Roles of Foreign Aid in Narrowing Development Gaps: A Cross-Country Analysis on Aid, Institutions, and Growth

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Abstract

Narrowing development gaps has been a critical issue for both developing and developed countries to achieve poverty reduction in this globalizing world. This research aims to provide policy suggestions on the roles of foreign aid in narrowing development gaps among countries by examining the relationships between foreign aid, economic policies, institutions, and the growth of per capita GDP. A cross-country analysis of 30 countries, for the period of 1993–2008, is conducted by employing Barro-type ad hoc growth equations. Unlike the earlier studies that focused on the relationships between policy stance (trade, fiscal and monetary policies, etc.) and aid effectiveness, this study pays attention to the relationship between institutional quality and aid effectiveness, which is a key factor in the long run. The main finding of this paper is that foreign aid has a positive and more effective impact on growth in developing countries where the level of institutional quality is low, as it compensates for this institutional deficiency. This result suggests that aid would be more effective if it were provided in a manner to complement generally immature institutional quality of less developed countries.

Key Words: Aid Effectiveness, ASEAN Integration, Development Gaps, Institutions, Poverty

1. Introduction

Narrowing development gaps has been a critical issue for both developing and developed countries under the structural changes caused by the surge of globalization. In the case of the Association of South East Asian Nations (ASEAN) economies, especially between ASEAN–6 (Brunei, Indonesia, Malaysia, Philippines, Singapore, and Thailand) and CLMV (Cambodia, Lao PDR, Myanmar and Vietnam), "narrowing development gaps" has been regarded as one of the most significant challenges to the realization of ASEAN economic integration by 2015.[1] Japan believes that supporting ASEAN in coping with this gap issue is important for the future of Southeast Asia and East Asia. In line with this aim, Japan-ASEAN cooperation, with an effective utilization of Official Development Assistance (ODA), should contribute toward narrowing those development gaps.

The issue of narrowing development gaps is also related to the discussion on the effectiveness of foreign aid.[2] In the 1990s, poverty reduction was regarded as the most prioritized target of development assistance. However, the approaches were not entirely successful and the gaps still remained between the countries that made some progress in poverty reduction and the countries that were left behind (Ishii, 2001). Under these conditions, increasing effectiveness of foreign aid is needed in order to narrow the development gaps.

There are many studies on the relationship between aid and economic growth. ODA is, in general, considered to have a positive impact on economic growth, which is believed to be a vital force in poverty reduction. Although some studies have confirmed this positive relationship, others have argued over the significance of this relationship. Moreover, some studies suggest that certain prerequisite conditions are required for the positive impact. The mainstream view in recent literature appears to imply that aid promotes economic growth only if good policies are in place (Burnside & Dollar, 2000). On the other hand it is found that the impact of loan aid is statistically significant in promoting growth independently from policy conditions (Sawada, 2004).

Unlike the previous studies, which focused on policy stance such as trade openness, inflation management, and fiscal positions, this study pays more attention to institutional quality by examining the relationships among aid, institutional quality and growth of per capita income. Institutions have different nature, which takes longer time to give its effects than policy changes, which bring about results in a shorter time (Williamson, 2000). Institutional quality should be a key factor contributing to the aid effectiveness in the long run.

This paper aims to develop an analytical framework with a cross-country analysis on how ODA affects economic growth for the period of 1993–2008 by selecting low, lower middle, and upper middle-income countries from Southeast Asia, South Asia, Africa, and Latin America. Within this framework, the relationships between foreign aid, institutional quality and growth of per capita gross domestic product (GDP) are examined in order to determine how ODA contributes to the reduction of development gaps in developing countries. This analysis touches upon the characteristics of ASEAN countries in particular in an attempt to find clues for possible suggestions on achieving a more equitable ASEAN integration. This paper discusses 1) the nature of policy stance and institutions in relation with growth, 2) the impact of aid on growth, and 3) the impact of aid under various policy and institutional environments.

The remainder of the paper is organized as follows: the second section provides a short review of previous studies with an emphasis on their methodology; the third section describes the data sources, methods, and empirical model; in the fourth section, estimation results are presented; and the final section provides the conclusions and policy implications.

2. Literature Review

Burnside and Dollar (2000) investigated the original hypothesis about foreign aid. Through a panel analysis of 56 countries during six four-year time periods from 1970 until 1993, their study suggests that foreign aid positively affects growth but that its impact varies depending on the quality of economic policies. That is to say, sound economic policies do not only benefit economic growth directly but also help promote growth through foreign aid. On the other hand, in economies with policy distortions such as inward-looking trade policies, high inflation, and excessive government presence, foreign aid is likely to have little effect on growth performance.

The unique feature of this analysis is that Burnside and Dollar incorporated an economic policy index — consisting of the budget surplus, the inflation rate, and a trade openness dummy variable — developed by Sachs and Warner (1995).[3] Burnside and Dollar's growth equation includes other explanatory variables such as the ratio of aid to GDP, institutional quality, ethnic fractionalization, assassinations, the ratio of M2 to GDP, region, and interaction between the ratio of aid to GDP and policy.

Burnside and Dollar found that the interaction among the ratio of aid to GDP and policy has a positive correlation with per capita GDP growth, but the effect of aid alone on per capita GDP growth is statistically insignificant.[4] They concluded that, on average, foreign aid has had little impact on growth, yet aid has had a stronger positive impact on growth if accompanied by good fiscal, monetary, and trade policies. These findings have exerted a great influence on policy-making for foreign aid and on academic discussion.

