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Christopher Kilby
Vassar College

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Christopher Kilby, Vassar College*

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Abstract: One of the policy reforms promoted by the World Bank in recent decades is to reduce the often burdensome level of regulation by developing country governments and thus promote a reorientation from highly regulated and centrally controlled to deregulated and market-based economies. Indeed, poor growth performance and balance of payments problems on their own might well necessitate this transformation. Does World Bank lending promote deregulation with stronger incentives and critical resources (finance and advice) or slow the process by blunting the impact of crises and indirectly promoting state control via development planning and government sponsored projects? This paper analyzes empirical links between aid flows and regulatory burden. Econometric estimates based on panel data for 83 aid receiving countries from 1970 to 2000 find that World Bank lending, while not specifically targeting high or low regulatory states, is linked to lower subsequent regulation. This link holds for multilateral donors more broadly while bilateral donor funds apparently fail to influence the level of regulation.

JEL classification codes: F35, L51, O19

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*Department of Economics, Vassar College, 124 Raymond Ave., Poughkeepsie, NY 12604. Telephone: (845) 437-5212; FAX: (845) 437-7576. chkilby@yahoo.com

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I. Introduction

Since at least the mid 1970s, a high priority of the World Bank and many other donors has been to induce LDC governments to transform their economies from highly regulated and centrally controlled to deregulated and market-based. But even without donor intervention, poor growth performance and balance of payments problems on their own might necessitate this transition. Has World Bank lending promoted deregulation with stronger incentives and critical resources (finance and advice) or slowed the process by blunting the impact of crises and indirectly promoting state control via development planning and government sponsored projects?

This paper addresses this question through an empirical analysis of aid flows and regulatory burden. Aid allocation and regulation equations are estimated using panel data on 83 aid receiving countries from 1970 to 2000. The measure of regulation is a component of the Fraser Institute's "Economic Freedom in the World" series. The estimated World Bank loan allocation equation reveals that, *ceteris paribus*, the flow of World Bank funds is not determined by the level of regulation in recipient countries.[1] The estimated regulation equation suggests effective World Bank conditionality: World Bank lending apparently lowers regulation. This holds for multilateral donors more broadly. Conversely, bilateral donor funds fail to influence the level of regulation. The contrast between these results and the dominant criticism of World Bank conditionality more broadly may be explained by the level of aggregation. In analyses that examine only a single, broad measure of policy, the response to one component may mask the response to another component. The findings in this paper point to the importance of a more

[1]The measure of World Bank lending is gross disbursements from IDA credits, IBRD loans and IFC loans. Debates of the relative merits of commitment versus disbursement data are mute in this case as the OECD DAC does not give historical data on IBRD commitments.

disaggregate analysis of the interaction of aid and policy in developing countries, differentiating between different donors and different dimensions of policy.

Section II reviews previous research, focusing on empirical studies of aid, regulation and related topics. Section III presents the data and model to be estimated. Section IV discusses results and Section V concludes.

II. Previous Research

Donor agencies, led by the World Bank, have long attempted to promote policy reform through structural adjustment packages. Since there is almost universal agreement that lasting reforms can only come from within, what role does external funding play? Traditional World Bank and IMF arguments in favor of adjustment assistance focus on economic dynamics. Timely World Bank loans may minimize the negative short-run effects of policy reform, help channel productive resources out of contracting sectors and into expanding sectors, and fund one-time expenses associated with privatization of state-owned enterprises. World Bank funds promote macroeconomic stability and thus spur private investment in emerging areas of comparative advantage facilitating the critical supply response. The World Bank may also provide technical assistance for deregulation. Since the early 1990s, the World Bank has added "social aspects of structural adjustment" to the list of donor concerns.

More recently, researchers both inside and outside aid institutions have emphasized political aspects of the reform process as well. From a political economy perspective, putting resources in the hands of committed reformers allows them to distribute benefits and thus "buy support" for reforms. Benefits may include delaying enforcement of tax laws, providing transitional funding to former government employees, compensating commercial interests hurt by trade liberalization, and prolonging popular price controls on such items as food and fuel

(Alesina and Rodrik, 1994; Blanchard, 1996; Fleck, 2000; Rodrik, 1996). Access to World Bank loans is critical to provide such resources since, in the midst of such crises, the recipient government cannot access commercial credit.

However, much recent research finds structural adjustment lending an ineffective tool for a number of reasons. The World Bank is often reluctant to enforce conditions attached to its loans and credits (Mosley et al., 1995) at least in part because of institutional incentives to continue lending regardless of outcomes, the so-called "pressure to lend." A more charitable explanation is found in the classic Samaritan's Dilemma. For a sufficiently altruistic donor, giving aid is a dominant strategy. Thus, donor conditions are not credible and do not impact recipient governments' reform decisions (Svensson, 2000B).[2] A less sympathetic critique emphasizes donor interests rather than altruism. Defensive lending and promotion of donor economic and strategic interests may create an imperative to dispense aid even in a multilateral agency (Fleck and Kilby, 2001; Mosley et al., 1995; Svensson, 2003; Tendler, 1975; Villanger, 2004).

Donor involvement may even work against reform (Boockmann and Dreher, 2003). If policy choices are the outcome of a political process balancing competing interests, difficult

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[2]Svensson (2000B) actually uses this argument to explain why an altruistic donor government might delegate to a less altruistic international agency, e.g., the World Bank. Hagen (2004) points out that Svensson's analysis is a partial explanation, more applicable to some donors (e.g., the Scandinavians) than to others (e.g., the U.S. and France) and introduces a second dimension of recipient heterogeneity: aid productivity. In either model, time inconsistency due to altruism may lead to unenforced conditionality. Collier (1997) takes the argument a step further, suggesting that recipient governments will undermine growth intentionally if donors follow need-based allocation.

reforms may only take place in time of crisis once the status quo no longer is viable. World Bank loans–providing hard currency and a degree of debt relief–postpone the crisis and hence may facilitate postponing or watering down reform. If the World Bank fails to enforce its reform conditions, it will delay policy change.

These issues are critical for the debate over aid effectiveness in promoting growth and reducing poverty. A number of studies find that aid is only effective in good policy environments (Burnside and Dollar, 2000, 2004; World Bank, 1998). This poses a number of questions. If aid cannot induce policy change–as Burnside and Dollar (2000, henceforth BD) suggest–then aid directed at poor policy environments is doubly ineffective: it fails to promote growth directly because the policy environment is poor and it fails to promote growth indirectly by changing the policy environment to a pro-growth one. Thus, if growth is a necessary condition for aid to achieve its goals, aid should be allocated selectively to countries which already have good policy environments (Collier, 1997; Collier and Dollar, 2001). Conversely, if aid can induce policy change, then even aid to countries with poor policies will promote growth albeit indirectly. In this case, the appropriate allocation of aid depends on relative impact and need (balancing between aid to poor policy environments to promote change, aid to good policy environments to directly promote growth, and aid to those most in need since there is some impact–direct or indirect–in all settings).

