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Poverty and Foreign Aid
Evidence from Recent
Cross-Country Data

Abuzar Asra, Gemma Estrada,
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FOREWORD

The ERD Working Paper Series is a forum for ongoing and recently completed research and policy studies undertaken in the Asian Development Bank or on its behalf. The Series is a quick-disseminating, informal publication meant to stimulate discussion and elicit feedback. Papers published under this Series could subsequently be revised for publication as articles in professional journals or chapters in books.

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ABSTRACT

This paper takes a fresh look, from a macro perspective, at the issue of aid effectiveness. An important point of departure for this study is that it adopts poverty reduction, as contrasted from economic growth, as the metric for measuring aid effectiveness. In conducting the empirical investigation, the paper experiments with a number of different regression equations and uses a new panel dataset on poverty. It shows that aid and aid-squared both have significant coefficients but with different signs (positive for aid and negative for aid-squared). This result suggests that aid is effective when it is relatively moderate but becomes ineffective when the size of aid exceeds the critical value defined by the absorptive capacity. Our results further suggest that while the macro policy environment and the quality of governance have a significant bearing on poverty reduction, aid effectiveness is not critically contingent on them. Aid has on average been effective, our regression results confirm, under a whole variety of circumstances—in terms of policy environments and quality of governance—in a wide diversity of developing countries. It also points to the limited usefulness of using aggregative index of (macroeconomic) policy and governance for policy insights. To derive useful policy insights, one needs to look beyond these aggregates. Hopefully, the present paper, which makes an exploratory first attempt in directly linking poverty reduction (rather than growth) to aid, controlling for a number of macroeconomic policy variables and governance, would inspire further future research efforts.

I. INTRODUCTION

There are few topics in development economics that have garnered as much controversy as the issue of aid effectiveness. In the last 40 years or so, a large literature has emerged on the topic but with few firm conclusions.¹ The literature has been marked by a wide diversity of approaches,² often emphasizing widely divergent and contradictory conclusions. The earlier literature has highlighted the critical importance of foreign assistance in economic development. This has been codified in the famous two-gap theory, which states that aid promotes economic development by relaxing savings and foreign-exchange constraints to capital formation and economic growth (Chenery and Strout 1966). The optimism and enthusiasm of the two-gap literature has, however, been short lived. It has given way to widespread skepticism that has appeared in the more recent literature. In addition to the mainstream economics literature, aid has many ideological detractors both from the left and the right. Indeed, these ideological critics of the left and the right are united in their opposition to foreign assistance, which is considered counterproductive and often harmful.³ However, this perspective contrasts with the mainstream economic literature, which is more evidence-based and draws on rigorous quantitative analytical techniques. Consequently, the mainstream economics literature has been more guarded and tentative in its conclusions.

A seeming paradox that the aid effectiveness literature has thrown up is the contradiction in the findings between micro-level and macro-level studies. According to the postevaluation studies reported by aid agencies, a large majority of the donor-sponsored investment projects are successful, with high economic returns and sustainable benefits.⁴ However, the quantitative studies that rely on cross-country growth regressions do not often yield a robust relationship between aid and economic growth. This micro-macro paradox, a name due to Mosley (1987), has helped to ignite a good deal of research interest among economists. Michalopoulos and Sukhatme (1989) and White (1992), who have surveyed the earlier cross-country regression-based literature, attribute this seeming paradox to conceptual, data, and technical econometric problems.⁵ They further conclude that the cross-country evidence is ambiguous.

¹ See Hansen and Tharp (2000), Easterly (2003), and Quibria (2004) for recent reviews of the literature.

² Some are micro-level studies while others are macro, and aggregative; some of these studies are focused on a single country while others take a comparative cross-country perspective; some studies rely on a broad qualitative, interdisciplinary framework; others use sophisticated quantitative techniques.

³ The critics of the left argue that the real objective of aid is to extend and perpetuate international capitalism and support the political agenda of the neo-colonial powers—and not to help the poor and disadvantaged. The critics of the right argue that aid helps to extend the power of the state to sustain bureaucratic centralism and hampers economic development.

⁴ This fact is evident from postevaluation reports of all major multilateral development institutions such as ADB, Inter-American Development Bank, and the World Bank (see, for example, ADB 2002). This has also been highlighted in the review of Cassen and Associates (1994).

⁵ Cassen and Associates (1994) seek to explain why the relationship between aid and growth is ambiguous and, in most cases, weak. They hypothesize that the relationship “can be either positive or negative, depending on the country groupings and time period chosen.” In addition, they discuss the problems of interpretation regardless of the finding of the relationship between aid and growth, which include such issues as *fungibility*, *historical causes of growth or the role of other factors in addition to aid*, and *the scale of aid*. In conclusion, they note that the inconclusive finding regarding the impact of aid on growth is not surprising, given the enormous variety of countries and types of aid.

After a period of relative lull, the debate on aid effectiveness has picked up again in recent years. Appealing to a set of cross-country regression results, Boone (1996) has argued that aid is ineffective because it tends to finance consumption rather than investment.⁶ Subsequently, a much publicized paper by Burnside and Dollar (2000) provides further, albeit qualified, support to the Boone contention. By incorporating economic policies into the regression equation and explicitly introducing an aid-policy interaction term, Burnside and Dollar conclude that if aid is accompanied by good macroeconomic policies, it has a significant positive effect on growth. This, however, strengthens the case for targeting aid to countries that have made improvements in economic policy. The results of Burnside and Dollar⁷ have received wide attention because of its apparent plausibility and ability to provide a resolution of the micro-macro paradox.

In reaction to the Burnside and Dollar paper, a number of recent papers have emerged that examine the paper's robustness. These papers include Hansen and Tarp (2001), Dalgaard and Hansen (2001), Lensink and White (2001), and Easterly et al. (2004). Hansen and Tarp (2001) find that aid has a positive but diminishing impact on economic growth. However, they find that this estimated impact is highly sensitive to the choice of the estimator—that is, whether it is Ordinary Least Squares (OLS) or Generalized Method of Moments (GMM) regression—and the set of control variables. For example, when they control for investment and human capital, they find no positive effect of aid. Dalgaard and Hansen (2001) use the same model specification as well as the data of Burnside and Dollar. They find that the principal Burnside and Dollar conclusion—that the impact of aid is contingent on the macroeconomic environment—is not robust. It critically depends on the choice of observations. They note that the five influential observations that Burnside and Dollar exclude from their preferred regressions have a critical bearing on the results. With a different choice of observations that rely on equally valid and standard regression diagnostics, unlike Burnside and Dollar they find that aid has a significant positive impact on economic growth. They also note that the Burnside and Dollar data suggest a nonlinear relation between growth and aid, implying diminishing returns to aid. Lensink and White (2001) also do not find any empirical corroboration in favor of the Burnside and Dollar proposition that aid is more effective in a good macroeconomic policy environment. Their results provide support for the notion that there are diminishing returns when the level of aid inflow is high. However, these empirical results seem to be sensitive to the selection of countries as well as to model specification.