Easterly, Levine, and Roodman (2003, 2004) have argued against Burnside and Dollar's findings (2000). Using Burnside and Dollar's method, they examined a new dataset which they obtained by updating Burnside and Dollar's data for 1970–93 to the data for 1970–97 and filling in missing observations for the original period of 1970–1993. The sample size was increased from an original 275 observations in 56 countries to 356 observations in 62 countries. Easterly, Levine, and Roodman (2003, 2004) found that the interaction of aid and policy is insignificant in their expanded dataset. They suggest economists and policy makers to reduce their confidence that aid stimulates growth in countries with good policies. They do not argue that aid is ineffective but that further research needs to be conducted to explore questions surrounding foreign aid.

Sawada (2004) re-examined the studies of Burnside and Dollar (2000) and Easterly, Levine and Roodman (2004) and raised further issues. Sawada argued that there was an omitted variable bias in the previous studies and explained that grant and loan aid should be separated in the regression because there are different incentives at work in different forms of foreign aid and these affect economic growth. Using the same data set as Easterly, Levine and Roodman (2004) with additional variables to distinguish loan aid and its interaction terms with policy, Sawada found that the impact of

loan aid is statistically significant in promoting economic growth independently from policy conditions. The suggested reason is that the incentive to repay the loan by careful management of development projects results in the accumulation of productive resources and this positively affects growth performance.

Sawada (2004) points out that it is important to see the impact of foreign aid on promoting economic growth with reference to specific cases. As an example, Sawada and Yamada's (2003) study found evidence that Japan's bilateral ODA allocations to Malaysia that emphasized economic infrastructures contributed to poverty reduction through its economic growth enhancement channel.

Conflicting results and a lack of robustness in statistical analysis stem from the marginal nature of aid (where the ratio of aid to GDP is relatively small). This also suggests differences in the effectiveness of domestic marginal projects because the aid money is fungible.

3. Data Sources, Methods, and Empirical Model

3.1. Data Sources

In this analysis, the data comes from World Development Indicators (WDI), unless otherwise indicated. For the analysis, a total of 30 low income, lower-middle income, and upper-middle income countries from Africa, Latin America, and Asia were selected. Among the 30 sample countries, 7 were ASEAN member states in South-East Asia,[5] 5 were from South Asia, 9 were from Latin America, and 9 were from Sub-Saharan Africa (Table 1).

Table 1   Name and Assigned Country Code of Countries Used in the Analysis

ASEAN	South Asia	Latin America	Sub-Saharan Africa
Cambodia (CAM)	Bangladesh (BGD)	Bolivia (BOL)	Burkina Faso (BFA)
Indonesia (IDN)	India (IND)	Brazil (BRA)	Cote d'Ivoire (CIV)
Lao PDR (LAO)	Nepal (NPL)	Colombia (COL)	Ethiopia (ETH)
Malaysia (MYS)	Pakistan (PAK)	Ecuador (ECU)	Ghana (GHA)
Philippines (PHL)	Sri Lanka (LKA)	El Salvador (SLV)	Malawi (MWI)
Thailand (THA)		Guatemala (GTM)	Mozambique (MOZ)
Vietnam (VNM)		Honduras (HND)	Tanzania (TZA)
		Paraguay (PRY)	Uganda (UGA)
		Peru (PER)	Zambia (ZMB)

Source: Organized by the Author

The 16 years of data from 1993 to 2008 are used to ascertain the long-term effects. Analysis of the impact of ODA requires such long term observation. 1993 is used as the initial year because some key macroeconomic data for the newer members of ASEAN were not available before this year due to limited functioning of their governments caused by civil war and political instability. Nevertheless,

even post 1993 there are some missing data for some years in some countries. In this case, the average term is shortened.[6]

3.2. Methods

3.2.1. Cross-Country Analysis

A cross-country analysis of 30 countries is conducted using ordinary least squares (OLS) for a cross-country conditional-convergence regression in order to investigate the impact of ODA in promoting economic growth with a focus on institutional quality. This analysis employs a Barro-type ad hoc growth function approach.[7]

3.2.2. The Originality of Analysis

The originality of this analysis is that it focuses on the relationships among foreign aid, institutional quality, rather than on short- to mid- term policy stances, and growth of per capita GDP in order to examine the impact of ODA on economic growth by using institutional quality as a key variable. Unlike the exposition of previous studies[8] which argue that the nature of economic policies is an important element for the effectiveness of foreign aid, this model pays more attention to institutional quality, which should be a key factor contributing to the effectiveness of foreign aid in the long run. There are three reasons why this should be the case:

(1) A policy stance can/should be changed by the country of concern. In most underdeveloped countries the government has limited policy-making capacity, which could result in the malfunctioning of macroeconomic policies. However, their policy stance can be changed or improved by external pressure such as the conditionality imposed by international organizations. In that sense, the result of the previous studies, which argue that ODA should be provided to countries where good policies are in place, as it gives more effective impact on growth, seems quite natural. On the other hand, the change of institution needs constant efforts with developing capacity inside the country. The institution cannot be changed or improved easily until the country becomes self-reliant with institutionalization. This can be achieved through international cooperation, especially technical cooperation, with developed countries;

(2) Building and/or changing institutions take longer to bring about its effects on economic growth (Williamson, 2000, p. 597),[9] similar to the impacts of ODA in the long-run economic growth theory. This analysis also targets a period of 16 years. On the other hand, policy performance gives its effects in a relatively shorter period of time such as less than five years;

(3) The insufficiency of implementation capacity and institutionalization has been a key challenge to achieving ASEAN economic integration.[10] In fact, the lack of institutional capacity is one of the most significant issues in most developing countries.

