Aid, Conflict and Human Development

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Abstract

A large and growing literature addresses the impact of foreign aid on the growth of per capita incomes in recipient countries. While this link is important, given its implications for poverty reduction, an arguably more important link is that between aid and human development, broadly defined. This paper looks at the impact of aid on the Human Development Index (HDI), the best known and most widely used composite measure of national human development achievement. The paper is particularly interested in the impact of conflict on human development and in links between conflict, aid and human development. These relationships are examined in an econometric analysis of 2001 HDI levels in a sample of 94 developing countries. Twenty-six of these countries are conflict-affected. A number of interesting results emerge, many of which are in stark contrast with those reported in the aid-growth literature. The main findings of this analysis are that conflict and aid are negatively associated with HDI levels, and therefore, that aid does not offset the negative impact of conflict on human development. The second of these findings is puzzling, to the extent that it is inconsistent with most findings in the aid effectiveness literature. The paper also finds that aid is neither more nor less effective, in terms of its impact on human development, in conflict scenarios.

Key Words: Aid, Conflict, Human Development, Human Development Index.

JEL Codes: I31, F35, C21, C43.

I. Introduction

The aid-growth nexus has been extensively researched. For many decades there was little empirical clarity over this nexus based on the results of econometric studies typically conducted using cross-country, panel data sets. Some studies found that aid was positively associated with growth; others found that there was either a negative association or none at all (Cassen, 1994). A rather different picture has emerged in the literature over recent years. There is now abundant empirical evidence to suggest that aid works in the sense that it promotes growth and, by implication, reduces poverty. The well-known macro-micro paradox of aid effectiveness would appear to be dead and buried. There is evidence, albeit disputed, that impact of aid on growth is contingent on the policies of recipient countries, so that while aid works in all countries it works better in countries with better policy regimes (Burnside and Dollar, 1997a, 1997b, 2000, 2004, Collier and Dollar, 1999, 2001, 2002, Svensson, 1999, Collier and Dehn, 2001 and Collier and Hoeffler, 2002). But there is more evidence to suggest that it works in countries irrespective of the policy regime (Hansen and Tarp, 2000a, 2000b, Lensink and Morrissey, 2000, Lensink and White, 2000, 2001, Dalgaard and Hansen, 2001, Gomanee *et al.*, 2002, Guillamont and Chauvet, 2001, Hudson and Mosley, 2001, Lu and Ram 2001, Chauvet and Guillamont, 2002, Dalgaard *et al.*, 2002, Gounder, 2001, 2002, Mavrotas 2002 and Ram, 2003, 2004).[1]

The focus on growth is appropriate. A requirement for the promotion of human well-being, including poverty reduction, is rapid and sustained growth. But it must be recalled that growth is a means to an end, but not an end in its own right. As Amartya Sen notes, "Without ignoring the importance of economic growth, we must look beyond it" (Sen, 1999). It is entirely appropriate, therefore, to consider possible relationships between aid and measures of aggregate well-being. There are a number of reasons why one might observe a relationship between aid and aggregate well-being. Aid-induced increases in economic growth might lead to higher well-being through a number of mechanisms. Increased wages owing to higher labour demand and increased private and public expenditure on health and education (the former

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[1] Benyon (2001, 2002) and McGillivray (2003, 2004) provide surveys of the aid-growth literature and Easterly *et al.* (2003) and Roodman (2003) provide dissenting views on aid effectiveness.

owing to increases in taxation revenue) are among a number of possible mechanisms. Aid might also directly finance increases in expenditure on health and education, given that most aid flows in the first instance flows into the coffers of the public sector in developing countries, a fact addressed in a growing literature on the public sector fiscal response to aid (see, for example, Heller, 1975, Mosley *et al.*, 1987, Pack and Pack, 1990, 1993, Gang and Khan, 1991, 1999, Khilji and Zampelli, 1991, 1994, Khan and Hoshino, 1992, Binh and McGillivray (1993), McGillivray (1994), Feyzioglu *et al.*, 1998, Franco-Rodriguez *et al.*, 1998, McGillivray and Ahmed, 1999, Franco-Rodriquez, 2000, McGillivray, 2000, McGillivray and Morrissey, 2001a, Swaroop *et al.*, 2000, and McGillivray and Ouattara 2004).[2]