Though all the abovementioned studies raise questions about the robustness of the Burnside and Dollar findings, the critique of Easterly et al. (2004) however was the most devastating. They took a different but simpler route to robustness. They retained the Burnside and Dollar model and the methodology, but added new data that were not available to Burnside and Dollar. They find that

⁶ Boone derives his results from panel data regressions based on a sample of 90 countries covering over 20 years. The validity of the empirical results of Boone has been widely questioned. A number of empirical studies, which are in many ways similar to that of Boone in terms of overlapping samples and estimation methods, *do* find a positive impact of foreign assistance.

⁷ The findings of the working paper version of the Burnside and Dollar study were given wider publicity in a subsequent World Bank publication, *Assessing Aid* (World Bank 1998). The principal propositions of the study can be summarized as follows: (i) financial aid works in a good policy environment; (ii) effective aid complements private investment; and (iii) aid can nurture reform even in distorted environments, if it is focused on ideas and pursued with patience. Consequently, three of the five policy reforms proposed are (i) financial assistance must be targeted more effectively to low-income countries with sound economic management; (ii) policy-based aid should be provided to nurture policy reforms in credible reformers; and (iii) the mix of aid activities should be tailored to country and sector conditions.

once the new data are added, the significant relationship between “growth” and “aid and policy interaction” ceases to exist. In other words, by applying the model to a larger dataset, they demonstrate that this much-touted proposition—that foreign aid will enhance economic growth only in countries with good policies—is empirically all too fragile.

The present study looks at aid effectiveness from a perspective different from that of the earlier studies discussed above. Viewing poverty reduction as the metric for measuring development, this paper explores the role of foreign aid in addressing poverty. The use of poverty reduction as the metric for measuring development was motivated by the recent shifts in emphasis of the international development community. International development agencies have in recent years focused on poverty reduction, as opposed to economic growth, as the overarching goal of economic development. This is reflected in the adoption of the Millennium Development Goals as the objective of the international community, as well as in the vision statements of the multilateral development institutions. For example, the World Bank envisions “a world free of poverty” and the Asian Development Bank has adopted poverty reduction as its overarching development objective. In light of this, it is appropriate that an enquiry on aid effectiveness should be framed in terms of poverty reduction than economic growth.

This is the first study to look at the question of the effectiveness of foreign aid from the perspective of poverty reduction.⁸ In particular, the study tries to answer such questions as: How does aid affect poverty reduction? Does aid effectiveness depend on the size of aid? Does aid effectiveness vary by region? What measures can countries take to improve aid effectiveness? What is the role of quality of governance in poverty reduction? To what extent is aid effectiveness dependent upon policy? Given the various data constraints and the exploratory nature of the present exercise, the empirical answers to the above queries should be viewed as tentative.

The organization of the paper is as follows. Section II lays out the basic model and Section III describes the data sources. Section IV reports the empirical results. Finally, Section V provides the conclusions,

II. EMPIRICAL FRAMEWORK AND ESTIMATION ISSUES

There is not much guidance available from theory regarding the appropriate specification for the poverty equation. However, some recent cross-country empirical works on poverty (for example, Dollar and Kraay 2002 and Hasan et al. 2003) emphasize the role of initial conditions, policies, and institutions in determining intercountry poverty profiles.

Following this literature, we postulate a poverty equation:

$$\text{Poverty Reduction} = \beta_1 + \beta_2 (\text{Initial Conditions}) + \beta_3 (\text{Aid}) + \beta_4 (\text{Policy Variables}) + \beta_5 (\text{Governance Variables}) + \beta_5 (\text{Region Dummies}) + \varepsilon(t)$$

⁸ Burnside and Dollar (1998) make a circuitous attempt to examine aid effectiveness from the point of view of poverty reduction. Rather than using standard poverty measures, they use infant mortality as the indicator of poverty for their regression analysis. In addition to the poor quality of international data on infant mortality, these results seem to be highly sensitive to changes in model specification and inclusion of variables.

If all right-hand-side (RHS) variables in the poverty equation are exogenous, then we can estimate the poverty equation independently from a separate aid equation.⁹ However, this may not be the case. Indeed, it has been suggested in the literature that poverty and aid tend to be determined simultaneously. While aid may contribute to poverty reduction, it is contended that the recipient's poverty is an important consideration in aid allocation. In other words, aid is given to low-income countries that are manifestly poor. Since aid allocation is presumably affected by recipient's needs, which are described by its initial conditions, $cov(aid, \epsilon)$ might not be zero—that is, aid is endogenous in the poverty equation. To address this issue, we need to instrument aid in the analysis. The instrument Z should satisfy following two conditions: (A) $cov(Z, aid) \neq 0$, and (B) $cov(Z, \epsilon) = 0$, i.e., the instrument should be highly correlated with the dependent variable (aid) but uncorrelated with the error.

Our search for ideal instruments however has been somewhat frustrating. Potential candidates for instruments include population, friend of donor dummy, arm import (military importance), mortality rate, and life expectancy, all of which are known to influence the allocation of aid. That is, these variables are correlated with aid—in other words, they satisfy condition (A). However, most of these variables also have an impact on poverty reduction, thus violating condition (B). Among the potential instrument variables identified, donor's friend dummy and arm import are less likely to be correlated with ϵ , thereby making them plausible instruments. However, in the estimated aid regression, these two variables do not exhibit any significant explanatory power. This, of course, complicates our efforts at implementing Two-Stage-Least-Squares (2SLS) in the estimation of the poverty equation.