3.3. The Empirical Model

3.3.1. The Growth Equation

The Barro-type ad hoc growth equation to determine the impact of ODA on economic growth is presented below. The empirical studies introduced above provided guidance to form a model with regard to the selection of the variables. The general growth equation is formulated as:

$$GDPG = \alpha + \beta_1 LGDP + \beta_2 INFL + \beta_3 TO + \beta_4 GE + \beta_5 INST + \beta_6 AID + \beta_7 AID^* INST + \beta_8 M2 + \beta_9 ASEAN + \varepsilon \qquad \text{(Eq. 1)}$$

where $GDPG$ = period average (compound) growth rate in per capita GDP growth rate; $LGDP$ = natural logarithm of per capita GDP in the initial year; $INFL$ = natural logarithm of average inflation rate during the period;[11] TO = change in trade openness (change of average trade/GDP ratio in the first three years to the last three years during the sample period); GE = average ratio of government expenditure to GDP; $INST$ = indicators of institutional quality (The indicator is extracted from ICRGE and CPIA.); $M2$ = Change of M2/GDP ratio (change of ratio in the first year to the last year during the period); $ASEAN$ = dummy variable; and AID = Average ratio of net ODA to nominal GDP during the period.

The meanings and proposed effects of variables are as follows:
- $GDPG$: The dependent variable is the period average growth rate in per capita real GDP.
- $LGDP$: Natural logarithm of real per capita GDP of the initial year is included as an explanatory variable to examine the (conditional) convergence effect, which is derived from the diminishing returns of capital of the neoclassical model. Countries with lower rate of per capita GDP (lower level of capital deepening) tend to grow at a faster pace in comparison with countries of a higher rate of per capita GDP (higher level of capital deepening) in the long run; thus all economies should eventually converge in terms of per capita income. If the conditional convergence should exist, the expected sign of coefficient would be negative.
- $INFL$: Inflation is also included as an explanatory variable in the function to see how macroeconomic policies, monetary policy in particular, affect growth. It is included because higher inflation rate is normally considered as an impediment to economic growth. Excessive inflation tends to cause a strong negative influence on household consumption and investment behavior. In the case of firms, their trade performance can be easily affected by volatile inflation. Moreover, it indicates the government's capacity for macroeconomic policy management. Whether or not a country can form good macroeconomic policy on inflation, that is, not having too much inflation but moderate inflation, is important to economic development. The expected sign of coefficient is negative.
- TO: The variable of trade openness, or change of trade ratio to GDP, is included to see how economic policies on international integration affect growth in ODA recipient. Numerous studies suggest that openness of trade is highly correlated with economic growth. Moreover, trade is

believed to enhance technological progress and provide learning opportunities for developing countries, which eventually positively influences economic growth. In the previous studies, a trade openness indicator, developed by Sachs and Warner (1995), is modeled by a dummy variable for trade openness, the so-called Sachs-Warner openness variable. In this analysis, however, the change of trade ratio is used instead. As Otsubo (2009, p. 87) shows, it is not the level of openness but the changes (opening) that are important in exploring relationships between integration and growth. The expected sign of coefficient is positive.

- *GE*: The variable of government expenditure is included to see how economic policies, fiscal policy in particular, affect growth of the countries (Measured as a ratio to GDP).[12] An excessively large government presence in the economy is considered to be an impediment to active private-sector growth. The expected sign of coefficient is negative.

- *INST*: Institutional quality is incorporated as a focus point of this study. The expected sign of coefficient is positive, as institution is considered as a key factor for long-term economic growth. The details of constructing an institutional index are presented in the next section.

- *AID*: Aid is a key variable, together with the institution variable, used to assess foreign aid's effects on promoting economic growth. The intended sign of coefficient is positive. However it can be ambiguous as many previous studies found. (Measured as a ratio to GDP)

- *M2*: Change in the ratio of broad money (*M2*)[13] to GDP during the period is used. It denotes the change of ratio of M2 to GDP from the first year to the last year.[14] It is often used in the growth equation to see the financial deepening of the country; this reflects the development of financial systems. Expansion of money supply in the capital market also means the increased availability of capital for the private sector. The expected sign of coefficient is positive.

- *ASEAN*: A regional dummy variable for ASEAN original members (Indonesia, Malaysia, Philippines, and Thailand) is included in this regression. As previous studies have included East Asia regional dummy, it is considered that ASEAN original members have experienced higher economic growth among selected sample countries.[15] The expected sign of coefficient is positive.

- *INFL*AID, TO*AID, GE*AID*, and *INST*AID*: In Section 3.2.2, it was argued that the effectiveness of aid would likely depend on institutional quality, while previous studies focussed on the nature of economic policies. To address this issue, these four interaction terms (cross terms) are incorporated. These cross term aim to clarify the assumption that institutional quality is a key determinant on the effectiveness of foreign aid. The expected signs of these interaction terms are ambiguous. If the coefficient of *INST*AID* is positive, it implies that foreign aid would be more effective in countries where institutional quality is higher. If the coefficient is negative it can be considered that foreign aid works more effectively in promoting economic growth in countries with a lower level of institutional development, as aid may complement immature institutions.[16]

3.3.2. Constructing an Institutional Quality Index

The institutional quality index was constructed based on the literature review. The previous studies used an institutional quality index with reference to Knack and Keefer (1995), where particular indices were taken from the International Country Risk Guide (ICRG)[17] indicators to define their institutional indicators. The ICRG indicator is given by the ICRG Rating System whose rating comprises 22 variables in three subcategories of risk: political, financial, and economic (PRS Group, 2010). The ICRG Risk Rating System does not have a single consolidated institutional indicator itself. It contains several variables that reflect the quality of institutions. Given the advantages of this data, especially the presence of sufficient historical data with an in-depth and exhaustively researched analysis (Ishihara, 2004, pp. 35–36), institutional quality indicators were composed of these raw data.

