.3	85.7	79.6
Congo, Rep.	60.0	70.2	72.4	46.0	47.8	60.7	71.0	61.4
Cote d'Ivoire	67.3	75.1	60.1	61.6	62.5	74.9	75.3	77.7
Equatorial Guinea	79.6	69.7	85.9	81.7	83.5	76.5	67.8	75.5
Eritrea	87.8	86.3	0.0	0.0	86.8	90.5	84.8	91.8
Ethiopia	88.5	81.5	91.2	90.5	90.0	91.9	83.8	60.8
Gabon	39.7	54.5	37.3	39.8	25.7	38.3	53.5	55.7
Gambia, The	90.3	89.0	89.1	92.1	91.6	90.9	88.3	89.4
Ghana	84.1	79.8	91.7	90.9	89.8	90.0	90.7	89.2
Guinea	87.8	89.3	88.6	86.7	85.7	88.4	89.1	90.5
Guinea-Bissau	87.5	83.1	89.2	90.8	88.5	87.7	82.5	83.1
Kenya	90.6	90.1	91.7	90.9	89.8	90.0	90.7	89.2
Lesotho	90.0	89.2	88.5	91.7	91.4	89.3	89.3	90.9
Liberia	77.3	83.9	64.8	81.1	71.3	82.9	83.6	84.6
Madagascar	81.5	77.6	83.3	82.5	81.2	84.1	81.8	47.7
Malawi	86.6	83.4	85.9	88.5	89.1	87.1	88.8	51.7
Mali	88.3	85.6	87.1	90.6	89.3	89.2	89.8	65.1
Mauritania	82.7	80.1	82.0	87.8	85.2	81.7	84.6	53.8
Mauritius	73.0	72.9	76.1	76.9	64.6	74.1	72.2	72.5
Mayotte	3.3	0.5	2.8	5.3	5.3	3.7	0.5	0.2
Mozambique	90.7	89.6	90.9	91.5	93.1	89.4	91.8	75.8
Namibia	80.5	86.9	34.0	77.1	88.0	87.0	87.6	85.5
Niger	85.8	82.2	86.6	90.4	85.0	85.7	86.6	57.4
Nigeria	83.5	85.2	87.4	81.0	85.5	77.7	85.5	83.9
Rwanda	89.2	86.5	90.7	91.3	90.0	89.2	89.1	68.4
Sao Tome and Principe	82.5	82.6	82.5	85.4	82.1	81.3	81.9	83.1
Senegal	82.7	80.4	85.1	86.2	80.2	83.2	84.2	59.0
Seychelles	79.0	75.1	79.6	82.4	81.7	78.3	73.7	81.4
Sierra Leone	86.7	87.8	85.4	89.5	80.6	87.0	89.6	89.4
Somalia	84.2	87.4	88.0	82.6	74.4	87.6	87.6	85.8
South Africa	87.7	88.0	0.0	0.0	84.4	89.0	88.4	87.5
Sudan	88.0	83.0	86.6	91.1	91.0	89.2	83.5	83.1

Swaziland	85.9	82.0	86.5	89.2	88.7	85.1	82.0	79.4
Tanzania	90.2	84.6	93.4	92.0	91.9	91.8	89.6	54.1
Togo	81.9	81.9	80.8	83.7	79.8	82.1	82.5	81.5
Uganda	87.0	82.7	84.9	88.3	90.4	89.3	87.4	54.7
Zambia	87.2	84.1	90.7	89.3	84.0	88.3	87.3	64.2
Zimbabwe	89.6	87.7	89.1	92.1	92.0	90.5	87.7	86.5
Average of Sub-Sahara African	**81.5**	**80.8**	**80.8**	**82.6**	**80.9**	**82.4**	**82.0**	**74.1**

Source: Kihara (2009b). pp. 16–17.