Given these difficulties in finding the right instrumental variables we controlled for a number of initial conditions to help cope with the endogeneity issue in the poverty equation, that is, to reduce the possibility of $cov(aid, \epsilon) \neq 0$. These initial conditions, which relate to factors that might affect the allocation of aid in our regressions, include: poverty in the beginning year; log of per capita GDP in the beginning year; log of population in the beginning year; infant mortality rate in the beginning year; life expectancy in the beginning year; and the Gini coefficient in the beginning year. These initial conditions helped significantly reduce the endogeneity problem, but not totally. To guard against this possibility, we continue to apply endogeneity tests to our empirical results.

In the analysis, we use as the dependent variable poverty reduction, which has been measured in terms of absolute, rather than proportionate rate of change.¹⁰ Since most of countries have experienced reduction in poverty over time, the change in poverty [$Poverty(t) - Poverty(t-5)$] is mostly negative. For easier interpretation, we use poverty reduction as the negative of absolute change in poverty. That is, if the poverty level of country A has fallen from 20 to 10 percent, then "change in poverty" is indicated by -10 , and poverty reduction by $+10$. In this way, positive coefficient is interpreted as a positive effect on poverty reduction.¹¹

⁹ The aid equation is defined as follows: $Aid/GNI = \gamma_1 + \gamma_2$ (Initial Conditions: Recipient's need) + γ_3 (Political Determinants) + γ_4 (Policy Variables) + γ_5 (Governance Variables) + v_{it} . The initial conditions included in the equation are "poverty in the beginning year"; "log of per capita GDP in the beginning year"; "log of population in the beginning year"; "infant mortality rate in the beginning year"; "life expectancy in the beginning year"; and "the Gini coefficient in the beginning year." Political determinants included are "share of arm import in total import" and "France zone", while policy and governance variables and regions dummies are the same as those for the poverty equation.

¹⁰ A problem with using the (annual) proportionate rate of change as the independent variable is that it does not provide any indication of the extent of poverty reduction, i.e., it treats a reduction in poverty from 4 to 2 percent the same as a reduction from 50 to 25 percent. For this reason, it seems that the absolute change in poverty is a better measure of poverty reduction for our purpose.

¹¹ Thus, we expect positive (+) coefficient if the variable has a positive impact on poverty reduction.

III. DATA

For poverty, we use a dataset recently compiled by Hasan et al. (2003).¹² This panel dataset covers more than 80 countries over the period 1960-1998. For the purpose of the present study, we exclude all developed countries and transitional countries. This dataset is, however, somewhat unbalanced due to missing data points. The number of observation per country ranges from 1 to 22. However in this study, we took one observation in every 5-year period. This helps not only to prevent the result from being dominated by few countries, but also to smooth out irregular yearly changes. It leaves 147 observations covering 49 countries.¹³

The empirical analysis in the paper makes use of two types of variables, some of which are time-variant and some time-invariant. The following provides a brief list of the principal variables. The complete list of the variables used in the analysis is given in Table 1.

A. Time Variant

- (i) Poverty: Used as the dependent variable, poverty is measured by the headcount index, when the poverty line is set at \$2 per day.¹⁴
- (ii) Aid: The volume of aid is indicated by effective development assistance (EDA)¹⁵ as a percentage of gross national income (GNI), expressed as average of each 5-year period.
- (iii) Openness: Trade as a percentage of GDP,¹⁶ expressed as an average of each 5-year period.

¹² Following a method that has now become the industry standard (see for example, Chen et al. 2000 and 1994), Hasan et al. derived poverty estimates using the following information: (i) data distribution by quintile, (ii) mean per capita expenditures, and (iii) poverty line. They estimate poverty using the algorithm and software POVCAL. Since Hasan et al. use private consumption expenditures (PCE) per capita from national accounts as proxy for mean per capita consumption, their estimates of poverty tend to be lower when compared to the survey-based estimates of mean PCE used by Chen et al. Note that these estimates by Chen et al. have been the subject of tremendous controversy in recent years, as they tend to overestimate poverty (see for example, Sala-i-Martin 2002). Further, since deriving statistically reliable estimates is more difficult the closer the poverty line is to the lower tail of the expenditure distribution, Hasan et al. consider \$2 a day estimates as statistically more reliable.

¹³ This counts only observations that are used in the final regressions. This dataset is available from the authors on request.

¹⁴ The main reason we use the higher \$2-a-day poverty line rather than the \$1-a-day poverty line is that the latter yields fewer technically reliable estimates of poverty than the former. In addition, the \$2 poverty line is increasingly being used as the threshold of choice in international discussions; for example, the 13th replenishment of resources for the International Development Association (IDA13) was premised on such a threshold.

¹⁵ This data set was compiled by Chang et al. (1998). Burnside and Dollar were the first to make use of this new measure of effective foreign assistance. However, Chang et al. further manipulate this data to derive real aid (measured in constant 1985 dollars, using the unit value of imports price index) and real effective development assistance (by dividing real aid by real GDP, using the Penn World tables).

¹⁶ Trade shares are not a direct measure of trade policy. For this reason, we have also experimented with a more direct measure of trade policy—namely, import duties as a share of total imports. However, this measure presents three problems. First the number of observations reduces drastically by half due to missing data on import duties. Second, this relates to a larger conceptual problem: this measure does not capture the effects of nontariff barriers. Third, this measure underestimates actual protection when high tariff rates drive corresponding imports down. For these reasons, we stick to trade shares.

TABLE 1
 VARIABLE DEFINITION AND SOURCE

VARIABLE	DEFINITION	UNIT	SOURCE
Poverty	Percentage of the population whose income falls below \$2 measured in purchasing-power parity dollars.	Percent	Hasan et al. (2003)
Income	Gross domestic product per capita	Real per capita GDP at 1996 US dollar purchasing power parity	Penn World Tables
Gini Coefficient	A measure of the size distribution of income or expenditure	Gini value calculation	Authors
Infant Mortality Rate	Infant mortality rate per 1,000 live births	Number of infant mortality cases	World Bank
Life Expectancy	Life expectancy at birth, total	Year	World Bank
Aid	(EDA/GNI)*100	Percent	World Bank
Openness to Trade	Sum of imports and exports as share of GDP	Percent	Penn World Tables
Government Expenditures	Government expenditures as share of GDP	Percent	Penn World Tables
Inflation Rate	Percentage growth in consumer price indices (100 in 1996)	Percent	Penn World Tables
Quality of Governance	Combination of the following governance measures: <i>Control of Corruption</i> : Measures perception of corruption, conventionally defined as the exercise of public power for private gain. <i>Government Effectiveness</i> : based on the responses on the quality of public service provision, quality of bureaucracy, competence of civil servants, independence of the civil service from political pressures, and credibility of the government's commitment to policies. <i>Regulatory Quality</i> : Measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development. <i>Rule of Law</i> : Indicators measuring the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of crime, effectiveness and predictability of the judiciary, and enforceability of contracts.	Index number	Kauffman et. al (2003)
Friends of Donors	Franc zone dummy	0, 1	Burnside and Dollar (2000)
Military Importance	Share of arm import in total import	Percent	<i>World Development Indicators</i> , World Bank