In the reviewed literatures, an institutional quality indicator was also generated from ICRG. However, for the present analysis in constructing the indicator, some adjustments have been made. First, indicators from two different sources, the ICRG and World Bank's Country Policy and Institutional Assessment (CPIA),[18] are included because the ICRG indicator was not available for all 30 selected countries but only for 27 selected countries. For the remaining three countries whose data are not available[19] from ICRG, closely matched indicators extracted from CPIA, which was developed for low-income countries, or countries of International Development Association (IDA),[20] by the World Bank, were used instead. The institutional quality indicator includes the elements of (i) government stability and bureaucratic quality, (ii) investment profile, (iii) law and order, (iv) corruption, (v) military in politics and democratic accountability, and (vi) internal conflict[21] (See Table 2).

In the calculation of institutional quality indicators, the standardized scores (deviation from the sample mean divided by the sample mean) are used.[22] For the 27 selected countries with ICRG data, the standardized scores are computed using the sample mean of these 27 countries. For the 3 remaining countries, the standardized scores are computed using the sample mean of total CPIA indicator of all low-income economies and lower-middle-income economies[23] where CPIA indicators are compiled.[24] Taking the mean as 1, the range of the deviation is from 0.64 to 1.25 (higher values indicate better institutional quality). The main reason to take the deviation from the average value of each corresponding income group is to examine the impacts of the gap in institutions on the gap in per capita income to obtain some clues for narrowing development gaps. Another reason is more technical: to reconcile indicators from two different sources.

For the 27 countries, whose ICRG is available, each country's score from 2001 is used to capture the average "level" of institutional quality over the period.[25] For the 3 countries whose indicators are extracted from CPIA, the year 2005 is used because this was the earliest year available.[26] The institutional indicators are assumed to be constant throughout the sample period on the assumption that institutional factors do not change much over time. Previous studies made the same assumption (Burnside & Dollar, 2000, p. 850).

<p style="text-align:center">Table 2　Construction of Institutional Quality Index</p>

Variables in the Previous Studies	Corresponding Elements in ICRG	Corresponding Elements in CPIA	Explanations
Institutional quality	Government Stability and Bureaucratic Quality	Public sector management and institutions cluster average	• The government's ability to carry out its declared program(s), and its ability to stay in office • The institutional strength and quality of the bureaucracy
	Investment Profile	Business regulatory environment rating	• Assessment of investment risk such as contract viability/expropriation, profits repatriation, and payments delays
	Law and Order	Property rights and rule-based governance rating	• The strength and impartiality of the legal system • Popular observance of law
	Corruption	Transparency, accountability, and corruption in the public sector rating	• Assessment of corruption within political system • Assessment of corruption met directly by business such as bribes, exchange controls, and tax assessments.
Ethnic fractionalization and assassinations	Military in Politics and Democratic Accountability	N/A	• Military involvement in politics causes a diminution of democratic accountability
	Internal Conflict	N/A	• Assessment of political violence in the country and its actual or potential impact on governance

Source: Compiled by the author from ICRG (PRS Group, 2010) and WDI (World Bank, 2010a).

3.3.3.　Heteroscedasticity and Multicollinearity Checks

Heteroscedasticity test was performed to check for heteroscedasticity.[27] Multicollinearity was checked using correlation matrix, which shows correlation coefficients among the variables (Table 3).　Detecting multicollinearity is also important because it inflates the standard errors, resulting in unreliable results.　One common method for detecting multicollinearity is to check the variance-inflating factor (VIF).[28] VIF shows how the variance of an estimator is inflated by the presence of multicollinearity.　If the VIF of a variable exceeds 10, which will happen if R^2 exceeds 0.90, that variable is said to be highly collinear (Gujarati, 2003, p. 362).[29]

Relatively high correlation coefficients exist between *M2* and *INFL* and between *AID* and *LGDP*. Yet, their VIFs are 1.67 and 1.57, respectively.　Therefore, it can be said that those variables are not highly collinear and fall within the acceptable range for analysis. *INFL* and *M2* are usually considered to have high a correlation; however, in this analysis those variables are used with different purposes: *INFL* to see the impact of economic policy and its management using average inflation rate during the

period; *M2* to see the impact of financial deepening using its rate of change over the period.

Table 3   Correlation Matrix

	lgdp	*infl*	*to*	*ge*	*inst*	*m2*	*asean*	*aid*
lgdp	1.00							
infl	0.08	1.00						
to	−0.15	−0.21	1.00					
ge	0.14	0.36	−0.34	1.00				
inst	0.03	0.01	0.20	0.23	1.00			
m2	0.24	0.63	0.19	0.24	0.11	1.00		
asean	0.35	−0.22	−0.10	−0.10	0.11	−0.13	1.00	
aid	−0.64	0.30	−0.05	−0.03	0.19	−0.11	−0.31	1.00

Source: Author

4. Regression Results and Discussions

The result of the growth regression is presented in Table 4. In order to check the robustness of this regression analysis, the growth equation (Eq. 1) is estimated in a step-by-step manner. This process and estimated equations are presented in the columns (1)–(12) in Table 4.