Three recent cross-country econometric studies have looked at possible links between aid and the Human Development Index (HDI), a well-known and widely used measure of well-being at the national level. Gomanee *et al.* (2003a, 2003b) looked at links between aid, pro-poor government expenditure and the HDI. Both studies found that aid was associated with higher levels of the HDI via a positive association with pro-poor government expenditure. Gomanee *et al.* (2003b) found that this link was stronger in countries with low HDI values, lower than the median for the sample of countries under consideration.[3] Kosack (2003) looked at links between aid, democracy and the HDI, reporting especially interesting findings. It was found that while aid was effective in promoting well-being, this was contingent on the level of democratization in the recipient country. More precisely, Kosack found that a positive link between aid and the HDI could only be observed via its interaction with various measures of democratization. Aid alone was typically judged to be negatively associated with HDI values.

This paper also looks at the impact of aid on the HDI. It too is interested in links between aid, democratization the well-being. But it is primarily interested in the impact of conflict on human development and in links between conflict, aid and human development. To this extent the paper complements Collier and Hoeffler (2002), cited above, which looks at aid, growth and policies in conflict-affected

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[2] McGillivray and Morrissey (2001b) provide a review of this literature.
[3] Gomanee et al. (2003a, 2003b) drew the same conclusion regarding the link between aid, pro-poor expenditure and infant mortality.

countries. These relationships are examined in an econometric analysis of 2001 HDI levels in a sample of 94 developing countries. Twenty-six of these countries are conflict-affected. A number of interesting results emerge, many of which are in stark contrast with those reported in the aid-growth literature. The main findings of this analysis are that *both* conflict *and* aid are negatively associated with HDI levels. It follows aid does not offset the negative impact of conflict on human development. The paper also finds that aid is neither more nor less effective, in terms of its impact on human development, in conflict scenarios.

The paper consists of three further sections. Section II outlines the econometric model used in this paper, linking it to those typically used in the aid-growth and aid-HDI literature. Particular attention is paid to the approaches of Collier and Hoeffler (2002) and Kosack (2002). Section III discusses the data and reports the results of estimating this model. Section IV concludes.

II. Econometric Models of Aid Impact

Previous Studies: Models and Some Results

Most of the econometric models estimated in the empirical literature on aid effectiveness have the following general form:

$$y_{i,t} = \alpha + \beta_1' x_{i,t-m} + \beta_2' \Phi_{i,t-m} + \beta_3' a_{i,t-m} + \mu_{i,t} \tag{1}$$

where $y_{i,t}$ is either real per capita GDP growth or the HDI in recipient country i in period t, $a_{i,t-m}$ is a $q \times 1$ vector of measures aid to i in period t-m, $\Phi_{i,t-m}$ is a $p \times 1$ vector of terms capturing interactions between aid and other variables which might affect $y_{i,t}$, $x_{i,t-m}$ is a $k \times 1$ vector of exogenous variables that might affect $y_{i,t}$ and under certain circumstances $a_{i,t-m}$, μ_{it} is a residual term with a mean and variance respectively equal to zero and one, α is a constant term, β_1, β_2 and β_3 are vectors of slope coefficients, $i = 1, \ldots, n$ and $m \geq 0$. The interaction terms are typically of the simple form $a \times z$, where the latter is a measure of the variable aid is thought to interact with. Variables capturing initial conditions and those with which aid interacts are often included in the vector $x_{i,t-m}$. The initial conditions variable in the aid-growth literature is typically initial per capita incomes and in Kosack (2002) it is initial HDI values.

The aid variable vector $a_{ti,t-m}$ contains either or both aid as a percentage of recipient country GDP and aid as a percentage of recipient country GDP raised to the power of two. Collier and Hoeffler (2002) used the second of these variables only, on the assumption that aid alone is ineffective in affecting $y_{i,t}$, up to a particular saturation point, after which aid negatively affects $y_{i,t}$. In that study $y_{i,t}$ is real per capita GDP growth. Alternatively, fitted values of these variables, obtained by standard econometric procedures, are used if aid is thought to be endogenously determined. Kosack (2002) reports two sets of results, in which actual and fitted values of aid as a percentage of GDP are respectively employed. The same basic conclusions were drawn from each set of results. m was set at zero in both studies, as is typically the case.