- (iv) Government Expenditure: Government expenditure is percentage of gross domestic product (GDP), expressed as an average of each 5-year period.
- (v) Inflation: log (inflation), expressed as an average of each 5-year period.¹⁷

B. Time Invariant

- (i) Quality of Governance index: Encompasses four dimensions: control of corruption, government effectiveness; regulatory quality, and rule of law
- (ii) Region Dummies: Includes six regional dummies: EAP: East Asia and Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; MENA: Middle East and North Africa; SA: South Asia; and SSA: Sub-Saharan Africa

We use a new measure of aid called effective development assistance (EDA) generated by Chang et al. (1998). The EDA focuses on the overall grant equivalence of official financial flows and excludes loan component of concessional loans.¹⁸ This new measure is available for 133 developing countries from 1975 to 1995. The EDA, as it has been argued, overcomes some of the shortcomings of conventional measures of aid [ODA] based on the OECD's Official Development Assistance.¹⁹

Our data on governance—and the indexes we use in this paper to measure the quality of governance—are all derived from the dataset reported by Kaufmann, Kraay, and Zoido-Lobaton (KKZ) (1999a, 1999b, 2002); and updated in Kaufmann, Kraay, and Mastruzzi (2003). The KKZ dataset provides six governance indicators, which are : (i) voice and accountability, (ii) political stability, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control of corruption.²⁰ These governance indicators are time-invariant. The World Bank website reports these KKZ governance indicators at discrete intervals for limited years: only for 1996, 1998, 2000, and 2002. Since our data for the dependent variable cover the period 1975 to 1995, it is inappropriate to use governance

¹⁷ When the annual inflation was less than 1 percent, it was set to 1 to prevent it from being dropped. Dummy for negative inflation was included when applicable.

¹⁸ This EDA definition of aid differs from the standard definition of aid adopted by the Organisation for Economic Cooperation and Development (OECD). The OECD definition includes both grants and concessional loans net of repayment of previous aid loans. This OECD measure of aid is called net Official Development Assistance (ODA), which provides a measure of actual financial transfer to a country. In other words, the main difference between the EDA and the standard measure ODA is that the former is the sum of grants and grant equivalents of official loans and the latter is the sum of grants and loans for which the grant element is more than 25 percent.

¹⁹ As noted by Dalgaard and Hansen (2000), despite the valuable effort by Chang et al. (1998) to construct an improved measure of aid flows, the difference between EDA and ODA appears to be no more than a simple mathematical transformation. Moreover, simple statistical properties of different aid measures suggest that the aid effectiveness results obtained by Burnside and Dollar are not significantly different from those that use nominal official development assistance.

²⁰ Kaufmann et al. (2003) caution, however, that despite the increase in precision in the latest governance indicators, the margins of error still remain substantial relative to the units in which these indicators are measured. Accordingly, the ranking of countries based on these indicators is subject to significant margins of error. The margins of error need to be taken seriously when classifying countries into groups based on their quality of governance, as has been proposed for the new aid program of the US Government, the Millennium Challenge Account (MCA). Note that in March 2002, the US Government announced that the MCA would be “devoted to projects in nations that govern justly, invest in the people and encourage economic freedom.” The proposed criteria for country eligibility under the MCA cover various governance measures, including five of the six KKZ measures.

TABLE 2
 SUMMARY STATISTICS (MEAN VARIABLES) BY REGION

REGION	EAP	ECA	LAC	MENA	SA	SSA	TOTAL
Poverty	32.76	9.05	19.96	20.16	59.24	66.46	36.69
Change in Poverty	9.73	3.67	1.34	-1.11	6.94	-1.58	2.86
Per Capita Income	2,947	4,937	4,501	3,766	1,392	1,269	3,126
Log (Per capita income)	7.99	8.50	8.41	8.23	7.24	7.15	7.91
Population (10 ⁶)	68.41	45.22	7.04	7.90	72.36	10.08	28.07
Population (log)	18.04	17.63	15.77	15.88	18.10	16.13	16.60
Gini Coefficient	36.65	42.57	45.12	42.20	32.75	44.13	41.57
Infant Mortality Rate	18.04	17.63	15.77	15.88	18.10	16.13	16.60
Life Expectancy	64.11	61.62	65.14	62.48	55.95	46.73	59.72
Aid	0.53	0.32	1.86	3.58	3.94	6.89	2.99
Openness	62.78	24.28	60.18	78.02	33.01	51.60	55.17
Government Expenditure	19.29	15.74	21.59	28.00	19.44	20.96	20.97
Inflation	8.21	42.04	25.93	8.48	9.41	13.78	17.68
Inflation (log)	2.11	3.74	3.26	2.14	2.24	2.62	2.75
Quality of Governance	1.26	0.96	0.24	0.18	-0.69	-1.60	-0.07
Countries	7	1	18	5	5	13	49
Observations	25	4	60	8	20	30	147

EAP: East Asia and the Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; MENA: Middle East and North Africa; SA: South Asia; SSA: Sub-Saharan Africa.

Note: Descriptive statistics for quality of governance cover only 149 countries with data.

indicators that relate to the post-1995 period in our analysis. As it is widely presumed that governance indicators change very slowly over time, we include the 1996 governance indicators (which is closest to our period of investigation) in the regressions.

For our analysis, we have employed three indexes of the quality of governance. The first two indexes of the governance quality we use are based on all the six governance indicators of KKZ. One is the composite KKZ index of the quality of governance used by Burnside and Dollar (2004) and the other is an aggregate index that we derived by applying the principal components approach using all six indicators.