While the World Bank, the U.S. administration and many other donors have recently embraced the selective approach to aid allocation, there has been a strong response from the academic community. Critiques have used a variety of approaches; the most compelling are empirical studies that demonstrate BD's results are not robust to changes in sample or specification (Clemens et al., 2004; Dalgaard et al., 2004; Easterly, 2003; Easterly et al., 2004;

Hansen and Tarp, 2000, 2001; Roodman, 2004). At a minimum, the empirical foundation of the selective approach to aid allocation seems too fragile to justify this major shift in donor policy (Easterly et al., 2004).

In light of this debate, attention has recently turned to whether aid facilitates specific types of reform. According to Banerjee and Rondinelli (2003, 1528), "although the literature on the effects of foreign aid on economic growth and development is large and growing, analysis of its impacts on economic reforms in general, and on specific reform policies such as privatization, is still nascent." Below, I review five areas of research on aid and policy that are important for this study: aid and government size (Remmer, 2004); aid and privatization (Banerjee and Rondinelli, 2003); aid and corruption (Alesina and Weder, 2002; Tavares, 2003; and Svensson, 2000A); aid and foreign investment (Harms and Lutz, 2003); and aid and regulation (Kilby, 2005). All are empirical studies that provide guidance for the current work.

Remmer (2004) studies how government size (the ratio of government expenditures to GDP) relates to aid flows. Shrinking third world governments is a common donor objective especially since the debt crisis and the advent of the "Washington Consensus" (Williamson, 1990, 2003). Yet aid could easily have the opposite effect:

> ...the notion that augmenting the resources of a government from outside may reduce or have no systematic effect on government size is intrinsically implausible. The reason is that the political costs and benefits of expenditures financed by external resources and those funded by domestic taxation or revenue generation differ significantly. (Remmer, 2004, 80)

This is particularly true if aid conditions are only weakly enforced. Remmer also suggests that countries dependent on aid may expect to leverage fiscal deficits into more future aid. Using

panel data (1970-1999 for 120 nations) on government size, tax effort and aid, Remmer estimates error-correction models for government spending and tax effort that show aid is associated with increased public spending and decreased tax effort.[3] These results are consistent with BD and Devarajan et al. (2001).

Banerjee and Rondinelli (2003) examine the link between aid and privatization. Their study examines the impact of aid on the timing, pace and intensity of privatization in a group of 35 developing countries. They define timing as when the first privatization takes place, pace as the number of privatizations in a given year and intensity as the value (in constant dollars) of privatizations in a year. Again, aid can play a positive or negative role: aid provides leverage to promote privatization in aid dependent countries but these funds also have the potential to inhibit privatization by directly or indirectly subsidizing money-losing SOEs. As BD and Alesina and Dollar (2000) find for other policies, Banerjee and Rondinelli cannot reject aid exogeneity, i.e., that aid allocation does not depend on privatization. The authors take several lessons away from this empirical exercise. The role of aid is limited primarily to technical assistance supporting ongoing privatizations but for countries with "superior governance structures" aid may play a larger role (Banerjee and Rondinelli, 2003, 1546). The estimates suggest that aid does not have a systematic effect on the start of privatization.[4]

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[3]Remmer also controls for openness, demographics, GDP per capita, debt service ratio, and government revenue as a share of GDP.

[4]Interpreting Banerjee and Rondinelli's individual estimates is difficult. The paper presents a very large number of estimates, not all of which are consistent with a single interpretation. The negative binomial specification for pace requires the strong assumption that each privatization is an independent event. Finally, pace and intensity are not measured relative to the size of the economy.

Several empirical studies look at the impact of aid on corruption using aggregate cross-country data. Alesina and Weder (2002) provide evidence of Lane and Tornell's (1996) "voracity effect" (aid causing increased corruption) but note that they do not substantially address potential endogeneity (corruption attracting aid). Tavares (2003) addresses this using cultural and geographical proximity between donors and recipients as instruments for aid, finding aid reduces corruption. While Tavares' two stage method is undoubtably right, even his imaginative instruments may not be exogenous. The recent literature on colonization, institutions and growth links a similar set of indicators to institutional quality and thus to corruption.[5]

Svensson (2000A) develops and tests a model relating corruption and social divisions using ethnolinguistic fractionalization to measure the latter. As Svensson points out, regulation that restricts competition generates rents, competition for which results in corruption. This even may be the regulator's intent. Because of the link between regulation and corruption, Svensson estimates an equation for regulation and aid as a robustness check. To allow for endogeneity, Svensson uses population to instrument aid. The regression includes ethnolinguistic fractionalization, windfalls as measured by aid plus terms of trade shocks, log of initial real per capita GDP, regional dummies and time dummies.[6] For our purposes, Svensson's key result is that windfalls increase regulation, more so in divided societies. One would expect similar results using aid separately.

Harms and Lutz (2003) examine how the institutional environment in the recipient

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[5]See for example Acemoglu et al. (2001, 2002), Diamond (1997), Easterly and Levine (2003), Fleck and Hanssen (2003), Rodrik et al. (2002), Sachs (2003).

[6]The ethnolinguistic fractionalization variable is for 1960 and "measures the probability that two randomly selected people in a country belong to different ethnolinguistic groups" (449).

country influences the link between aid and private foreign investment. They find that aid is linked to higher levels of private foreign investment in more highly regulated economies. This appears to contradict the central theme of BD and *Assessing Aid* that aid effectiveness is conditional on good policy. The measure of regulation is taken from Kaufmann et al. (1999); they use a single measure across the decade examined, assuming that regulatory change is gradual. Using the same instruments as BD, Harms and Lutz also cannot reject the exogeneity of aid in the investment equation. The authors explain their results by suggesting aid can help foreign investors negotiate the regulatory system and that the importance of this function increases with the degree of regulation.

Finally, Kilby (2005) examines links between overall aid and regulation, estimating separate aid allocation and regulation equations. As in Svensson (2000A), the measure of regulation is the Fraser Institute's "Freedom from Government Regulation" index. The measure of aid is effective development assistance disbursements from all donors as a percent of real GDP per capita (both in constant 1996 dollars), the same measure used in BD, Easterly et al (2004), and Roodman (2004). Instrumenting for regulation with ethnolinguistic fractionalization, membership in the Central African Franc Zone, and lagged arms imports in the aid allocation equation indicates that, *ceteris paribus*, more aid goes to countries with more regulation. Instrumenting for aid with population in the regulation equation reveals that, *ceteris paribus*, more aid leads to less regulation. Thus, at the aggregate level, the results suggest effective conditionality. This result is somewhat at odds with the broader literature on the ineffectiveness of conditionality but in line with Harms and Lutz (2003).

Thus, the literature provides substantial guidance for empirical work on issues of aid and regulation. Although many studies find that aid allocation is not guided by the policy

environment in recipient countries, empirical studies must continue to test for potential endogeneity. Donors could consider the level of regulation in aid allocation in a number of ways. *Ex post* conditionality (selectivity) implies allocating more aid to countries with less regulated economies. Conversely, there could be a bias toward highly regulated economies if the woes of excess regulation result in greater need or if donors hope to "buy reform" (deregulation) through *ex ante* conditionality as in traditional structural adjustment. Likewise, aid may influence the level of regulation. Although empirical evidence of endogeneity is mixed, we must examine these issues.