The vector $\Phi_{i,t-n}$ usually contains a single element only, which in most growth studies is an interaction term between aid and some measure of the quality of recipient country economic policies. Many aid-growth studies measure policy quality using a weighted average of indicators of inflation, foreign trade openness and public sector budget surplus. Studies emanating from the World Bank typically use that organisation's Country Policy and Institutional Assessment (CPIA) measure (for example, Collier and Dollar, 1999, 2001, 2002, Collier and Dehn, 2001, Collier and Hoeffler, 2002). Svensson (1999) interacted aid, separately, with the Freedom House measure of democracy and a measure of economic policy which takes into account exchange rate distortions, financial depth and the government budget surplus.

Collier and Hoeffler (2002) used six aid interaction terms. Three were double interactions, between aid or aid-squared and various binary, conflict-related measures. These measures related to various post-conflict episodes, each corresponding to the number of years since the end of civil war. A country was considered to have been in a civil war, and thus in conflict, if it 'experienced an internal conflict between a government and an identifiable rebel organisation that results in at least 1000 combat-related deaths, of which at least 5% must be incurred on each side" (Collier and Hoeffler, 2002, p. 3). The remaining three interaction terms were triple in nature, in which aid, policy and binary indicators of various post-conflict episodes each interacted. Of the six corresponding slope coefficients estimated, the only significant coefficient was that attached to the triple interaction

between aid, policies and a dummy variable taking the value if a country was in the third to sixth year of a post-conflict decade or zero otherwise. As this coefficient was positive, Collier and Hoeffler concluded that aid was especially effective in promoting growth in these countries up to a certain saturation level of aid.[4] More precisely, the results indicated that aid is more than twice as productive in such a post-conflict episode.

Kosack (2002) interacted aid, measured as a ratio of GDP, with one of three alternative democratization variables. These variables were the Polity IV measure provided by Marshall and Jaggers (2000), the freedom scales provided by Freedom House (Gastil, various years) and the binary measure of Przeworski *et al.* (2000). Kosack's econometric estimates, obtained from a regression equation without interaction terms, indicated that aid has no impact on HDI values. But when an interaction term was included, the coefficient on the aid variable was found to be negative and significant, while that attached to the interaction term was found to be positive and significant. The same results were obtained for a sub-sample consisting of low-income countries only, when aid was disaggregated into that from bilateral and multilateral agencies, respectively and when aid was treated as endogenous. These results were reasonably robust with respect to the choice of democratization variable used in the interaction term and in the vector of other exogenous variables. The Freedom House and Polity IV measures actually yielded identical results overall, in terms of conclusions drawn. Results obtained from the Przeworski *et al.* measure where close to identical, except that the coefficient on the aid variable was insignificant when the interaction term was included in the regression equation.

The elements of the other exogenous variables vector, $x_{i,t-m}$, vary tremendously among studies, depending *inter alia* on whether aid is treated as exogenous or endogenous and on the specific interest of the study under consideration. Collier and Hoeffler (2002) used a governance indicator, the number of war months and various regional dummies in addition to the above mentioned post-conflict episode dummies. Kosack (2002) used arms imports, a measure of institutional quality, the public sector budget surplus, the terms of trade, a measure of

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[4] The saturation level was estimated to be 5.59 times each post-conflict country's CPIA score.

openness, the above mentioned democratization measures and various regional and geo-political indicators.