4.1. Policies, Institutions, and Growth: Columns (1), (2), and (3)

The variables of inflation, trade openness, and government's relative size in the economy are included to see how the policy stances (macroeconomic management such as monetary/fiscal policies and trade integration) affect growth. The negative coefficient of *INFL* could indicate that the failure of monetary policy to prevent high inflation could be an impediment to economic growth. The coefficient of *TO* is positive, relatively high, and statistically significant. This means that opening trade is conducive to economic growth. The dynamic change of trade also implicates the stance of each country on economic development policies and strategies. The negative coefficient of *GE* may suggest that inefficient fiscal management by government tends to lead negative impact on growth. Good institutional quality has a positive relationship with growth, yet the impact is smaller compared with that of policies, at least in this time framework. The coefficient attached to *LGDP* has a negative sign, indicating the existence of a conditional convergence of income per capita.

4.2. Aid and Growth: Columns (4), (5), and (6)

When *AID* is added to Equations (1)–(3), it has both a positive and negative coefficient and it is statistically insignificant. This finding is consistent with previous studies, suggesting that *AID* itself does not have explanatory power for economic growth. The conflicting results of coefficient and a lack of robustness in statistical analysis stem from the marginal nature of aid. This also suggests differences in the effectiveness of domestic marginal projects because the aid money is fungible.[30]

Table 4 Growth Regression: Aid, Institution, and Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
C	5.98	6.16	5.92	5.96	7.43	5.93	5.79	5.60	5.30	3.01	4.18	4.77
	(5.30)	(2.76)	(2.82)	(3.17)	(2.68)	(2.66)	(2.99)	(3.20)	(3.14)	(1.36)	(1.59)	(1.96)
LGDP	−0.33*	−0.49*	−0.33*	−0.32	−0.71*	−0.33	−0.31	−0.32	−0.34	−0.62*	−0.40	−0.46
	(−1.86)	(−1.97)	(−1.83)	(−1.17)	(−1.92)	(−1.09)	(−1.05)	(−1.14)	(−1.36)	(−1.87)	(−1.40)	(−1.64)
INFL	−0.09		−0.08	−0.09	−0.08		−0.06	−0.06	−0.13		−0.12	−0.13
	(−0.43)		(−0.41)	(−0.39)	(−0.32)		(−0.28)	(−0.27)	(−0.67)		(−0.28)	(−0.29)
TO	1.92***		1.92***	1.93***		1.92***	1.88***	1.61**	1.68***	1.35**	1.48**	
	(4.00)		(4.13)	(3.84)		(3.92)	(3.33)	(2.29)	(3.22)	(2.31)	(2.43)	
GE	−0.06		−0.06	−0.06		−0.06	−0.06	−0.06	0.02		−0.05	−0.04
	(−1.25)		(−1.37)	(−1.20)		(−1.30)	(−1.16)	(−1.21)	(0.48)		(−1.06)	(−0.84)
INST		0.77	0.08		1.18	0.09				4.91***	2.48	1.90
		(0.42)	(0.05)		(0.65)	(0.05)				(2.80)	(1.06)	(0.83)
AID				0.0006	−0.05	−0.0006	0.04	−0.01	0.27	0.90***	0.54***	0.5***
				(0.01)	(−0.69)	(−0.01)	(0.28)	(−0.30)	(3.28)	(6.22)	(3.22)	(3.12)
INFL*AID							−0.01					
							(−0.29)					
TO*AID								0.05				
								(0.79)				
GE*AID									−0.02***			
									(−3.23)			
INST*AID										−0.91***	−0.52***	−0.47***
										(−6.84)	(−3.19)	(−2.97)
M2											0.05	0.07
											(0.58)	(0.72)
ASEAN												0.76
												(1.44)
Observation	30	30	30	30	30	30	30	30	30	30	30	30
Adjusted R^2	0.41	0.04	0.38	0.38	0.03	0.35	0.36	0.36	0.46	0.32	0.42	0.60

Notes: The dependent variable is a period-average growth rate of real per capita GDP. Numbers in parentheses are t-statistics.
The variables are described in more detail in the text.
*Significant at $p<0.1$, **Significant at $p<0.05$, *** Significant at $p<0.01$
Source: Author

4.3. Policy, Institutions, Aid, and Growth: Columns (7), (8), (9), and (10)

The negative coefficient of interaction term, *INFL*AID*, shows that aid effectiveness would diminish in countries where monetary policy is mismanaged. Also, the negative coefficient of *GE*AID* suggests that aid cannot be implemented effectively with inefficient management by the big government, while the positive coefficient of *TO*AID* indicates that aid would work better where trade integration proceeds. Particularly for those less-developed countries, opening trade is their first step to achieving economic growth by connecting their domestic market to the international market and