Looking across the previous literature, a number of instruments for regulation and aid present themselves. BD estimate an aid allocation equation (BD's Table 8) which includes variables intended to reflect donors' economic and strategic motives. Some of these prove insignificant including membership in the West African Franc Zone (so called CFA countries) and arms imports as a share of overall imports.[7] The first is intended to measure links to France while the second may reflect alliances with donors such as the United States and its close allies; both are expected to result in more aid but prove insignificant. However, even if these are unrelated to aid allocation, there is reason to suppose they could be related to the level of regulation. Particularly during the late 1980s and early 1990s, CFA countries experienced severe macroeconomic problems because of exchange rate misalignment. Governments in CFA countries may attempt to counteract resulting imbalances via regulation. A high value for arms

[7]Regarding arms imports, they state: "To capture strategic interests we also use a measure of arms imports relative to total imports lagged one period. This variable helps explain the allocation of aid to middle-income countries, but has only minor relevance in the low-income country data set" (BD, 26-7).

imports as a share of total imports suggests a repressive regime, one likely associated with widespread corruption and regulation. The mechanism for this may follow Svensson's description of a highly divided society (a similar story as for ethnolinguistic fractionalization) or may simply be the result of the approach of a repressive regime.[8] In short, BD show these are unrelated to aid allocation while Svensson's work suggests they (and ethnolinguistic fractionalization) may be linked to kleptocracy and hence to corruption and regulatory burden.

Svensson also provides an instrument for aid, namely population. Research on aid allocation has long shown a bias against large countries; with aid as a share of GDP, this appears as a negative coefficient on population (e.g., BD; Alesina and Dollar, 2000). If bilateral donors want to have programs in many countries (for example, to influence UN voting), they will under fund populous recipients to stretch their budgets while over funding very small recipients to justify fixed administrative costs of a country program. In the case of multilateral lending agencies such as the World Bank, limiting lending to populous recipients also limits their importance in terms of the lending pipeline and repayments, and thus prevents them from exercising leverage over the multilateral.

However, the disaggregated approach in this study poses new hurdles. While looking at World Bank lending, it is necessary to account for other aid as well. The regulation equation includes two aid variables, World Bank lending and other aid, and thus at least one unique instrument is needed for each to identify their effects separately. Finding such measures is not

[8]Interestingly, these variables are included in BD's aid allocation equation because they view them as exogenous to growth.

straightforward.[9] In this paper, I rely on lagged values of the variables themselves and of repayments.

III. Data and Model

I draw on four existing data sets to examine the links between aid and regulation. The primary measure of regulation comes from the Fraser Institute and is an aggregate measure of "Freedom from Government Regulation" (**FGR**).[10] The variable can range from 0 (low freedom from government regulation = high regulation) to 10 (high freedom from government regulation = low regulation) and is available for 1970, 1975, 1980, 1985, 1990, 1995, 2000, and 2001 though not all years are available for all countries. This is one of five components averaged together to generate the Fraser Institute's "Economic Freedom of the World" index. **FGR** is itself an aggregate of fifteen sub-indices, five each related to credit market regulation, labor market regulation, and business regulation.[11]

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[9]For example, we might attempt to exploit bureaucratic features of the World Bank. "Blend" countries receive both IDA and IBRD funds, ostensibly because they are in transition from one to the other. Estimates reveal that, *ceteris paribus*, blend countries receive less IDA funding than other IDA countries but the same IBRD funding as other IBRD countries and thus receive more funds altogether. However, these countries also receive more bilateral aid. Variations due to apparent institution-specific features (in this case, which countries are allowed access to both funds) may in fact reflect donor preferences and thus influence bilateral aid as well.

[10]Gwartney et al. (2003). This is the same measure used by Svensson (2000A) and Kilby (2005). In the Fraser Institute's documentation, this rating is called "Regulation of Credit, Labor, and Business."

[11]Other available measures of regulation (e.g., the Wall Street Journal/Heritage Foundation regulation variable and an index developed by Kaufmann et al. [2003]) provide only very short time

Several different measures of aid are available. Much of the work cited above (BD; Easterly et. al., 2004; Roodman, 2004; Kilby, 2005) uses Effective Development Assistance (EDA) developed by Chang et al. (1998). While the standard measure of aid (Official Development Assistance or ODA) lumps concessional loans together with grants if the loan's grant element exceeds 25%, EDA converts these loans to their grant equivalent and thus provides a better measure of long term resource flows.[12] However, EDA and ODA are highly correlated and research results thus far do not depend on which measure is used (e.g., BD). Chang et al.'s (1998) publically available data set provides bilateral and multilateral EDA but does not otherwise differentiate between donors. Given these considerations, the analysis in this paper primarily uses conventional aid measures, i.e., five year averages from the OECD DAC's 2004 data base for World Bank gross disbursements ($\mathbf{WBAID}_{it}$) and all other official gross disbursements excluding the World Bank ($\mathbf{AID}_{it}$). I also construct variables reflecting repayment of past loans ($\mathbf{WBrepay}_{it}$ and $\mathbf{AIDrepay}_{it}$, the difference between gross and net disbursements). The auxiliary analysis in Table 4 compares results for bilateral and multilateral aid using conventional data ($\mathbf{BAID}_{it}$ and $\mathbf{MAID}_{it}$) and EDA data ($\mathbf{BEDA}_{it}$ and $\mathbf{MEDA}_{it}$). All are given as a percentage of real GDP to reflect the relative importance of aid to the recipient government. I use the natural log of period averages throughout.

The remaining variables come from the data set (five year averages) posted by Roodman (2004), an extension of data and work done by Easterly et al. (2004). Several regional and

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series.

[12]The threshold for ODA is 35% in the case of mixed credits, e.g., where concessional finance funds are packaged with a commercial contract. While there is some debate about the relative merits of EDA in analyzing growth, it seems a reasonable measure when considering issues of conditionality.

country dummy variables are included: Sub Saharan Africa ($\mathbf{SSA}_i$), East Asia ($\mathbf{EASIA}_i$), Central America ($\mathbf{CENTAM}_i$), $\mathbf{EGYPT}_i$, and $\mathbf{ISRAEL}_i$. In addition, I include the log per capita GDP (in constant dollars) at the start of each period ($\mathbf{GDP\_CAP}_{it}$) and the log of population ($\mathbf{POP}_{it}$). Finally, three variables previously discussed are an indicator for CFA countries ($\mathbf{CFA}_i$), imports of military equipment as a share of total imports lagged by one period ($\mathbf{ARMS}_{it-1}$), and an index of ethnolinguistic fractionalization in 1960 ($\mathbf{ETHNIC}_i$).