Aid, Conflict and the HDI

Building largely on Collier and Hoeffler (2002) and Kosack (2002), we posit the following empirical model of aid, conflict and human development:

$$HDI_{i,t} = \alpha + \beta_1 c_{i,t-m} + \beta_2 a_{i,t-m} + \beta_3' x_{i,t-m} + \beta_4' \Phi_{i,t-m} + \mu_{i,t} \tag{2}$$

where $HDI_{i,t}$ is the human development index for aid-receiving county i period t, $c_{i,t-m}$ is some measure of conflict, $a_{i,t-m}$ is aid to i as a ratio of its GDP, β_1 and β_2 are slope coefficients and the remaining terms are as per equation (1) above. The elements of $x_{i,t-m}$ include democracy and governance variables and the ratio of investment to GDP. Further details of this vector are given in the next section. Three alternative conflict variables are employed. The first is a dummy variable, taking value of one is i experienced a civil war of any level of intensity during 1999 to 2001 or zero if otherwise. The second is also a dummy variable, which takes a value of one if i was engaged in a high intensity conflict, defined as one involving more than 1000 deaths. This corresponds to the definition of conflict used by Collier and Hoeffler (2002). The third is the first of these dummies, but weighted according to the level of intensity. Three aid interaction terms are employed, in which aid interacts with the chosen measure of democratization, the conflict and democratization and conflict. It follows that the last of these terms is a triple interaction.

Some comments relating to the interpretation of the HDI, for our current purposes, are warranted. The HDI can be written as follows:

$$HDI_i = \frac{1}{g} \sum_{j=1}^{g} I_{j,i} \tag{3}$$

where $I_{j,i}$ is the jth index component for country i, and $i = 1, ..., r$. There are three component indices: longevity ($I_{1,i}$), educational attainment ($I_{2,i}$) and income or (material) standard of living ($I_{3,i}$). Each of the variables comprising these indices are scaled within the range of zero to one using the equation:

$$H_{j,v,i} = \frac{h_{j,v,i} - b_{j,v}^{min}}{b_{j,v}^{max} - b_{j,v}^{min}} \qquad (4)$$

where $H_{j,v,i}$ is the vth component of $I_{j,i}$ for country i, $h_{j,v,i}$ is the value of that component prior to scaling, and the remaining variables are Amaximum@ and "minimum" values of $h_{j,i}$, although these values are fixed by the UNDP. The longevity index ($I_{1,i}$) is a linear function one variable only ($H_{1,i}$): the number of years a newborn infant would be expected to live based on current mortality patterns. The minimum and maximum values used to scale this variable are 25 and 85 years, respectively. The educational attainment index ($I_{2,i}$) is defined as follows:

$$I_{1,i} = \alpha_1 H_{2,1,i} + \alpha_2 H_{2,2,i} \qquad (5)$$

where α_1 and α_2 are weights set at two-thirds and one-third respectively, $h_{2,1,i}$ is country i=s adult literacy rate and $h_{2,2,i}$ is that county=s combined primary, secondary and tertiary enrolment ratio. The maximum and minimum values of these variables used in scaling are 0% and 100% for each, respectively. The material standard of living index ($I_{2,i}$) is also based on a single variable ($h_{3,1,i}$) obtained by taking the logarithm of purchasing power parity (PPP) GDP per capita. The minimum and maximum values of $h_{3,1}$ used to obtain $H_{3,1,i}$ are the logarithms of \$100 and \$40000, respectively (UNDP, 2003).

While the HDI is arguably the best known and most widely used composite indicator of aggregate well-being or human development, it has been heavily criticised (see, for example, Acharya and Wall, 1994, Cahil, 2002, 2004, Gormely, 1995, Hicks, 1997, Ivanova *et al.*, 1998, Lüchters and Menkhoff, 1996, 2000, Morse, 2003, McGillivray, 1991, 2003, McGillivray and White, 1993, 1994, Murray, 1991, Neumayer, 2001, Noorbakhsh, 1998a, 1998b, and Sagar and Najam, 1998). Among the criticisms of the index are the assigning of equal weights to each component, the universalism associated with applying a common set of variables to a diverse set of countries, the scaling of variables and the treatment of the income component. The UNDP has, though, responded to many of these criticisms and improved the index in many ways and the index is widely used, increasingly so, by researchers (see, for example, Noorbakhsh, 1999, 2000, 2003 and McGillivray, 2005). One should not

however be blind to remaining criticisms of the index in interpreting the results presented later in this paper.

Importantly, the interpretation given to the HDI in this paper is that it is a measure of latent, unobservable well-being which is uni-dimensional. The various components of the HDI collectively attempt to capture this latent variable, but are not in themselves measures of distinct well-being dimensions. Should these dimensions be treated otherwise, then one would need to apply a variant of equation (2) to each of the HDI components individually, and failure to do so would give rise to the issue of aggregation bias in the coefficients of (2). Thus the interpretation of the HDI as a measure of a single, latent well-being variable would appear to be crucial.