Figure 1   Correlation Diagram of GDPG and INST
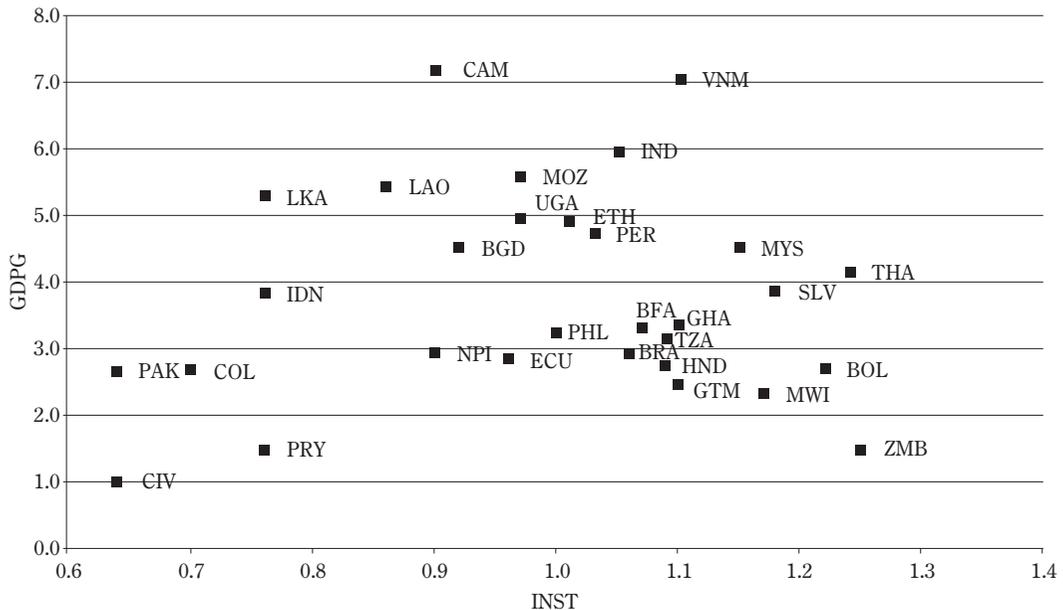
Note: See Table 1 for the country codes.
Source: Author

receiving comparative advantages and increasing competitiveness and efficiency. This series of results suggests that aid would be more effective if it were systematically conditioned on good policies, as earlier studies showed.

One of the key findings of this study is the result of equation (10) that focuses *AID* and *INST*. Compared to the previous results, the coefficients of *AID* and *INST* have become bigger and have shown statistical significance. The coefficients of *AID* and *INST* show a positive correlation with economic growth on the other hand; the coefficient of interaction term, *AID*INST*, is negative and significant.

Taking a closer look at the relationship between *GDPG* and *INST*, its correlation figure is shown below (Figure 1). The *x*-axis in the figure is *INST*, the value of institutional quality in 2001, while the y-axis is *GDPG*, the average per capita GDP growth rate during 1993‒2008.

First, it can be observed that the insignificant coefficients of *INST* are caused by several countries which have high institutional quality yet low economic growth. Two types of countries are conspicuous among them: (i) countries whose policy stance is not improving over the period, and (ii) countries whose economy is relatively matured.

For example, Zambia (ZMB) has the highest institutional quality, 1.25, while its per capita GDP growth rate is one of the lowest at 1.53% among selected countries. Looking at the data of individual countries, the main reason of Zambia's low economic growth is found to be that their trade openness

is not improving, but even declining over the period; the change ratio of trade openness is −3.7%. In addition, it is found that the institutional index of government stability and bureaucratic quality was extremely low (relative to the sample mean), while the index of other elements were high. In the case of Malawi (MWI), it was observed that its low economic performance is attributable to its poor economic policy on inflation; the average inflation rate during 1993−2008 is 29.08%. From the above examples, we can say that good institutional quality does not necessarily result in economic growth in a country if the macroeconomic policy is bad.

As examples of relatively matured economies, Thailand (THA) and Malaysia (MYS) are representatives. They have high institutional quality, yet their per capita GDP growth is not too high. It can be inferred that matured economies have higher institutional quality, yet their economic growth is stabilized to some extent. Moreover, this scatter diagram shows that not only countries with high institutional quality but also the countries with low institutional quality have achieved high economic growth. For instance, the institutional qualities of Cambodia (CAM) and Lao P.D.R. (LAO) are lower than average, yet their per capita economic growth is high at 7.23% and 5.46%, respectively. Having a low institutional quality does not necessarily equate with an impediment to economic growth. Here, the key reminder about *INST* variable is that the indicator is as of 2001 in a static sense, not the change ratio. It is not too much to say that countries with a lower level of institutional quality have room to improve their institutions in the course of economic development.

4.4. Final Form: Columns (11) and (12)

The same is still true even after adding other explanatory variables of *M2* and ASEAN dummy.[31] This series of results suggests that foreign aid could have a more effective impact in promoting economic growth in countries with a lower level of institutional quality than in ones with a higher level. Another key suggestion is that foreign aid complementarily improves the less developed countries' institutional quality while simultaneously promoting economic growth. The negative sign of the coefficient of the interaction term could be interpreted as marginal effects: as a country achieves higher institutional quality levels, the impact of foreign aid would diminish since the county is able to manage with increasing autonomous capacity. It was also found that good institutional quality does not necessarily result in economic growth in a country if the macroeconomic policies are mismanaged.

5. Conclusions and Policy Implications

Overall, the results of this study suggest that aid may have a better impact on growth in the developing world where good institutional quality is not yet in place, by maximizing the benefits of aid with the enhancement of institutional capacity. Thus, aid should not avoid low-income countries where institutions have not yet developed or matured. Rather, it should be used to complement and address

the lack of institutions. Moreover, good institution will work effectively in a country whose policy stance (macroeconomic management and outward-orientation) is improving.