The regulation variable is measured at five year intervals that fall at the start of the averaged five year period for the other data. For this reason, I lagged the other variables in the aid allocation equations. The basic specifications for recipient country i in period t are (suppressing geographic and time dummies are):

$$\mathbf{AID}_{it}=\alpha_0+\alpha_1\mathbf{FGR}_{it}+\alpha_2\mathbf{WBAID}_{it}+\alpha_3\mathbf{AID}_{it-1}+\alpha_4\mathbf{AIDrepay}_{it-1}+\alpha_5\mathbf{GDP\_CAP}_{it}+\alpha_6\mathbf{POP}_{it}+\alpha_7\mathbf{ARMS}_{it-1}+\varepsilon_{it} \quad (1)$$

$$\mathbf{WBAID}_{it}=\beta_0+\beta_1\mathbf{FGR}_{it}+\beta_2\mathbf{AID}_{it}+\beta_3\mathbf{WBAID}_{it-1}+\beta_4\mathbf{WBrepay}_{it-1}+\beta_5\mathbf{GDP\_CAP}_{it}+\beta_6\mathbf{POP}_{it}+\nu_{it} \quad (2)$$

$$\mathbf{FGR}_{it}=\gamma_0+\gamma_1\mathbf{AID}_{it-1}+\gamma_2\mathbf{WBAID}_{it-1}+\gamma_3\mathbf{FGR}_{it-1}+\gamma_4\mathbf{GDP\_CAP}_{it-1}+\gamma_5\mathbf{ARMS}_{it-1}+\gamma_6\mathbf{ETHNIC}_i+\gamma_7\mathbf{CFA}_i+\zeta_{it} \quad (3)$$

Equation (1) is the allocation equation for non-World Bank aid. $\mathbf{AID}_{it}$ is the aid the country received from all donors except the World Bank given as a share of the country's real GDP. The equation includes $\mathbf{FGR}_{it}$ since aid may be conditional on regulation as discussed above. $\mathbf{WBAID}_{it}$ enters because the World Bank may act as a coordinator–other donors may follow its lead in giving aid. I include lagged aid and aid loan repayment ($\mathbf{AID}_{it-1}$ and $\mathbf{AIDrepay}_{it-1}$) as the former may reflect omitted factors or inertia in donor behavior (especially when looking at disbursements) while the latter may capture defensive lending/granting.[13]

[13]More accurately, defensive lending or granting in the case of bilateral institutions. A donor may prefer to provide more new funds to facilitate repayment of old debts.

GDP_CAP$_{it}$ may reflect need while including **POP**$_{it}$ allows for the bias against large countries. The equation includes **ARMS**$_{it-1}$ to reflect strategic importance (e.g., alliances) which may be important since this equation includes bilateral aid. Geographic dummies (including for Israel and Egypt) may also capture strategic importance and historical alignments.

Equation (2) is the World Bank allocation equation. **WBAID**$_{it}$ is the amount of funds (in constant dollars) the recipient received from the World Bank Group (IDA, IBRD, and IFC) given as a share of the country's real GDP. The equation includes **FGR**$_{it}$ since World Bank lending may be conditional on the level of regulation. **AID**$_{it}$ enters because the World Bank may at times follow the lead of other donors. I include lagged lending and loan repayment (**WBAID**$_{it-1}$ and **WBrepay**$_{it-1}$) again to capture omitted factors, institutional inertia, and defensive lending. As above **GDP_CAP**$_{it}$ may reflect need and **POP**$_{it}$ allows for a size bias. The equation excludes **ARMS**$_{it-1}$ and the dummy for Israel as multilateral lending is not as directly strategic as bilateral aid (especially that from the U.S.). I test this exclusion restriction below. Both **FGR**$_{it}$ and **AID**$_{it}$ may be endogenous in this equation. The focus of this equation is on the coefficient for **FGR**$_{it}$.

Equation (3) is the regulation equation. **FGR**$_{it}$ is the Fraser Institute's "freedom from government regulation" index. Higher values indicate less regulation; hence a positive coefficient on an explanatory variable indicates that it is associated with less regulation. The equation includes **AID**$_{it-1}$ and **WBAID**$_{it-1}$ since either may influence the level of regulation if aid conditionality is effective. The lagged value of the dependent variable (**FGR**$_{it-1}$) allows for persistence over time which the coefficient on **GDP_CAP**$_{it-1}$ might otherwise reflect.[14]

[14]The short length of the time series (maximum 7 periods, median 4 periods) prevents a meaningful exploration of the time series characteristics of the data even with relatively strong

$\mathbf{GDP\_CAP}_{it-1}$ is the initial value at the start of period t−1 so that it could not be influenced directly by current regulation ($\mathbf{FGR}_{it}$).[15] $\mathbf{GDP\_CAP}_{it-1}$ is likely to enter positively though the direction of causation is controversial. Much of the research on the indices produced by the Fraser Institute has focused on how these various aspects of "Economic Freedom" may promote growth and hence be linked indirectly to higher incomes. However, when considering income itself, it is also plausible that "Economic Freedom" is a normal good, the consumption of which rises with income (Hanson 2003). Svensson (2000A) presents an argument for $\mathbf{ETHNIC}_{i}$ entering negatively; by extension, $\mathbf{ARMS}_{it-1}$ and $\mathbf{CFA}_{i}$ should also enter negatively. Other interpretations of these variables are possible but also suggest a link with more rather than less regulation (i.e., lower values of $\mathbf{FGR}_{it}$). Finally, the various geographic variables may capture broadly different patterns of regulation across regions not already captured by the other explanatory variables. Both $\mathbf{AID}_{it-1}$ and $\mathbf{WBAID}_{it-1}$ may be endogenous in this equation. Their coefficients are the key points of interest in this equation.

The sample covers 83 countries over five year periods from 1970 to 2000 although not all periods are available for all countries. The largest sample possible for any of the regressions is 407. In the aid allocation equations, the sample is reduced to 376 to allow for lagged values and further reduced to 367 to exclude outliers identified by Hadi's (1994) method.[16] This sample includes 80 countries with an average of 4.6 periods per country but going as low as 1 and as

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assumptions across countries in the panel (e.g., Levin et al., 2002).

[15]This statement is a bit too strong since expectations about regulation during the period could certainly influence income.

[16]Because the influence and identification of outliers in this data has been controversial (Easterly et al., 2004; Roodman, 2004), application of Hadi's method is becoming standard.

high as 7. The initial sample for the regulation equation is 384 but 8 outliers are dropped leaving 376 observations on 74 countries. In specifications that include the previous period's regulation index ($\mathbf{FGR}_{it-1}$), the sample falls to 310 observations on 74 countries.

The appendix provides details on the data used. Table A1 lists countries and coverage periods. Basic descriptive statistics are in Table A2 and simple correlations in Table A3. All three tables cover the overall sample except where noted.

IV. Estimation Results

The first step in the empirical analysis is testing the validity of instruments in the case of over-identifying restrictions.[17] In the aid allocation equation (equation 1), I test and fail to reject as valid instruments lagged regulation ($\mathbf{FGR}_{it-1}$), ethnolinguistic fractionalization ($\mathbf{ETHNIC}_i$) and membership in the West African Franc Zone ($\mathbf{CFA}_i$) for regulation and lagged World Bank lending ($\mathbf{WBAID}_{it-1}$) and lagged World Bank repayment ($\mathbf{WBrepay}_{it-1}$) for World Bank lending.[18] Turning to the World Bank allocation equation (equation 2), I test and fail to reject as valid instruments $\mathbf{FGR}_{it-1}$, $\mathbf{ETHNIC}_i$, $\mathbf{CFA}_i$, and $\mathbf{ARMS}_{it-1}$ for $\mathbf{FGR}_{it}$ and $\mathbf{AID}_{it-1}$ and $\mathbf{AIDrepay}_{it-1}$ for $\mathbf{AID}_{it}$.[19] Finally, in the regulation equation (equation 3), I test and fail to reject as valid instruments $\mathbf{AID}_{it-2}$, $\mathbf{AIDrepay}_{it-2}$, $\mathbf{POP}_{it-1}$ and $\mathbf{ISRAEL}_i$ for $\mathbf{AID}_{it-1}$ and $\mathbf{WBAID}_{it-2}$ for $\mathbf{WBAID}_{it-1}$. However, the individual test does reject the exogeneity of $\mathbf{WBrepay}_{it-2}$ conditional

[17] I use the joint test of overidentifying restrictions based on Hansen's J-statistic (described in Baum et al., 2003) as well as the individual test outlined in Wooldridge (2003, 508).