III. Data and Results

Equation (3) was estimated using HDI data for 2001. These data were obtained from UNDP (2003). A sample of up to 93 low- and middle-HDI countries was employed, which includes 26 conflict-affected countries. All conflict data were taken from PRIO (2003). The conflict intensity variable available from this source takes three values only - one, two or three. A value of three is assigned if the conflict is high intensity, as defined above. The aid data relate to the sum of aid to country i during 1975 to 1999. Thus the coefficient β_1 captures lagged cumulative impacts of aid on i's level of human development. The aid data were obtained from World Bank (2002). The investment data also relate to the period 1975 to 1999. They are the average for this period and are taken from World Bank (2002a). The democratization variable employed is the Polity IV measure covering 1990 to 2000, which was obtained from CIDCM (2002). The governance variable is the government effectiveness score for 1996 to 2000, reported in World Bank (2002b). All remaining data were obtained from World Bank (2002a).

Variants of equation (2) were estimated using the ordinary least squares (OLS) and two-stage least squares methods (2SLS). The 2SLS estimation is based on the assumption that the aid variable is endogenous. This is a fairly common assumption in the literature. It is based on the view that donors might give preference to countries with low rates of growth in real GDP per capita or to

countries with low HDIs. This would appear to be a questionable assumption, however, on the grounds that donor aid allocation decisions are subject to informational, decision and execution time lags. Donor decisions regarding aid allocations will have been made well prior to the determination of growth rates or HDI levels. A donor might contemporaneously adjust an aid allocation to some country based on current HDI or growth information, giving rise to the issue of endogeneity, but such events tend to be rare. A better case for treating aid as endogenous, in the current context, is that a recipient countries ability to disburse aid allocated to it is determined by the level of its HDI. Better education levels, better health and higher incomes all contribute to a country's ability to disburse aid made available to it by donor countries. Of course the reverse argument might apply, with countries with low HDIs having a greater incentive to disburse aid allocations, and that donors allocate more effort to assisting these countries disburse aid amounts. Irrespective of what might be true, it is still useful to compare results obtained from the 2SLS method to those obtained from OLS as a robustness check.

The explanatory variables used in the first stage regression were: the sum of FDI as a percentage of GDP during the period 1975 to 1999, the sum of trade as a percentage of GDP during the period 1975 to 1999, average public expenditure on health and education during 1990 to 1999, daily newspaper circulation per head of 1000 population during 1990 to 1999, the average inflation rate during 1990 to 1999, the sum of political stability and governance scores for 1996 to 2000, control of corruption and rule of law scores for 1996 to 2000, a dummy variable for Egypt and Latin American and African regional dummies.

Results are shown below in Tables 1 to 3 of the Appendix.[5] Table 1 contains results corresponding to the first conflict variable, defined above as a binary dummy, taking value of one is i experienced a civil war of any level of intensity during 1999 to 2001 or zero if otherwise. The estimation approach taken was to first restrict all slope coefficients other than that attached to the conflict variable to zero, and then successfully relax these restrictions until a close to fully specified equation was

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[5] The variables used in the first stage equation also appear in the second equation, as per standard econometric practice. Results regarding the estimation of their coefficients are available from the authors.

estimated. Not surprisingly, in the first round of estimation the coefficient attached to the conflict variable (β_1) is negatively and significantly associated with the HDI: countries that have experienced conflict in the preceding three years conflict have lower HDI levels than those that have not. There are of course many other determinants of HDI levels across countries, so not at all surprisingly the adjusted functional fit (R^2) is extremely low. Indeed, the presence of conflict as defined explains only three percent of the variation of HDI levels in the sample of countries under consideration. The restriction attached to the aid variable coefficient (β_2) was removed in the second round of estimation. As is shown in Table 1, β_2 is significant and negative: aid is negatively associated with HDI levels. Both of these results, for the aid and conflict variables, seem to be quite robust. As the restrictions are progressively relaxed, both the signs and significance levels of β_1 and β_2 are maintained in the OLS estimations. The only exception is round 7, in which β_1 does not maintain its statistical significant, possibly due to collinearity with the aid-conflict interaction term. Moreover, both β_1 and β_2 are also significant and negative in the 2SLS estimation of equation (2). These results therefore seem robust to the possible endogeneity of the aid variable, therefore.