APPENDIX III: IMPACT OF AID FRAGMENTATION AND PROLIFERATION ON GOVERNMENT EFFECTIVENESS

1. Empirical results of Knack and Rahman (2007)

Knack and Rahman (2007) regressed the 2001 Bureaucratic Quality ratings (of ICRG) on explanatory variables including the index of donor fragmentation (IDF: 1982–2000 average), ODA/GDP ratios, population growth, per capita GDP growth, and shares of aid from international organization and "like-minded" groups. The results of cross-section estimates reveal that aid fragmentation (IDF) has a negative and significant influence on Bureaucratic Quality.

However, Knack and Rahman's (2007) study is a "point" estimate for the 2001 rating and it does not reveal long-term effects of fragmentation on government effectiveness such as bureaucratic quality. The numbers of samples in their estimation are also limited to less than 100, which may raise some concern about the "robustness" of estimated coefficients.

2. Estimates for Government Effectiveness by Indices of aid fragmentation (IAF) and donor proliferation (IDP)

Kihara (2009b) estimated the Government Effectiveness Index in "Aggregate Governance Indicators" (Kaufmann, Kraay, and Mastruzzi (2008)) with panel data for 85 countries and over four periods during 1991–2007. Explanatory variables include Index of Aid Fragmentation (inverse of Herfindahl index), Index of Donor Proliferation (for ODA total, Theil Index), ODA/GNI ratio, GNI per capita, GDP growth rate, population size, multilateral and bilateral aids, and a dummy variable indicating civil wars which may have a seriously negative effect on government effectiveness. The dependent variable is estimated by a fixed effect model using a generalized least square method to correct heteroscedasticity.

Estimated results are shown in Table A16. Aid fragmentation has an adverse effect on government effectiveness, which the robustly significant and negative coefficients of IAF indicate. Index of Donor Proliferation also has negative coefficients. As in Knack and Rahman (2007), the coefficients of ODA/GNI ratio are negative and coefficients of GNI per capita as well as GDP per capita growth rate are significantly positive. Civil war would deteriorate the effectiveness of government as negative and significant coefficient of civil war dummy suggests.

Contrary to the results of Knack and Rahman (2007), however, multilateral aid does not have a positive effect on the Government effectiveness index, but bilateral aid does. Granger causality tests between aid and government effectiveness revealed that, among major donor countries, Japanese aid and German aid positively "Granger" cause the effectiveness of government.

Table A16: Panel estimates of Government Effectiveness

(Dependent variable：Government Effectiveness Index of KKM [2008])

Explanatory Variables	1	2	3	4	5	6	7	8	9
Constant	8.636*** (10.66)	9.829*** (5.52)	0.203 (0.28)	9.490*** (18.50)	9.804*** (20.18)	7.280** (2.40)	6.393** (2.06)	5.311*** (2.74)	0.0517 (0.22)
Ln（Index of Aid Fragmentation)	**-0.127*** (-2.98)**	**-0.143*** (-2.14)**	**-0.128* (-1.94)**	**-0.175*** (-2.21)**	**-0.179** (-2.37)**	**-0.234*** (-3.45)**	**-0.241*** (-3.70)**	**-0.211** (-2.36)**	**-0.190** (-2.11)**
Ln（Index of Donor Proliferation)			**-0.136 (-1.01)**	**-0.0594 (-1.24)**	**-0.0247 (-0.91)**	**-0.0745* (-1.72)**	**-0.141*** (-2.90)**	**-0.0810*** (-3.22)**	**-0.131** (-2.42)**
ODA（gross/) /GNI ratio			-0.0871 (-1.61)	-0.0574 (-1.44)	-0.0477 (-1.44)	-0.0808* (-1.88)	-0.0755** (-2.13)	-0.0709** (-2.27)	-0.0846** (-2.44)
Ln (GNI per capita)	0.0789* (1.87)	0.0767** (2.16)		0.0635*** (3.98)	0.0438*** (2.70)	-0.521* (-1.90)	-0.0332 (-0.81)	0.0615*** (2.99)	
GDP per capita growth rate		0.903 (1.40)	0.371 (1.40)	0.793** (2.25)			0.249 (0.54)	1.005** (2.27)	0.797* (1.68)
LN (population)	-0.612*** (-9.49)			-0.636*** (-15.41)	-0.651*** (-2.24)	-0.423*** (-2.48)	-0.361** (-2.03)	-0.373*** (-3.00)	
Population growth			1.565*** (3.02)	0.786 (1.61)			1.038 (1.63)	1.068* (1.94)	1.393*** (3.09)
Civil war dummy			-0.0744** (-2.13)	-0.0908*** (-2.65)	-0.125*** (-5.14)	-0.142** (-2.38)	-0.107* (-1.83)		
Share of Multilateral aid					-0.0920** (-2.24)	-0.107 (-0.76)	-0.102 (-0.72)		
Share of IDA aid						-0.0987 (-0.74)	-0.084 (-0.61)		
Share of bilateral aid						0.235* (1.68)	0.223 (1.51)		
Ln (Japanese ODA)								**0.0306 (1.42)**	**0.0297 (1.28)**
Ln(US ODA)								-0.0270 (-1.35)	-0.0338* (-1.77)
Ln (German ODA)								**0.0646* (1.82)**	**0.0812** (2.59)**
Ln (UK ODA)								-0.0297 (-1.38)	-0.0371* (-1.95)
Ln (France ODA)								0.0337 (1.65)	0.0389* (1.86)
R2 (adj. D.F)	0.752	0.755	0.756	0.763	0.762	0.672	0.670	0.768	0.767
Countries/Observations	78/296	78/296	78/285	78/285	78/286	60/188	60/188	78/285	78/285