[18] The hypothesis of exogeneity is rejected if the instrument set includes the contemporaneous repayment variable ($\mathbf{WBrepay}_{it}$).

[19] In this specification (with lagged World Bank lending included), population no longer enters significantly on its own. We can instead use it as an additional instrument for $\mathbf{AID}_{it}$.

on exogeneity of the other instruments.

The instruments not rejected above allow us to test the endogeneity of $\mathbf{WBAID}_{it}$ and $\mathbf{FGR}_{it}$ in equation (1), $\mathbf{AID}_{it}$ and $\mathbf{FGR}_{it}$ in equation (2), and $\mathbf{AID}_{it-1}$ and $\mathbf{WBAID}_{it-1}$ in equation (3). As is well known, the instrumental variables approach inflates the standard errors of estimates and should only be used if endogeneity is truly a problem. The tests fail to reject exogeneity of the variables in all the equations with one exception. The test does reject the exogeneity of $\mathbf{AID}_{it}$ in the World Bank allocation equation.[20] Thus, the estimates below use instruments only in that instance.

[Table 1 about here]

Table 1 contains estimates for the aid allocation equation that excludes World Bank funds. The first column (AID 1) is a simple specification to allow comparison. Real GDP per capita enters negatively and significantly so that countries with lower per capita incomes receive a larger aid GDP share. With both dependent and independent variables in logs, this is the estimated elasticity: *ceteris paribus*, a 1% increase in GDP per capita is associated with a 0.9% decrease in aid as a share of GDP. Equivalently, a 1% increase in GDP is associated with a 1.9% decrease in the dollar amount of aid. The negative, significant coefficient population reflects the often noted bias against large countries; *ceteris paribus*, a 1% increase in population size is

[20]The test (Wooldridge, 2003, 507) includes the residual from the reduced form aid equation in the structural equation for the World Bank (treating regulation as endogenous). Under the null hypothesis that aid is exogenous, the residual should not be statistically significant in the latter estimation. With a t-statistic of 2.58, the test rejects the exogeneity of aid in the World Bank equation at the 95% confidence level. A joint test rejects the exogeneity of aid and regulation while a test treating aid as endogenous fails to reject the exogeneity of regulation.

associated with a 0.4% decrease in aid as a share of GDP or a 1.3% decrease in the dollar amount of aid holding GDP rather than GDP per capita constant. Arms imports (lagged one period, i.e., 5 years) has a positive and significant link to aid. This is consistent with the rationale offered by BD that high arms imports reflect a country's strategic importance to major donors. *Ceteris paribus*, a 1% increase in the arms imports to total imports ratio is associated with a 3% increase in the aid to GDP ratio. Dummy variables for Egypt and Israel are also significant, presumably driven in large part by the Camp David Accords.[21]

The second column (AID 2) introduces the regulation index as an explanatory variable. The index indicates how "free" an economy is from government regulation so that a higher value indicates less regulation. The coefficient estimate on **FGR** is positive but insignificant indicating that the level of regulation is not an important determinant in the aid allocation decision. The other coefficient estimates are virtually unaffected by the inclusion of **FGR**.

The third column adds two lagged variables. The first is the lagged value of the dependent variable ($\mathbf{AID}_{it-1}$, i.e., the ratio of aid to GDP for the previous 5 year period). The second is the lagged value of aid repayments ($\mathbf{AIDrepay}_{it-1}$), again as a share of recipient GDP. The estimated coefficient on the lagged dependent variable of 0.61 indicates considerable persistence across time and, as we would expect, its inclusion substantially reduces the size of the other coefficient estimates. It has no effect, however, on the sign or significance of the key variables. Notable, the coefficient on regulation continues to be small and insignificant.

The fourth column includes World Bank disbursements as an explanatory variable. The

[21]Israel accounts for just 2 observations, Egypt 5. Dropping these from the sample has no impact on other coefficient estimates.

coefficient estimate for World Bank disbursements is positive and significant; an increase of 1% in the ratio of World Bank disbursements to GDP is associated with a 0.28% increase in other aid disbursements as a share of GDP. The pattern for other coefficient estimates remains the same: negative and significant coefficients on GDP per capita and population, positive on arms imports and lagged aid. The estimated coefficient on regulation is very near zero.

The final column of Table 1 presents fixed effects estimates to account for any time invariant country specific factors omitted from previous specifications.[22] The central results are the same in this specification: the level of regulation remains an insignificant determinant of the level of aid a country receives.

[Table 2 about here]

Table 2 represents parallel estimates for the allocation of World Bank funds. As with other aid funds, the responsiveness of World Bank lending to need is evident in the negative, significant estimated coefficient on GDP per capita. A 1% increase in GDP per capita is associated with a 0.8% decrease in World Bank disbursements as a share of GDP or equivalently a 1.8% decrease in the dollar amount of World Bank disbursements. The bias against large countries is also significant with World Bank lending. *Ceteris paribus*, a 1% increase in population size is associated with a 0.2% decrease in World Bank disbursements as a share of

[22]This column estimates a dynamic panels with fixed effects. Although OLS is known to be biased in this application, it remains a reasonable approach given the trade-offs faced with other methods. These issues are summarized nicely in Falaschetti (2003): the resulting bias is concentrated in estimated coefficient for the lagged dependent variable with Monte Carlo studies indicating that the other parameter estimates (i.e., the parameters of interest here) are no more biased than the estimates from IV, corrected fixed effects, and GMM methods (e.g., Arellano and Bonds 1991).

GDP or a 1% decrease if we hold GDP rather than GDP per capita constant. The bias toward Egypt evident in other aid is reversed for the World Bank with the estimated coefficient for the Egypt dummy significant and negative.[23]

Column 2 (WB 2) introduces the regulation index. As with other aid, World Bank disbursements do not appear to depend on the level of regulation in the recipient country and the estimated coefficients on other variables are largely unaffected when regulation is included. Column 3 adds the lagged dependent variable ($\mathbf{WBAID}_{it-1}$) as well as lagged repayments ($\mathbf{WBrepay}_{it-1}$). World Bank disbursements exhibit considerably less persistence than seen in Table 1 for other aid but the impact on other estimates is similar. The coefficients for GDP per capita and population shrink somewhat but preserve their sign and significance. The coefficient estimate for regulation becomes negative but remains insignificant.