However, the final index of the quality of governance that we use in this paper is based on four of the six KKZ governance indicators—namely, control of corruption, government effectiveness, regulatory quality, and rule of law.²¹ This new index, which relies on the principal components

²¹ In devising this new index, we exclude outright voice and accountability and include government effectiveness, because when we use all six governance indicators as separate explanatory variables (see equation 2 in Table 3), we find that voice and accountability has a negative significant coefficient, while government effectiveness has a positive significant coefficient. Next, we experiment with various amalgams that combine government effectiveness with the remaining four governance indicators (i.e., an aggregation of four to five indicators to capture as much governance indicators as possible). The combination of five indicators without voice and accountability proves to be insignificant, while the combination of four indicators—namely, control of corruption, government effectiveness, regulatory quality, and rule of law—is found to be a significant predictor of poverty reduction.

approach, condenses the information contained in the four governance indicators into a single measure. This new measure, which retains the character and nature of the original indicators, helps to attenuate the problems associated with high correlations among the governance indicators. We use the results of the first principal component, because the first principal component accounts for about 80 percent of the total population variance, indicating that this component can replace the original indicators without much loss of information.²²

IV. EMPIRICAL ANALYSIS

This section reports the results of nine equations²³ that fall into two categories, those with and without interactions. They are listed as follows:

A. Equations 1 to 4: Without Interactions

- (1) Poverty reduction = f (initial conditions, macroeconomic policy variables)
- (2) Poverty reduction = f (initial conditions, governance measures)
- (3) Equation (1) + aid + aid-squared + quality of governance
- (4) Equation (3) + region fixed-effects

B. Equations 5 to 9: With Interactions

- (5) Equation (3) + aid-governance interaction
- (6) Equation (3) + aid-policy interaction
- (7) Equation (4) + aid-governance interaction
- (8) Equation (4) + aid-policy interaction
- (9) Equation (4) + aid-region interaction

Equation 1 is the base regression, which is used to determine whether it is appropriate to construct a policy index out of the three macroeconomic policy variables, following the approach of Burnside and Dollar. We, however, abandon this plan to construct such a policy index since not all our policy variables are significant: one of the policy variables (openness) turns out to be insignificant in the regression (Table 3).

²² Note that the first principal component attaches almost equal importance to each of the four governance indicators, as the correlation between them and the first principal component ranges from 0.86 to 0.93.

²³ To control for the initial conditions of the country, we use the following variables (with the values of the variables in the beginning year) as instruments: poverty, log of per capita GDP, log of population, infant mortality rate, life expectancy, and Gini coefficient.

TABLE 3
 BASE REGRESSIONS

	(1) INITIAL CONDITIONS AND MACROECONOMIC POLICY	(2) INITIAL CONDITIONS AND GOVERNANCE
<i>Initial Conditions:</i>		
Poverty	0.326*** (4.47)	0.373*** (4.82)
Per Capita GDP	8.425*** (2.84)	9.453*** (3.12)
Population	1.510*** (2.69)	-0.319 (0.61)
Infant Mortality Rate	0.082* (1.96)	0.071* (1.77)
Life Expectancy	0.678*** (3.35)	0.552*** (2.66)
Gini Coefficient	0.084 (0.94)	-0.001 (0.01)
<i>Macroeconomic Policy:</i>		
Openness	0.050 (1.58)	
Government Expenditure	-0.267*** (3.05)	
Inflation	-1.066* (1.91)	
<i>Governance:</i>		
Voice and Accountability		-4.541*** (2.65)
Political Stability		-1.487 (1.08)
Government Effectiveness		5.632* (1.93)
Regulatory Quality		2.043 (0.84)
Rule of Law		1.531 (0.59)
Control of Corruption		0.502 (0.26)
Observations	213	208
R-squared	0.24	0.26

* means significant at the 10% level

** means significant at the 5% level

*** means significant at the 1% level

Note: Poverty reduction= $[pov(t)-pov(t-5)]$. Absolute value of t statistics in parentheses.

In equation 2, all six governance measures are entered separately in the regression. We find voice and accountability to have a significant but negative coefficient (which is unexpected, with a wrong sign), government effectiveness is positive and significant, and all other measures are *not* significant. Apprehending that this result may simply be an artifact of the high correlation among the governance measures, we go on to construct an index combining the different governance measures that helps eliminate this high correlation (see Section III on data).

The aid-poverty regressions begin with equations 3 and 4, where both OLS and 2SLS are applied. We instrument for aid with “Franc zone dummy” and “Share of arm import in total import.” To test the endogeneity of aid with or without quality of governance, the Hausman test was applied for OLS and 2SLS estimates. The estimated Hausman test statistics suggest that the aid variable can be safely regarded as exogenous throughout all our specifications. Thus, only the OLS is used in the succeeding equations.

1. How Does Aid Affect Poverty Reduction?

To answer this question, we look at the regressions without interactions (equations 3 and 4 in Table 4) and with interactions (equations 5 to 9 in Table 5). All the equations also include the aid-squared term. The effect of aid on poverty reduction is estimated by controlling for initial conditions, macroeconomic policy, and quality of governance. In equation 3, we introduce governance quality to equation 1, while in equation 4 we add the region fixed-effects to equation 3.

In equations 3 and 4, the estimated coefficients of aid are consistently statistically significant suggesting that there is a systematic impact of aid on poverty reduction. Even if we include the interaction of aid with governance as a control variable to equation 3 (equation 5) or to equation 4 (equation 7) we still find that aid has a significant and positive impact on poverty reduction. When we include the interaction of aid with macroeconomic policy to equation 3 (equation 6) or interaction of aid with regions to equation 4 (equation 9), we find that aid is *not* significant. But when region-fixed effects are added along with aid–macroeconomic policy interactions, results show that aid is a significant predictor of poverty reduction (equation 8). The coefficients indicate that for every 1 percent increase in EDA as share of GNI, poverty incidence drops by 1.2–1.6 percent.

2. Does Aid Effectiveness Depend on the Size of Aid?

To address this question, we examine the coefficient of the aid-squared term in the equations. The impact of aid on poverty reduction may not be constant, but varies with the size of aid. To incorporate this nonlinear relationship between aid and poverty reduction, a quadratic term of aid is introduced in the regression.