Having a good institutional quality is important for developing countries to manage their economy strategically for growth of the country; yet, it is a fact that most less-developed countries face the constraint of a low level of institutional quality. Improving institutional quality takes a long time, while policy stances can be changed and improved in a shorter period. In these conditions, the nature of institutional effects should be differentiated from the nature of policy stance, the main focus of previous studies. In international society, international financial institutions, including the World Bank, IMF, regional development banks, and development agencies have emphasized each country's policy stance and economic performance as part of governance in assessing the allocation of foreign aid. The present analysis implies that these groups may allocate foreign aid to countries with a low level of institutional quality as long as those countries' policies are shifted to a better direction and improving. Nevertheless, this analysis does not imply that foreign aid should be allocated to countries with immature institutions. It simply suggests that policy makers and development agencies should be less pessimistic about allocating foreign aid to countries with low level of institutional development and be more sanguine about the potential effectiveness of foreign aid on economic growth together with improving the institutional quality of less developed countries.

This lesson can be applied to the issues in the process of achieving ASEAN integration. As discussed earlier, narrowing development gaps, including income and institutional gaps, between ASEAN-6 and CLMV have been the prioritized challenges for their economic integration. Also, increasing institutional capacity is particularly important for less developed countries in the process of integration, as a number of frameworks and regulations are to be enforced at the same pace with relatively developed countries in the region. In such a case, foreign aid can play an important role in promoting economic growth effectively by allocating more resources and supports toward CLMV, the less-developed countries in region, whose intuitional capacities are still lower than the ASEAN-6. It was observed that Cambodia and Lao PDR have lower institutional quality, while their economic policies have improved over the period. In such conditions, they have a high potential to utilize the benefits of ODA to promote their economic growth. Eventually, this would help in narrowing the gaps among ASEAN member states by developing the institutions and promoting the economy of less developed countries in the region.

Particularly for Japan's ODA, institutional and capacity building has been their area of specialty in line with Japan's ODA policy, which has long experience with this. Therefore, Japan should take the initiative in supporting the institutional building of less developed countries. Such capacity development will enhance both the economic and institutional level of these countries. This is expected to contribute to narrowing the developing gaps among countries.

It should be noted that this analysis alone is not sufficient to explain the whole situation, as the

cross-country regression analysis explains only the generalized impacts of variables concerned. There were some limitations in this analysis, such as the size of the sample, availability of data, and affordability of indicators. However, it is hoped that the results of this analysis will provide some suggestions for policy makers, researchers, practitioners, and people in the development community to take it into consideration for their decision-making.

Notes

1   In 1997, ASEAN adopted ASEAN Vision 2020, which promised to establish "ASEAN Community" by 2020. In 2007, the ASEAN leaders reaffirmed their strong commitment to the ideal and the desire to accelerate the establishment of an ASEAN Community to 2015.

2   The standard definition of foreign aid comes from the Organization for Economic Cooperation and Development (OECD)–Development Assistance Committee (DAC). The term "foreign aid," for the purposes of this paper, refers only to ODA, and these words will be used interchangeably. That is, official assistance (OA) and private voluntary assistance in OECD-DAC definition are excluded in this paper.

3   Sachs and Warner defined "closed" economies by categorizing five components and testing their hypothesis. When a country is rated "closed" on any of the following components, it is rated closed overall. It is regarded as "closed" when (i) black market premium is above 20% (The premium is defined as the percentage difference between the black market exchange rate and the official exchange rate.); (ii) export marketing is closed as the government has a purchasing monopoly on a major export crop and delinks purchase prices from international prices. Sub-Saharan Africa only. (iii) the country is a socialist, (iv) own-imported weighted average frequency of non-tariff measures (licenses, prohibitions, and quotas) on capital goods and intermediates is above 40%, and (v) own-imported weighted average tariff on capital goods and intermediates is above 40%.

4   The interaction term of the ratio of aid to GDP and policy captures only marginal effects.

5   ASEAN consists of 10 countries. Brunei and Singapore are excluded from this analysis because they have not received ODA since 1996. Myanmar is excluded as well because there was limited data available.

6   The construction of the data set is detailed in the Appendix.

7   This method of ad hoc cross-country analysis was introduced by Barro (1991) to examine the determining factors for long-term economic growth.

8   Herein, "the previous studies" means the studies (Burnside & Dollar, 2000; Eastely, Levine, & Roodman, 2003; Sawada, 2004) introduced in the second section.

9   The essential nature of institution for long-term economic growth was also suggested by Ishii (2004, pp. 36–40).

10   The significance of institutional building in the process of ASEAN economic integration was emphasized in *The 2nd ASEAN Reader* (Siddique & Kumar, 2003), *ASEAN Ikinaikyoryoku no Kadai* [Challenges of ASEAN Intra-regional Cooperation] (Shimizu, 2004), and *ASEAN Keizai Kyodotai* [ASEAN Economic Community] (Ishikawa et al., 2009).

11   ln (1＋ average inflation rate)

12   The budget surplus and government consumption, both relative to GDP, which explain the government's capacity to manage fiscal policy, are commonly-used as fiscal variables in growth regression analysis. Due to the data limitation on budget surplus, government expenditure is chosen for this analysis. The incorporation of variable of budget surplus significantly reduced the number of countries with sufficient data to be used in the sample.

13   Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time deposits, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2 (World Bank, 2010a).