Note: t value in parentheses. Significance levels are indicated with *** for 1%, ** for 5%, and * for 10%.

Source: Kihara (2009b). p. 20.

3. Impacts of Government Effectiveness on GDP per capita growth

Would improvements in government effectiveness or in the policy and institutional environment raise the growth rate of GDP per capita? Kihara (2009b) regressed the GDP per capita growth rates on panel data of Government Effectiveness Index, population growth (to see its negative effect in neo-classical theory), initial per capita income (to see convergence), Freedom House (FH) Index (to see the effect of policy/institutions), and civil war dummy (to see its negative effect). Panel data consist of variables in 78 developing countries and four separate periods (averages of values 1990–1995, 1996–2000 and 2001–2005, and values in 2006). A fixed effect model is used to estimate.

Table A17: Impact of Government Effectiveness on Growth

(Dependent variable: GDP per capita growth rate)

Explanatory Variables	1	2
Constant	0.347*** (7.66)	0.305*** (4.31)
Population Growth	−0.0880 (−0.78)	−0.0983 (−1.29)
Initial per capita income	−0.0491*** (−9.541)	−0.0380*** (−4.37)
Government Effectiveness Index	**0.0118*** (3.59)**	
Ln (Freedom House Index)		**−0.0227*** (−2.89)**
Civil war dummy		**−0.0207*** (−2.75)**
R2 (adj. D.F)	0.345	0.456
Countries/Observations	77/288	78/346

Note: t value in parentheses; significance level are ***1%、**5%、*10%.

Source: Kihara (2009b) p.21

Table A17 indicates estimated results for their impacts on per capita growth rate. As neo-classical growth theory predicts, the coefficients of population growth are negative (but not significant), and those of initial income level are negative and significant to indicate "conditional convergence to steady states". The improvement of Government Effectiveness would clearly raise the per capita growth rate. The coefficient of FH index, in which the larger value means worse environment of policy and institution, is significantly negative, as is the coefficient of civil war dummy. Granger causality tests indicate that Government Effectiveness (Granger) causes the GDP per capita growth rate at 5% significance level.

According to the estimated results above, effective government and the good policy and institutional environment would raise the per capita GDP growth rate. Development assistance that avoids fragmentation and proliferation of aid delivery and enhances the capability of government could have a positive impact on government effectiveness and per capita GDP growth. As is analyzed in this paper, Japanese development assistance has been consistent with the aid delivering modes to avoid aid proliferation and fragmentation, thereby accelerating economic growth of recipient countries.