Both aid and aid-squared have significant coefficients although with different signs (positive for aid and negative for aid-squared) (equations 3 to 5, 7, and 8). This result shows that aid is effective when it is relatively modest but becomes ineffective when the size of aid exceeds a critical

TABLE 4
 WITHOUT INTERACTIONS: AID-POVERTY REGRESSIONS

	AID-POVERTY REGRESSIONS			
	(3) WITHOUT REGIONS		(4) WITH REGIONS	
	OLS	2SLS	OLS	2SLS
<i>Initial Conditions:</i>				
Poverty	0.483*** (5.51)	0.499*** (5.06)	0.509*** (5.69)	0.523*** (5.59)
Per Capita GDP	12.990*** (3.54)	14.719** (2.46)	13.123*** (3.56)	14.883*** (3.19)
Population	2.308*** (3.23)	2.771* (1.91)	1.542* (1.73)	2.259 (1.55)
Infant Mortality Rate	0.130*** (2.67)	0.133*** (2.67)	0.120* (1.93)	0.132** (2.00)
Life Expectancy	0.825*** (3.48)	0.844*** (3.45)	0.681** (2.13)	0.717** (2.18)
Gini Coefficient	-0.025 (0.24)	-0.012 (0.10)	-0.022 (0.20)	-0.017 (0.15)
<i>Macroeconomic Policy:</i>				
Openness	0.095** (2.46)	0.103** (2.32)	0.067* (1.66)	0.078* (1.76)
Gov't Expenditure	-0.398*** (3.83)	-0.417*** (3.58)	-0.415*** (3.77)	-0.439*** (3.72)
Inflation	-0.122 (0.19)	-0.047 (0.07)	0.088 (0.13)	0.079 (0.11)
<i>Governance:</i>				
Quality of Governance	1.011* (1.96)	1.026* (1.97)	0.658 (1.15)	0.708 (1.21)
Aid	1.185** (2.20)	1.945 (0.91)	1.574*** (2.84)	2.633 (1.48)
Aid-squared	-0.079** (2.61)	-0.118 (1.08)	-0.093*** (3.02)	-0.147 (1.62)
<i>Regions:</i>				
EAP			4.767 (1.39)	4.436 (1.27)
ECA			0.638 (0.14)	-0.017 (0.00)
MENA			-0.202 (0.06)	-1.349 (0.36)
SA			-3.069 (0.85)	-4.914 (1.05)
SSA			-6.625* (1.93)	-7.511** (2.00)
Observations	147	147	147	147
R-squared	0.39	0.38	0.45	0.43

* means significant at the 10% level

** means significant at the 5% level

*** means significant at the 1% level

EAP: East Asia and Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; MENA: Middle East and North Africa; SA: South Asia; SSA: Sub-Saharan Africa.

Note: Poverty reduction= $[pov(t)-pov(t-5)]$. Absolute value of t statistics in parentheses. For equation 3 (2SLS), Endogeneity test result is: $\chi^2(13)=0.13$ with $p=1.00$; Overidentification test result is: $\chi^2(1)=1.395$ with $p=.2376$. For equation 4(2sls), Endogeneity test result is: $\chi^2(18)=0.39$ with $p=1.00$; Overidentification test result is: $\chi^2(1)=1.1013$ with $p=.3142$.

value.²⁴ In other words, there are diminishing marginal returns to aid. The equations with aid-squared show that aid has a positive effect on poverty reduction when aid (EDA) is less than about 17 percent of GNI but becomes ineffective thereafter.²⁵ In terms of ODA, this would translate to about 26 percent of GNI.²⁶

3. To What Extent is Aid Effectiveness Contingent on (Macroeconomic) Policy?

Since the publication of the highly influential study by Burnside and Dollar (2000), it is now widely accepted in the policy circle that aid effectiveness is critically contingent on “good” macroeconomic policy. The robustness of this proposition is explored in the present paper by adding interaction terms between aid and each individual component of macroeconomic policy. However, unlike Burnside and Dollar, we find in the regressions with the interaction terms between aid and macroeconomic policy variables (equation 6), the coefficients of all interaction terms are not significant, suggesting that aid effectiveness is not contingent upon the state of the macroeconomic policy.²⁷ Interestingly, even if we include region fixed-effects in the regression (equation 8), all interactions of aid with macroeconomic policy still have zero coefficients.

To avoid confusion, it may be noted that the above result does not mean that sound macroeconomic policy is unimportant for poverty reduction. On the contrary, as our various regressions suggest, macroeconomic policy can have a significant bearing on poverty reduction. However, what the above suggests is that this impact is not mediated through its interaction with aid. In other words, aid effectiveness in reducing poverty is not contingent on the state of the macroeconomic policy, as has been claimed. To wit, economic aid has on average been successful under a wide variety of macroeconomic environments in reducing poverty. Similar results—of unconditional aid-effectiveness—have been reported among others by Hansen and Tarp (2000) and Dalgaard et al. (2004), though they have used different empirical frameworks and, of course, a different metric for measuring aid effectiveness—i.e., economic growth.

4. What is the Role of Quality of Governance in Poverty Reduction?

To address this question, we have followed two different approaches. First, we experiment with two different aggregate indicators of governance that use all the six governance indicators of KKZ. One is the KKZ index used by Burnside and Dollar (2004) and the other is a derived index that

²⁴ Given the exploratory nature of the present exercise, we should not attach too much importance to the exact identification of the empirical turning point. For a discussion of the empirical turning points in the context of growth studies, see Lensink and White (2001).

²⁵ A similar result, in the context of growth regressions, was obtained by Hadjimichael et al. (1995), Durbarry et al. (1998), and Lensink and White (1999).

²⁶ For our sample countries, EDA amounts to only about 66 percent of ODA. This would, in other words, imply that ODA is effective in reducing poverty only up to about 26 percent of GNI. This percentage is close, though not identical, to that obtained using Chang's (1998) estimate. According to Chang, net ODA overstates aid flows by as much as 25-30 percent. In this case, the corresponding turning point is 22 percent of GNI.

²⁷ Note that while Burnside and Dollar investigate the impact on growth, this paper examines the impact on poverty reduction. Also, unlike Burnside and Dollar, our regressions do not use time dummies.