Column 4 of Table 2 adds $\mathbf{AID}_{it}$. The coefficient estimate is actually larger than that for the lagged dependent variable and, once it is included, the apparent population bias in World Bank lending disappears: the coefficient on population switches from negative and significant to positive and insignificant. The coefficients on $\mathbf{WBAID}_{i,t-1}$ and $\mathbf{GDP\_CAP}_{it}$ are substantially reduced. The dummy for Israel is now negative and significant indicating that World Bank lending does not mirror other aid in the case of Israel. As before, regulation remains insignificant.

As noted above, test results indicate $\mathbf{AID}_{it}$ is endogenous in the World Bank equation.

[23] Arms imports are not included in the World Bank equation; as expected, it is not a significant determinant of lending for that organization.

Column 5 presents instrumental variable estimates.[24] The results are entirely comparable to those discussed above with instrumented $\mathbf{AID}_{it}$ still entering as positive and significant (though now on par with the lagged dependent variable). As seen throughout, the level of regulation remains insignificant. Column 6 introduces fixed effects which influence the size of some coefficient estimates but not the general results: regulation remains insignificant, $\mathbf{AID}_{it}$ and $\mathbf{WBAID}_{it-1}$ remain positive and significant, GDP per capita remains negative and significant, and population remains positive and insignificant. The final column combines these techniques estimating instrumental variables with fixed effects. The key difference here is that instrumented $\mathbf{AID}_{it}$ is not statistically significant. We would expect to see this result if the instruments were largely capturing cross country rather than intertemporal variation in aid. The coefficient on regulation, though increased somewhat, is again insignificant. Thus, across all the specifications and methods examined, World Bank disbursement is not responsive to the regulatory environment in recipient countries.

[Table 3 about here]

Table 3 turns to determinants of regulation. It is important to recall that the dependent variable, $\mathbf{FGR}_{it}$, is the 0-to-10 "freedom from government regulation" index so that increases (positive coefficients) correspond to deregulation. Column 1 (FGR 1) presents a baseline specification. One striking result is the strong link between arms imports and regulation with higher arms imports associated with more regulation. In all but the final specification, the

[24]Population drops from the specification so that it can be added to the list of instruments though the results are quite similar without this step.

estimated coefficient on arms imports is large and highly significant.[25] The estimated coefficient on GDP per capita is positive and significant with a 1% increase in GDP per capita associated with roughly a 0.3 point increase in the regulation index, indicating that rising GDP per capita is strongly linked to deregulation. In contrast to Svensson's (2000A) findings, the measure of ethnolinguistic fractionalization is positive though insignificant. Membership in the West African Franc Zone ($\mathbf{CFA}_i$) is marginally significant with the expected negative sign. Of the regional dummies, only Central America proves significant.

Column 2 (FGR 2) includes World Bank disbursements. The estimated coefficient is positive and significant with a 1% increase in World Bank disbursements as a share of GDP associated with a 0.2 point increase in $\mathbf{FGR}_{it}$ (i.e., 0.2 point reduction in regulation). The inclusion of the World Bank variable has a modest impact on the other coefficients.

Column 3 introduces the lagged value of the regulation index to allow for persistence over time that the coefficient on $\mathbf{GDP\_CAP}_{it-1}$ might otherwise reflect. With the lagged variable, the first period drops from the sample bringing the number of observations to 310 from 376. The highly significant estimated coefficient of 0.66 confirms the inertia of regulation. The magnitude of other coefficient falls as we would expect. World Bank lending remains positive and significant as does per capita GDP. Arms imports continue to enter with a strongly significant negative coefficient. The sign on ethnolinguistic fractionalization switches to negative but remains insignificant. The CFA effect is strengthened while the Central American effect becomes insignificant.

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[25]This is true even if we maximize the sample by dropping other variables with limited coverage. Given the strength of the relationship, this link deserves further empirical and theoretical exploration.

Column 4 is included for comparison with Column 3. The World Bank variable is replaced with other aid. While World Bank disbursements entered positively and significantly, the coefficient for other aid is somewhat smaller and not statistically significant. Other coefficient estimates are largely unchanged.

Column 5 extends this by including both variables. In this specification, neither $\mathbf{WBAID}_{it-1}$ nor $\mathbf{AID}_{it-1}$ is individually significant but they are jointly significant at the 5% level. Finally, Column 6 estimates the dynamic panel. The contrast between the two source of aid is much starker with an increase in the size and statistical significance of the coefficient on the World Bank variable. The coefficient on other aid decreases and remains statistically insignificant.

To what extent does the above pattern reflect a bilateral/multilateral split? The non-World Bank variable is the appropriate control to use when examining the influence of the World Bank. But it combines multilateral and bilateral aid agencies. Taken as a whole, does aid from multilateral agencies (60% of which comes from non-World Bank sources) reduce the level of regulation or is the World Bank unique in this regard? Table 4 addresses this question by repeating the fixed effects estimates (AID 5, WB 6, and FGR 6) but dividing disbursement data into multilateral and bilateral rather than World Bank and other. In addition, the right side of the table gives results using effective development assistance (EDA) data for bilateral and multilateral aid.[26] This may be useful for comparison to other research done using EDA

[26]The reduced sample size is driven by limited coverage of EDA data. The only publically available EDA data for World Bank lending are from BD who use 4 year averages. Although this can be lined up approximately with the once every five year FGR index, the coverage is limited. This yields similar results to those given above but the sample is limited to 44 countries with 125 observations for

measures.

[Table 4 about here]

In the first estimation in Table 4 (BAID), the dependent variable is bilateral aid (i.e., the log of real bilateral aid disbursements as a share of recipient country real GDP). The estimated coefficient for $\mathbf{FGR}_{it}$ is positive but small and statistically insignificant indicating that the regulatory environment is not an important determinant of bilateral aid flows. Aid from multilateral sources and past bilateral aid are both positively and significantly related to current bilateral aid. As before, GDP per capita is negative and significant, consistent with some degree of needed-based allocation. In a change from the previous estimation results, the bias against large countries is not evident though this needs to be interpreted in light of the country fixed effects.[27] As in Table 1's AID 5, arms imports do not enter significantly in the fixed effects specification.

Switching to effective development assistance data (BEDA, the right side of Table 4), the only qualitative difference in the estimation is the positive and significant coefficient for GDP per capita. One explanation for this is substantial bilateral loan aid directed toward low income countries, (e.g., Japanese aid) together with substantial bilateral grant aid directed toward middle income countries (e.g., U.S. aid). In any event, this result is not primarily due to fixed effects or the reduced sample. The key point to note is that regulation is an insignificant factor in bilateral aid allocation in both regressions.

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the allocation equations and 37 countries with 76 observations for the regulation equation.

[27]Without fixed effects, the results are as before: a negative, significant coefficient on population.

The second set of regressions in Table 4 (MAID and MEDA) examine multilateral aid. An interesting difference is immediately apparent. Whether using standard or EDA measures, the level of regulation appears to be a significant factor in the allocation process for multilateral agencies as a whole. A one point increase in the "freedom from regulation" index is associated with a 0.12% increase in the ratio of multilateral disbursements to GDP and a slightly larger 0.16% increase in the ratio of multilateral EDA disbursements to GDP. As before, both current bilateral disbursements and previous multilateral disbursements have a significant link to current multilateral disbursements. Consistent with the previous aid literature, multilateral aid, whether measured in traditional or EDA terms, reflects recipient need more consistently than bilateral aid. The bias against large countries is not significant when using EDA data though, again, this must be interpreted in the context of country fixed effects.