14   The reason for not taking a three year average like *TO* variable is that the amount of broad money is less volatile

than trade volume, as money becomes stock once it is supplied while trade is a flow variable.

15   ASEAN Dummy is used here as a simple regional dummy. It represents various factors, other than the differences in the levels of the chosen explanatory variables, for generally higher growth performance of the leading 6 ASEAN economies during this sample period. This dummy represents, among other things, effects of higher savings and lower unemployment rates, generally better fiscal balances, higher shares of FDIs in total investment, higher export competitiveness, growth-conducive government policies, and so forth.

16   The usage of interaction terms is widely seen in poverty analyses. The typical study is Bourguignon (2003). Bourguigon explains that both a lesser level of development and a higher level of inequality reduce the growth elasticity of poverty reduction. In the analyses of the poverty-growth-inequality triangle, growth is conducive to poverty reduction. However, the poverty-reducing impact of growth diminishes if the country's income distribution is more unequal. In the present case of the impact of official aid, even if aid has positive impact on growth, this impact may be augmented or reduced according to the quality of policy stance and/or institutions.

17   It is developed by The PRS Group, which is a leading organization focusing on political risk analysis for business and investment climates. Their data is available online. ICRG indicators have been widely used by private companies, international organizations, and academics for their analysis.

18   The CPIA is conducted by the World Bank to rate the policy and institutional frameworks of low-income countries (IDA countries) in 20 categories. The CPIA indicators are mainly used by international organizations to decide the allocation of foreign aid, as well as by some regional development banks and bilateral donors.

19   They are Cambodia, Lao PDR, and Nepal.

20   The International Development Association (IDA) is the World Bank's fund for the poorest.

21   Due to the data limitation in this analysis, the elements of v and vi are included as parts of the institutional quality indicator, corresponding to the variables of ethnic fractionalization and assassinations, which the previous studies used. The closer indicators are extracted from ICRG. There is no matching indicator from CPIA, so the institutional indicators for 3 countries are generated with data obtainable from CPIA.

22   Both ICRG and CPIA indicators are composed of multiple sub-indicators. The scores of ICRG sub-indicators range from 1 (lowest) to 10 (highest). Those of CPIA sub-indicators range from 1 (lowest) to 6 (highest). The author used simple arithmetic means of selected sub-indicators in calculating aggregate ICRG and CPIA indicators respectively for this study. Then the two aggregated indicators are used together in their standardized scores as explained in the main text.

23   These refer to the classification by the World Bank's "Country and Lending Groups by Income," whose groups are: low income, 995USD or less; lower middle income, 996–3,945USD; upper middle income, 3,946–12,195USD; and high income, 12,196USD or more (World Bank, 2010b).

24   It is preferable to use the sample mean, yet only three countries have indicators extracted from CPIA, so the average value was calculated in this way.

25   I also wanted to examine the impact of change in institution. However, I was not able to do so due to unavailability. Therefore, here the institutional quality indicator is used to show the level of it.

26   CPIA is newly introduced in recent years and there are data only from 2005 for those three countries.

27   The regression is estimated with the White Heteroscedasticity correction.

28   It is defined as $VIFab = 1/(1 - Rab^2)$, where Rab is the correlation coefficient of variables a and b.

29   Gujarati (2003) explains that there are no sure methods, only a few rules of thumb for detection of multicollinearity. The rules and the judgments will depend on the nature of the data and severity of the collinearity problem.

30   Aid for consumption and that for capital formulation have different impacts, too.

31   The coefficient of $M2$ is positive, suggesting that financial deepening gives positive effects to economic growth. The coefficient for the ASEAN regional dummy (for Indonesia, Malaysia, Philippines, and Thailand) is positive, indicating that they have achieved higher economic growth relative to other selected countries, ceteris paribus.

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Appendix: Construction of Data Set

Code	Variable	Data Source	Notes[1]
GDPG	Per capita GDP growth	World Bank 2010a	Compound average growth rate during the period; constant 2000 USD; Cambodia 1994–2008.
LGDP	Initial GDP per capita	World Bank 2010a	Natural logarithm of GDP/capita for first year of period; constant 2000 USD; Cambodia 1994.
INFL	Inflation	World Bank 2010a	Natural logarithm of average inflation rate during the period; ln (1＋inflation rate); Cambodia 1994–2008.
TO	Trade Openness	World Bank 2010a	Change of average ratio in the first three years to the last three years of trade (export＋import) to GDP during the period; Burkina Faso, Ghana & Tanzania 1993–2006, and Cambodia & Malaysia 1993–2007.
GE		World Bank 2010a	Period average ratio of government expenditure to GDP; Burkina Faso & Tanzania 1993–2006, Lao PDR 2000–2008, and Malaysia 1993–2007.
INST	Institutional Quality	PRS Group's ICRGE World Bank's CPIA (World Bank 2010a)	ICRGE for 27 countries: standardized scores using the sample mean CPIA for 3 countries: standardized scores using the mean CPIA of low and lower middle income countries listed in World Bank's country groups by income.
AID	Aid/GDP	World Bank 2010a	Period average ratio of net ODA to nominal GDP during the period
M2	Change of M2/GDP	World Bank 2010a	Change of M2/GDP in the first year to the last year during the period (GDP lagged one period); Cambodia & Zambia 1994–2008.
ASEAN	ASEAN dummy		A regional dummy variable for the selected ASEAN original members (Indonesia, Malaysia, Philippines, and Thailand)

[1] The sample period is 1993–2008. The period is shortened for countries with limited data availability, as indicated here.