TABLE 5
 WITH INTERACTIONS: AID-POVERTY REGRESSIONS

	(5) WITH AID-GOVERNANCE INTERACTION		(6) WITH AID-POLICY INTERACTION		(7) WITH AID-GOVERNANCE INTERACTION + REGION	
	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT
<i>Initial Conditions:</i>						
Poverty	0.474***	5.17	0.483***	5.35	0.510***	5.48
Per Capita GDP	12.706***	3.37	13.760***	3.67	13.183***	3.47
Population	2.319***	3.23	2.436***	3.32	1.537**	1.71
Infant Mortality Rate	0.130***	2.66	0.127**	2.58	0.121*	1.91
Life Expectancy	0.830***	3.49	0.818***	3.41	0.683**	2.11
Gini Coefficient	-0.028	0.26	-0.002	0.02	-0.022	0.20
<i>Macroeconomic Policy</i>						
Openness	0.098**	2.48	0.087*	1.98	0.067	1.60
Government Expenditure	-0.393***	3.73	-0.324**	2.18	-0.415***	3.74
Inflation	-0.109	0.17	-0.911	1.12	0.085	0.12
<i>Quality of Governance</i>						
Aid	1.040**	1.99	0.910*	1.72	0.649	1.10
Aid-squared	-0.081***	2.10	-0.107**	2.58	-0.093***	3.01
<i>Regions</i>						
EAP					4.809	1.38
ECA					0.626	0.14
MENA					-0.214	0.07
SA					-3.079	0.85
SSA					-6.595*	1.90
<i>Interactions</i>						
Aid x Governance	-0.055	0.35			0.011	0.07
Aid x Openness			0.001	0.26		
Aid x Government Expenditure			-0.015	0.62		
Aid x Inflation			0.254	1.58		
Aid x EAP						
Aid x ECA						
Aid x MENA						
Aid x SA						
Aid x SSA						
Observations	147		147		147	
R-squared	0.39		0.40		0.45	

* means significant at the 10% level

** means significant at the 5% level

*** means significant at the 1% level

EAP: East Asia and Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; MENA: Middle East and North Africa;

SA: South Asia; SSA: Sub-Saharan Africa.

Note: Poverty reduction= $[pov(t)-pov(t-5)]$.

(continued next page)

TABLE 5 (CONT'D.)

	(8) WITH AID– POLICY INTERACTION + REGION		(9) WITH REGION + AID–REGION INTERACTION	
	COEFFICIENT	T-STAT	COEFFICIENT	T-STAT
<i>Initial Conditions</i>				
Poverty	0.511***	5.54	0.481***	5.44
Per Capita GDP	13.612***	3.60	13.110***	3.54
Population	1.687*	1.78	2.078**	2.25
Infant Mortality Rate	0.117*	1.84	0.118*	1.84
Life Expectancy	0.677**	2.08	0.523	1.61
Gini Coefficient	-0.011	0.10	-0.074	0.69
<i>Macroeconomic Policy</i>				
Openness	0.064	1.37	0.100**	2.39
Government Expenditure	-0.355**	2.37	-0.374***	3.26
Inflation	-0.479	0.55	-0.322	0.46
<i>Quality of Governance</i>				
Aid	0.612	1.04	0.952*	1.67
Aid-squared	1.512**	2.16	0.759	1.11
	-0.109**	2.59	-0.073**	2.31
<i>Regions:</i>				
EAP	4.311	1.19	-3.164	0.81
ECA	1.141	0.24	2.771	0.32
MENA	0.309	0.09	-0.224	0.05
SA	-3.283	0.88	-8.119	1.55
SSA	-6.378*	1.78	-10.675**	2.52
<i>Interactions:</i>				
Aid x Governance				
Aid x Openness	0.001	0.15		
Aid x Government Expenditure	-0.014	0.56		
Aid x Inflation	0.180	1.10		
Aid x EAP			9.069***	3.19
Aid x ECA			-11.420	0.50
Aid x MENA			-0.191	0.21
Aid x SA			1.336	1.44
Aid x SSA			0.870*	1.87
Observations			147	147
R-squared			0.45	0.51

* means significant at the 10% level

** means significant at the 5% level

*** means significant at the 1% level

EAP: East Asia and Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; MENA: Middle East and North Africa; SA: South Asia; SSA: Sub-Saharan Africa.

we construct applying the principal components approach using the same six indicators. Our regressions based on these two aggregate indices of governance suggest *no* significant relationship between poverty reduction and governance.²⁸ Second, we follow a disaggregate approach that uses all six governance indicators²⁹ as explanatory variables of poverty reduction. The results from this experiment show that only government effectiveness has a positive and significant impact on poverty reduction. Voice and accountability has a significant, but unexpected negative, coefficient,³⁰ while the remaining coefficients of the other four governance indicators are *not* significantly different from zero.

However, the picture changes when we take a more *selective* approach as described in Section III, i.e., when we construct a new index of governance quality combining only four³¹ of KKZ's six indicators. Applying this new quality of governance index, we find that it has positive coefficients in four equations (equations 3, 5, 6, and 9), showing a significant impact of the quality of governance on poverty reduction. When regional fixed effects are included (equations 4, 7, and 8) the quality of governance index still has positive impact on poverty reduction, although the coefficients are not statistically significant. This result, together with the results of the previous attempt using all six governance indicators, also suggests that while governance may be important, not all dimensions of governance are equally important for poverty reduction for countries at various stages of development.

Controlling for other factors, a 1 point increase in the quality of governance index is associated with roughly a 1 percentage point reduction in poverty (equations 3, 5, 6, and 9). A country that is able to implement certain key measures relating to the overall quality of the bureaucracy (i.e., control of corruption, government effectiveness, regulatory quality, and rule of law) is therefore likely to experience faster poverty reduction.

5. To What Extent is Aid Effectiveness Contingent on Quality of Governance?

Two equations are estimated to examine this question (Table 5). Equations 5 and 7 show the interactions of aid with the quality of governance, with and without region fixed-effects, respectively. The results show that interactions of aid with quality of governance are not significantly different from zero, suggesting that the impact of aid (if any) is not contingent on the quality of governance—though the quality of governance has a significant bearing on poverty reduction.

6. To What Extent Does Aid Effectiveness Vary with Region?

Although aid by itself does not appear to significantly affect poverty reduction in equation 9 (Table 5), two of its interaction terms with region fixed-effects are statistically significant. Aid appears to exert a positive impact on poverty reduction in East Asia and Pacific (EAP) and Sub-Saharan Africa,

²⁸ Available upon request from the authors.

²⁹ It may be recalled that these indicators are: (i) voice and accountability, (ii) political stability, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control of corruption.

³⁰ Available upon request from the authors.