That β_2 is significant and negative conforms to the results obtained in Kosack (2002). Kosack also found that democracy and aid-democracy interaction were significantly associated with HDI levels, but with the signs attached to these variables being negative and positive, respectively. The parameters shown in Table 1 conform to neither of these results. That attached to the democracy variable ($\beta_{3,1}$) is significant and positive in each round of estimation, while that attached to the aid-democracy interaction ($\beta_{4,1}$) is statistically insignificant. Also insignificant are the coefficients attached to the aid-conflict and aid-conflict-democracy interactions ($\beta_{4,2}$ and $\beta_{4,3}$) The coefficient attached to investment ($\beta_{3,3}$) is positive and significant throughout. Interestingly, the coefficient attached to the governance variable ($\beta_{3,2}$) is positive and significant in each round in which it was estimated. This contrasts to a finding of Collier and Hoeffler (2002). The coefficient attached to their measure of governance (the International Country Risk Guide measure used in Collier and Dollar, 2002) was found to be statistically insignificant.

Results obtained from estimation using the second and third conflict

variables, defined above, are shown in Tables 2 and 3, respectively. Strikingly similar results, to those reported in Table 1, are reported and the same conclusions can be drawn from them. In particular, the statistically significant, negative associations between aid and HDI values and aid and conflict seem to be robust with respect to the choice of conflict variables. At very least, these associations are robust with respect to the conflict variables utilized in this paper. [6]

That the HDI is negatively associated with conflict and positively associated with governance, democracy and investment is hardly surprising. That aid is negatively associated with HDI values is rather perplexing. How might this outcome have arisen? This is not an easy question to answer, in part because of the types of econometric models used in the literature, including that used in the current paper. These models are either reduced-forms, or very simple (partially specified) structural equations which suppress the complex channels through which aid might affect the dependent variable under consideration.

We are left to speculate as to how certain results might have emerged, therefore. One is tempted to conclude that it is because countries with low HDI values receive larger amounts of aid. But this outcome is controlled for in the 2SLS estimation, which still yields a negative and significant aid variable coefficient. The Kosack (2002) interpretation of this result turns on his finding that the aid-democracy interaction is positive. This is taken to indicate that the presence of an autocracy is bad for human development. Due to the lack of competitive elections, political participation, a free press and the absence of opposition parties, autocracies have the ability over time to spend less on social programs, and hence HDI values would be expected to be lower in these societies. By extension, they might over time consistently allocate fewer aid funds to, or greater funds away from, these programs, hence leading to a possible negative relationship between aid and HDI levels in them. Looking closely at the *t*-ratios for the aid-democracy interaction ($\beta_{4,1}$) in Tables 1 to 3, one observes that they are significantly different from zero at the 85 percent confidence level. This level of significance is rarely relied upon to deem a coefficient statistically significant, providing rather weak case for rejecting the corresponding

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[6] Although not reported here, a models with 1995 HDI values were used to capture initial conditions. This did not alter the results reported in Tables 1 to 3.

null hypothesis. Yet if we were to rely on it, we would deem the $\beta_{4,1}$ significant and negative, which would suggest that aid contributes to lower HDI values than would otherwise be the case in democracies. Surely this cannot be the case. Another, more plausible, explanation is that in the countries comprising our sample, that aid funds are allocated away from social programs, at least in the short term, to other programs. This might be good for growth but not for human development.

IV. Conclusion

This paper looked at the impacts of conflict and aid on human development achievement at the national level, measured the HDI. It was particularly interested in the impact of conflict on human development and in links between conflict, aid and human development. These relationships were examined in an econometric analysis of 2001 HDI levels in a sample of 94 developing countries. Twenty-six of these countries are conflict-affected. A number of interesting results emerge, many of which are in stark contrast with those reported in the aid-growth literature. The main findings of this analysis were that conflict and aid are negatively associated with HDI levels. The first of these conclusions is not surprising. The second is striking, and one that is worthy of far more empirical investigation. If further research also draws this conclusion one would be justified in concluding that aid does not seem to offset the negative impact of conflict on human development. The paper also found that aid is neither more nor less effective, in terms of its impact on human development, in conflict scenarios.