APPENDIX IV: CRS CLASSIFICATION FOR "SHORT IMPACT AID" (SIA) BY CLEMENS, RADELET, AND BHAVNANI (2004)

Roughly speaking, "Short-Impact-Aid" (SIA) is aid that is expected to have a short-term impact on growth within four years, and includes (1) Budget support and Program aid, as well as (2) Infrastructure investment and Project aid directly supporting the sectors of transportation (incl. roads), telecommunications, energy, banking, agriculture, and industry.

Table A18: Short-Impact Aid

CRS purpose codes		CRS purpose codes	
15230	Post-conflict peace-building (UN)	**313**	FISHING
15240	Reintegration and SALW control	**31320**	Fishery development
15250	Land mine clearance	**31391**	Fishery services
16040	Low-cost housing	**321**	INDUSTRY
210	TRANSPORT AND STORAGE	**32120**	Industrial development
21020	Road transport	**32130**	Small and medium-sized enterprises (SME) development
21030	Rail transport	**32140**	Cottage industries and handicraft
21040	Water transport	**32161**	Agro-industries
21050	Air transport	**32162**	Forest industries
21061	Storage	**32163**	Textiles, leather and substitutes
22020	Telecommunications	**32164**	Chemicals
230	ENERGY GENERATION AND SUPPLY	**32165**	Fertilizer plants
23020	Power generation/non-renewable sources	**32166**	Cement/lime/plaster
23030	Power generation/renewable sources	**32167**	Energy manufacturing
23040	Electrical transmission/ distribution	**32168**	Pharmaceutical production
23050	Gas distribution	**32169**	Basic metal industries
23061	Oil-fired power plants	**32170**	Non-ferrous metal industries
23062	Gas-fired power plants	**32171**	Engineering
23063	Coal-fired power plants	**32172**	Transport equipment industry
23064	Nuclear power plants	**322**	MINERAL RESOURCES AND MINING
23065	Hydro-electric power plants	**32220**	Mineral prospection and exploration
23066	Geothermal energy	**32261**	Coal
23067	Solar energy	**32262**	Oil and gas
23068	Wind power	**32263**	Ferrous metals
23069	Ocean power	**32264**	Nonferrous metals
23070	Biomass	**32265**	Precious metals/materials
240	BANKING AND FINANCIAL SERVICES	**32266**	Industrial minerals
24020	Monetary institutions	**32267**	Fertilizer minerals
24030	Formal sector financial intermediaries	**32268**	Offshore minerals
24040	Informal/semi-formal financial intermediaries	**331**	TRADE POLICY AND REGULATIONS AND TRADE-RELATED ADJUSTMENT

081	Education/training in banking and financial services	**33120**	Trade facilitation
250	BUSINESS AND OTHER SERVICES	**500**	COMMODITY AID AND GENERAL PROGRAMME ASSISTANCE
25010	Business support services and institutions	**510**	General budget support
25020	Privatisation	**51010**	General budget support
311	AGRICULTURE	**530**	Other commodity assistance
31120	Agricultural development	**53030**	Import support (capital goods)
31130	Agricultural land resources	**53040**	Import support (commodities)
31140	Agricultural water resources		ACTION RELATING TO DEBT
31150	Agricultural inputs	**60010**	Action relating to debt
31161	Food crop production	**60020**	Debt forgiveness
31162	Industrial crops/export crops	**60030**	Relief of multilateral debt
31163	Livestock	**60040**	Rescheduling and refinancing
31164	Agrarian reform	**60061**	Debt for development swap
31166	Agricultural extension	**60062**	Other debt swap
31191	Agricultural services	**60063**	Debt buy-back
31192	Plant and post-harvest protection and pest control	**730**	Reconstruction relief and rehabilitation
31193	Agricultural financial services	**73010**	Reconstruction relief and rehabilitation
31194	Agricultural co-operatives		
31195	Livestock/veterinary services		
31220	Forestry development		
31291	Forestry services		

Source: Clemens, Radelet, and, Bhavnani (2004). pp. A-3-A-8, DCD/DAC(2007)39; and Kihara (2009a). p. 109.