³¹ These four indicators are: control of corruption, government effectiveness, regulatory quality, and rule of law. See also footnote 19.

but the stronger impact seems to be in EAP. This seems to suggest two things: that aid is more effective in EAP; and that EAP has achieved faster progress in poverty reduction than countries in other regions even after controlling for differences in the amount of aid and policies.³²

7. How Does Macroeconomic Policy³³ Impact on Poverty Reduction?

This question is examined by estimating regressions with and without controlling for interactions (equations 1 to 9). The estimated coefficient of openness is positive and significant at the 10 percent level (equations 3 to 6 and 9).³⁴ It suggests that more openness—in the form of greater share of trade in GDP³⁵—helps accelerate poverty reduction. In equation 3 where we control for a whole host of initial conditions and include macroeconomic policy variables, the estimated coefficient of openness suggests that a 10 percentage point improvement in the openness indicator leads to a 0.95-1 percentage point reduction in poverty in each period. The present exercise includes a sample of countries with different degrees of openness. The country that exhibits the lowest indicator of openness carries a value of 13 percent while the country that exhibits the maximum openness carries a value of 163 percent. Our estimate suggests that poverty reduction in the most open country would be 15 percentage points higher compared to the least open country (if all other conditions are the same). But this effect disappears once interaction terms are introduced—that is, interaction of aid with governance or interactions of aid with macroeconomic policy variables (equations 7 and 8 in Table 5).

In all equations, government expenditure turns out to have an adverse effect on poverty reduction. The estimated coefficients range from -0.27 to -0.44 , indicating that a 1 percentage point increase in the share of government expenditure in GDP has been associated with 0.27–0.44 percentage point increase in poverty. While properly targeted government expenditures may help the poor out of poverty, lack of fiscal discipline—as numerous studies suggest—can be an impediment to growth and poverty reduction.³⁶ Similarly, high inflation also has had an adverse

³² It is interesting to note that though aid to EAP (as a percentage of GNI) is the second lowest, it is, as the regression results indicate, also the most effective.

³³ The three macroeconomic policy variables are openness, government expenditure, and inflation.

³⁴ Interestingly, once we introduce interaction terms and region dummies, the coefficient becomes smaller and not significant (equations 7 and 8).

³⁵ We did some preliminary experiments with a measure of openness that replaces trade shares with a direct measure of trade policy, namely, import duties as a share of total imports. Although the number of observations decreases by nearly half due to missing data on import duties, the results are qualitatively similar. In other words, greater openness, measured by lower duty rates, is associated with a decline in poverty. However, this result fails to be significant at the 10 percent level.

³⁶ Our data on social expenditures, albeit limited in coverage, suggest that governments that incur large expenditures do not necessarily focus on the poor. In other words, large public expenditures do not mean large outlays for social services. Restricting attention to those observations for which we have information on both government expenditures and social expenditures (relative to GDP), we find that correlations on the country-specific means of these variables are surprisingly low: they are less than 0.21 for the 39 countries (0.19 if the Spearman rank coefficient is used). In other words, data do not seem to bear out the notion that governments that are large spenders devote correspondingly large amounts on social services. Even when there is a considerable expenditure on social services, they are not often efficiently targeted at the poor. A case in point is the substantial subsidy provided to secondary and higher education in many poor countries. However, these subsidies, especially at tertiary levels of education, are often captured by the nonpoor. In summary, large government expenditures are often a symptom of fiscal indiscipline than of generous expenditure on the poor.

effect on poverty reduction even though most of its coefficients are found to be not statistically significant.

V. CONCLUSIONS

This paper takes a fresh look at the issue of aid effectiveness from a macroeconomic perspective. An important point of departure for this study is that it examines the issue from the perspective of poverty reduction, rather than economic growth as the goal of economic assistance. This shift in focus is motivated by the changing international perspective on development.

The main focus of the paper is to assess quantitatively the impact of aid on poverty reduction. The most important result that emerges from the present exercise is that aid and aid-squared both have significant coefficients but with different signs (positive for aid and negative for aid-squared). This result shows that aid is effective when it is moderate in volume but becomes ineffective when the size of the aid program exceeds a critical value set by the absorptive capacity of the country concerned.

The paper also explores the causal link between macroeconomic policy and aid effectiveness in reducing poverty. In contrast with the Burnside and Dollar findings, our regression results indicate that the effectiveness of aid in reducing poverty is not contingent on the macro policy environment. Similarly, with regard to aid interaction with the quality of governance,³⁷ the results suggest that aid effectiveness does not hinge on the level of quality of governance. In other words, while the macro policy environment and the quality of governance have a direct bearing on poverty reduction, the effectiveness of aid is not critically contingent on them. Aid has on average been effective, our regression results confirm, under a whole variety of circumstances—in terms of policy environments and quality of governance—in a wide diversity of developing countries.

With respect to the impact of macroeconomic policy on poverty reduction, the paper offers mixed results. Taking a more disaggregated look at the different elements of macroeconomic policies, we find that some regression equations suggest that openness has a positive impact on poverty reduction. That is, greater openness helps reduce poverty, a result that is consistent with a large body of literature in this area. The effect of openness on poverty reduction, however, disappears once the interactions of aid with the quality of governance index or with the macroeconomic policy variables are introduced. The size of government expenditure is found to have a negative impact on poverty reduction.

Does aid effectiveness vary by region? We find that aid has been more effective in the East Asia and the Pacific (EAP) compared to in other regions. EAP countries have shown faster poverty reduction than countries in the other areas even after controlling for initial conditions and policy differences. On the other hand, Sub-Saharan African (SSA) countries have shown slower poverty reduction even after controlling for all other factors. This indicates that there are factors above and beyond those captured by the macroeconomic policy and governance variables that favor EAP and disfavor SSA in poverty reduction. They may have to do with social, cultural, and geographical factors not captured in the analysis.

³⁷ This uses a new index of quality of governance.

The paper shows that much of the conventional wisdom in the field is somewhat less robust than generally presumed. It also points to the limited usefulness of using aggregate index of (macroeconomic) policy and governance for policy insights. To derive useful policy insights, one needs to look beyond these aggregates. Hopefully, the present paper, which makes an exploratory first attempt in directly linking poverty reduction (rather than growth) to aid, controlling for a number of macroeconomic policy variables and governance, would inspire further future research efforts.

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