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Appendix: Results of Econometric Analysis

Table 1: Econometric Estimates – All Conflict Types

		OLS								2SLS
		1	2	3	4	5	6	7	8	
Constant	(α)	0.615	0.705	0.625	0.665	0.442	0.415	0.443	0.445	0.482
		(33.27)***	(36.98)***	(24.58)***	(24.22)***	(6.74)***	(6.10)***	(6.71)***	(6.65)***	(5.54)***
Conflict	(β_1)	-0.068	-0.079	-0.052	-0.051	-0.042	-0.045	-0.036	-0.045	-0.054
		(-1.95)**	(-2.81)***	(-2.11)**	(-2.18)**	(-1.93)**	(-2.07)**	(-1.14)	(-1.77)*	(-2.20)**
Aid	(β_2)		-0.001	-0.001	-0.001	-0.001	-0.0004	-0.001	-0.001	-0.001
			(-7.33)***	(-7.43)***	(-7.77)***	(-8.31)***	(-3.49)***	(-7.46)***	(-7.95)***	(-5.95)***
Democracy	$(\beta_{3,1})$			0.017	0.014	0.011	0.015	0.011	0.011	0.009
				(4.70)***	(3.91)***	(3.30)***	(3.37)***	(3.25)***	(3.16)***	(2.45)***
Governance	$(\beta_{3,2})$				0.024	0.015	0.013	0.015	0.015	0.024
					(3.07)***	(1.93)**	(1.70)*	(1.87)*	(1.93)**	(2.89)***
Investment	$(\beta_{3,3})$					0.017	0.017	0.017	0.017	0.018
						(3.67)***	(3.79)***	(3.59)***	(3.64)***	(3.05)***
Aid×Democracy	$(\beta_{4,1})$						-0.00003			
							(-1.39)			
Aid×Conflict	$(\beta_{4,2})$							-0.0001		
								(-0.30)		
Aid×Conflict×Democracy	$(\beta_{4,3})$								0.000	
									(0.22)	
n		94	93	84	84	84	84	84	84	68
n (conflict affected)		26	26	24	24	24	24	24	24	21
Adjusted R^2		0.03	0.38	0.55	0.59	0.65	0.65	0.64	0.64	0.61
F Statistic		3.79**	28.96***	34.45***	30.90***	31.32***	26.74***	25.81***	25.79***	21.90***

t-ratios in parentheses. ***, ** and *: significantly different from zero at the 99%, 95% and 90% confidence levels, respectively.

Table 2: Econometric Estimates – High Intensity Conflict

		OLS								2SLS
		1	2	3	4	5	6	7	8	
Constant	(α)	0.613	0.702	0.624	0.661	0.442	0.415	0.442	0.447	0.476
		(34.44)***	(37.77)***	(25.31)***	(24.78)***	(6.75)***	(6.11)***	(6.71)***	(6.67)***	(5.51)***
Conflict	(β_1)	-0.077	-0.084	-0.063	-0.057	-0.046	-0.050	-0.050	-0.051	-0.056
		(-2.04)**	(-2.75)***	(-2.43)***	(-2.31)**	(-1.96)**	(-2.12)**	(-1.37)	(-1.89)*	(-2.10)**
Aid	(β_2)		-0.001	-0.001	-0.001	-0.001	-0.0004	-0.001	-0.001	-0.001
			(-7.28)***	(-7.47)***	(-7.75)***	(-8.28)***	(-3.44)***	(-7.70)***	(-8.04)***	(-5.93)***
Democracy	$(\beta_{3,1})$			0.017	0.014	0.011	0.015	0.011	0.011	0.009
				(4.73)***	(3.98)***	(3.37)***	(3.43)***	(3.34)***	(3.18)***	(2.59)***
Governance	$(\beta_{3,2})$				0.023	0.014	0.012	0.014	0.015	0.023
					(2.93)***	(1.83)*	(1.60)	(1.81)*	(1.86)*	(2.77)***
Investment	$(\beta_{3,3})$					0.017	0.017	0.017	0.016	0.018
						(3.60)***	(3.72)***	(3.58)***	(3.54)***	(3.03)***
Aid×Democracy	$(\beta_{4,1})$						-0.00003			
							(-1.40)			
Aid×Conflict	$(\beta_{4,2})$							0.000		
								(0.03)		
Aid×Conflict×Democracy	$(\beta_{4,3})$								0.000	
									(0.40)	
n		94	93	84	84	84	84	84	84	68
n (conflict affected)		26	26	24	24	24	24	24	24	21
Adjusted R^2		0.03	0.38	0.56	0.59	0.65	0.65	0.64	0.64	0.61
F Statistic		4.16**	28.68***	34.48***	31.27***	31.41***	26.83***	25.84***	25.92***	21.98***