The last set of regressions are for the regulation equation with aid divided into bilateral ($\mathbf{BAID}_{it-1}$) and multilateral ($\mathbf{MAID}_{it-1}$) on the left and EDA divided into bilateral ($\mathbf{BEDA}_{it-1}$) and multilateral ($\mathbf{MEDA}_{it-1}$) on the right. Comparing the results to those in the last column of Table 3 (FGR 6), there is evident similarity in the impact on regulation of funds from the World Bank and other multilateral agencies. Thus, aid from the World Bank, like other multilateral aid, appears to reduce the level of regulation in recipient countries while bilateral aid has no impact.

V. Conclusion

This paper contributes to the debate over governance and aid by using panel data to examine links between aid flows and the level of regulation in recipient countries. As the World Bank's 2004/2005 *World Development Report* illustrates, government regulation is an important component in the governance debate both for donors and for developing countries:

There is huge scope in most countries for improving regulation and taxation

> without compromising broader social interests. Too often, governments pursue approaches that fail to meet the intended social objective, yet harm the investment climate. How? By imposing unnecessary costs, by increasing uncertainty and risks, and by erecting unjustified barriers to competition. (World Bank, 2004, 95)

Indeed, deregulation is a central component of policy reforms advocated and supported by the major international development agencies. The World Bank does acknowledge an important role for appropriate regulation: "Sound regulation addresses market failures that inhibit productive investment and reconciles the interests of firms with those of society" (World Bank, 2004, 95). But substantially more focus is on inappropriate regulation. The *WDR* points to three primary regulatory costs: 1) compliance; 2) uncertainty; and 3) barriers to competition. These drive firms into the informal sector, create an environment for corruption, and perpetuate unproductive monopolies. One of the main thrusts of the *WDR* is the need to reduce the regulatory burden to promote private investment which the World Bank sees as the engine of both growth and poverty reduction.

"Knowledge bank" notwithstanding, well-written reports on their own are unlikely to alter entrenched practices in developing countries. Actual implementation of such reforms depends on a better understanding of the multiple links between aid and regulation. There are reasons to expect a complex relationship between aid flows and the regulatory environment in recipient countries. This paper is an effort to delve into those relationships empirically, allowing for bidirectional links as well as differences between groups of donors, namely the World Bank, multilateral agencies, and bilateral donors.

The estimated aid allocation equations indicate that the level of regulation in a recipient country generally is not considered by bilateral donors. Multilateral agencies as a group do show

a preference for good regulatory environments though this is not as a significant factor for the World Bank in the equations estimated. Turning to the impact of aid on the level of regulation, both overall multilateral aid and World Bank lending have an apparent linked to deregulation. In contrast, bilateral aid has no apparent impact on regulation.

The most direct interpretation of these results is that World Bank conditionality has been effective at promoting deregulation. This contrasts with more general research on World Bank structural adjustment efforts where lax enforcement of conditions results in little improvement in recipient behavior (e.g., Mosley et al., 1995). It may be that the leverage of conditionality on and the resources to provide support for deregulation have been more effective than for other aspects of structural adjustment. The finding that World Bank and multilateral aid are more effective than bilateral aid is, however, consistent with much of the aid literature.

While coming from a very different angle, this work reenforces the central message of Easterly et al. (2004) that the empirical basis for selectivity remains tenuous. The case for selectively allocating aid to countries that have already undertaken reforms–the current direction of the World Bank and the core of President Bush's $5 billion Millennium Challenge Account aid initiative–rests on claims that recipient government policy has not been responsive to aid and that aid only promotes growth and reduces poverty in good policy environments. Indeed, the presupposition is not simply that aid *has not* induced policy reform but that aid *cannot* induce policy reform. Rather than looking to restructure aid institutions and instruments to improve aid's ability to directly promote good governance (through enforced conditions, appropriate technical assistance, channeling more aid through multilateral agencies), the selectivity argument favors abandoning the effort entirely. The evidence presented here that aid from the World Bank and other multilateral agencies can promote deregulation provides an important counter example,

one that argues for improving the practice of aid rather than effectively abandoning the project.

References

Acemoglu, D., Johnson, S., & Robinson, J.A. (2001). The colonial origins of comparative development: an empirical investigation. *American Economic Review* 91(5), 1369-1401.

Acemoglu, D., Johnson, S., & Robinson, J.A. (2002). Reversal of fortune: geography and institutions in the making of the modern world income distribution. *Quarterly Journal of Economics* 107, 1231-1294.

Alesina, A. & Dollar, D. (2000). Who gives foreign aid to whom and why? *Journal of Economic Growth* 5, 33-63.

Alesina, A. & Rodrik, D. (1994). Distributive politics and economic-growth. *Quarterly Journal of Economics* 109(2), 465-490.

Alesina, A. & Weder, B. (2002). Do corrupt governments receive less foreign aid? *American Economic Review* 92(4), 1126-1137.

Arellano, M. & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies* 58(2), 277-297.

Banerjee, S.G. & Rondinelli, D.A. (2003). Does foreign aid promote privatization? Empirical evidence from developing countries. *World Development* 31(9), 1527-1548.

Baum, C.F., Schaffer, M.E. & Stillman, S. (2003). Instrumental Variables and GMM: estimation and testing. Working Paper No. 545, Boston College Department of Economics.

Blanchard, O. (1996). Theoretical aspects of transition. *American Economic Review* 86(2), 117-122.

Boockmann, B. & Dreher, A. (2003). The contribution of the IMF and the World Bank to economic freedom. *European Journal of Political Economy* 19(3), 633-649.

Burnside, C. & Dollar, D. (2000) Aid, policies, and growth. *American Economic Review* 90(4), 847-868.

Burnside, C. & Dollar, D. (2004) Aid, policies, and growth: reply. *American Economic Review* 94(3), 781-784.

Chang, C.C., Fernandez-Arias, E., & Serven, L. (1998). Measuring aid flows: a new approach. Working paper, Development Research Group, World Bank.

Clemens, M.A., Radelet, S., & Bhavnani, R. (2004). Counting chickens when they hatch: the short-term effect of aid on growth. Working Paper 44, Center for Global Development.

Collier, P. (1997). The failure of conditionality. In C. Gwin & J.M. Nelson (Eds.), *Perspectives on Aid and Development*, Policy Essay 22 (pp. 51 - 76). Washington: Overseas Development Council.

Collier, P. & Dollar, D. (2001). Can the world cut poverty in half? How policy reform and international aid can meet international development goals. *World Development* 29(11), 1787-1802.

Dalgaard, C., Hansen, H., & Tarp, F. (2004). On the empirics of foreign aid and growth. *The Economic Journal* 114, 191-216.

Devarajan, S., Dollar, D., & Holmgren, T. (2001). *Aid and Reform in Africa*, Washington: The World Bank.

Diamond, J. (1997). *Guns, Germs, and Steel*. New York: W.W. Norton & Co.

Easterly, W. (2003). Can foreign aid buy growth? *Journal of Economic Perspectives* 17(3), 23–48.