t-ratios in parentheses. ***, ** and *: significantly different from zero at the 99%, 95% and 90% confidence levels, respectively.

Table 3: Econometric Estimates – All Conflict Types Weighted by Intensity Level

		OLS								2SLS
		1	2	3	4	5	6	7	8	
Constant	(α)	0.614	0.700	0.622	0.661	0.444	0.417	0.446	0.454	0.479
		$(35.23)^{***}$	$(38.68)^{***}$	$(26.05)^{***}$	$(25.41)^{***}$	$(6.95)^{***}$	$(6.26)^{***}$	$(6.98)^{***}$	$(7.04)^{***}$	$(5.71)^{***}$
Conflict	(β_1)	-0.011	-0.012	-0.009	-0.009	-0.008	-0.008	-0.011	-0.010	-0.009
		$(-2.29)^{**}$	$(-2.92)^{***}$	$(-2.73)^{***}$	$(-2.80)^{***}$	$(-2.59)^{***}$	$(-2.66)^{***}$	$(-2.45)^{***}$	$(-2.73)^{***}$	$(-2.81)^{***}$
Aid	(β_2)		-0.001	-0.001	-0.001	-0.001	-0.0004	-0.001	-0.001	-0.001
			$(-7.21)^{***}$	$(-7.42)^{***}$	$(-7.76)^{***}$	$(-8.35)^{***}$	$(-3.53)^{***}$	$(-8.14)^{***}$	$(-8.31)^{***}$	$(-6.08)^{***}$
Democracy	($\beta_{3,1}$)			0.017	0.014	0.011	0.015	0.011	0.011	0.009
				$(4.88)^{***}$	$(4.09)^{***}$	$(3.46)^{***}$	$(3.43)^{***}$	$(3.45)^{***}$	$(3.20)^{***}$	$(2.62)^{***}$
Governance	($\beta_{3,2}$)				0.024	0.015	0.013	0.016	0.016	0.024
					$(3.08)^{***}$	$(1.95)^{**}$	$(1.73)^{*}$	$(2.05)^{**}$	$(2.05)^{**}$	$(3.01)^{***}$
Investment	($\beta_{3,3}$)					0.017	0.017	0.017	0.017	0.018
						$(3.67)^{***}$	$(3.78)^{***}$	$(3.71)^{***}$	$(3.63)^{***}$	$(3.12)^{***}$
Aid×Democracy	($\beta_{4,1}$)						-0.00004			
							(-1.31)			
Aid×Conflict	($\beta_{4,2}$)							0.000		
								(0.94)		
Aid×Conflict×Democracy	($\beta_{4,3}$)								0.000	
									(1.04)	
n		94	93	84	84	84	84	84	84	68
n (conflict affected)		26	26	24	24	24	24	24	24	21
Adjusted R^2		0.04	0.38	0.56	0.61	0.66	0.66	0.66	0.66	0.63
F Statistic		5.25^{**}	29.39^{***}	36.63^{***}	32.76^{***}	33.05^{***}	28.08^{***}	27.64^{***}	27.75^{***}	23.72^{***}

t-ratios in parentheses. ***, ** and *: significantly different from zero at the 99%, 95% and 90% confidence levels, respectively.