Easterly, W. & Levine, R. (2003). Tropics, germs, and crops: how endowments influence economic development. *Journal of Monetary Economics* 50(1), 3-39.

Easterly, W., Levine, R., & Roodman, D. (2004). Aid, policies, and growth: comment. *American Economic Review* 94(3), 774-780.

Falaschetti, D. (2003). Credible Commitments and Investment: Does Opportunistic Ability or Incentive Matter? *Economic Inquiry* 41(4), 660-74.

Fleck, R.K. (2000). When should market-supporting institutions be established? *The Journal of Law, Economics, & Organization* 16, 129-154.

Fleck, R.K. & Hanssen, F.A. (2003). How bad can a government be? Neighborhood constraints and the quality of national governments. Unpublished Manuscript, Montana State University.

Fleck, R.K. & Kilby, C. (2001). World Bank independence: a model and statistical analysis of U.S. influence. Vassar College Economics Working Paper 53.

Gwartney, J., Lawson, R., & Emerick, N. (2003). Economic freedom of the world: 2003 annual report. Vancouver: The Fraser Institute. Data retrieved from www.freetheworld.com

Hadi, A. (1994). A modification of a method for the detection of outliers in multivariate samples. *Journal of the Royal Statistical Society*, Series (B), 56, 393-396.

Hagen, R.J. (2004). Samaritan Agents? On the delegation of aid policy. Department of Economics, Norwegian School of Economics and Business Administration, Bergen.

Hansen, H. & Tarp, F. (2000). Aid effectiveness disputed. *Journal of International Development* 12, 375-398.

Hansen, H. & Tarp, F. (2001). Aid and growth regressions. *Journal of Development Economics* 64, 547-570.

Hanson, J.R., II (2003). Proxies in the new political economy: caveat emptor. *Economic Inquiry* 41(4), 639-646.

Harms, P. & Lutz, M. (2003). Aid, governance, and private foreign investment: some puzzling findings and a possible explanation. HWWA Discussion Paper 246, Hamburg Institute of International Economics.

Kaufmann, D., Kraay, A. & Mastruzzi, M. (2003). Governance matters III: governance indicators for 1996–2002. World Bank Policy Research Working Paper 3106.

Kaufmann, D., Kraay, A. & Zoido-Lobaton, P. (1999). Governance matters. Policy Research Working Paper 2196, The World Bank, Washington D.C.

Kilby, C. (2005) Aid and regulation. *Quarterly Review of Economics and Finance*, forthcoming.

Lane, P.R. & Tornell A. (1996). Power, growth, and the voracity effect. *Journal of Economic Growth* 1(2), 213-241.

Levin, A., Lin, C., & Chu, C.J. (2002). Unit root test in panel data: asymptotic and finite-sample properties. *Journal of Econometrics* 108, 1-24.

Mosley, P., Harrigan, J., & Toye, J. (1995). *Aid and Power: The World Bank and Policy-based Lending*. New York: Routledge.

Remmer, K.L. (2004). Does foreign aid promote the expansion of government? *American Journal of Political Science* 48(1), 77-92.

Rodrik, D. (1996). Understanding economic policy reform. *Journal of Economic Literature* 34(1), 9-41.

Rodrik, D., Subramanian, A., & Trebbi, F. (2002). Institutions rule: the primacy of institutions over geography and integration in economic development. NBER Working Paper 9305. Cambridge: National Bureau of Economic Research.

Roodman, D. (2004) The Anarchy of Numbers: aid, development, and cross-country empirics. Center for Global Development Working Paper 32.

Sachs, J.D. (2003). Institutions don't rule: direct effects of geography on per capita income. NBER Working Paper 9490. Cambridge: National Bureau of Economic Research.

Svensson, J. (2000A). Foreign aid and rent-seeking. *Journal of International Economics* 51(2), 437-461.

Svensson, J. (2000B). When is foreign aid policy credible? Aid dependence and conditionality. *Journal of Development Economics* 61, 61-84.

Svensson, J. (2003). Why conditional aid does not work and what can be done about it? *Journal of Development Economics* 70, 381-402.

Tavares, J. (2003). Does foreign aid corrupt? *Economic Letters* 79(1), 99-106.

Tendler, J. (1975). *Inside Foreign Aid.* Baltimore: Johns Hopkins University Press.

Villanger, E. (2004). Company influence on foreign aid disbursement: is conditionality credible when donors have mixed motives? *Southern Economic Journal* 71(2), 334-351.

Williamson, J. (1990). What Washington means by policy reform. In J. Williamson (Ed.), *Latin American Adjustment: How Much Has Happened?* (pp. 7-38) Washington: Institute for International Economics.

Williamson, J. (2003). From reform agenda to damaged brand name: a short history of the Washington consensus and suggestions for what to do next. *Finance & Development* September, 10-13.

Wooldridge, J.M. (2003). *Introductory Econometrics: A Modern Approach, 2nd Edition*. Mason, Ohio: South-Western.

World Bank (1998). *Assessing Aid: What Works, What Doesn't and Why*. New York: Oxford University Press.

World Bank (2004). *World Development Report 2005: A Better Investment Climate For Everyone*. New York: Oxford University Press.

Table 1: Aid Allocation Equation
Dependent variable: log of Aid excluding World Bank funds (AID_{it})

	AID 1		AID 2		AID 3		AID 4		AID 5	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
FGR_{it}			0.028	0.40	0.003	0.09	-0.002	-0.07	0.062	1.33
$WBAID_{it}$							0.281	6.10**	0.258	6.10**
AID_{it-1}					0.613	8.10**	0.541	7.25**	0.179	2.85**
$AIDrepay_{it-1}$					0.015	0.42	-0.024	-0.63	-0.088	-1.94*
GDP_CAP_{it}	-0.906	-9.53**	-0.914	-9.30**	-0.337	-3.78**	-0.185	-2.33**	-0.501	-3.30**
POP_{it}	-0.436	-9.12**	-0.432	-8.87**	-0.162	-4.62**	-0.149	-5.07**	-1.204	-2.96**
$ARMS_{it-1}$	3.022	3.78**	3.124	3.56**	1.582	4.41**	1.544	4.66**	0.498	0.84
SSA_i	-0.117	-0.65	-0.112	-0.63	-0.026	-0.33	0.005	0.07		
$EASIA_i$	-0.042	-0.30	-0.046	-0.33	-0.095	-1.04	-0.036	-0.43		
$EGYPT_i$	0.437	3.28**	0.432	3.10**	-0.128	-1.56	0.184	1.85*		
$CENTAM_i$	0.029	0.12	0.014	0.05	0.055	0.65	0.098	1.35		
$ISRAEL_i$	1.349	7.45**	1.401	7.21**	0.674	4.98**	0.766	5.66**		
N	367		367		367		367		367	
n	80		80		80		80		80	
T	7		7		7		7		7	
R-sq	0.742		0.743		0.850		0.876		0.545	
within										0.409
between										0.607
Method	OLS		OLS		OLS		OLS		FE	

t-statistics and significance levels computed with robust standard errors.
*=10% significance level; **=5% significance level.
Aid variables (AID, WBAID, AIDrepay) measured as log of the 5 year average of real gross disbursements as a share of the recipient's real GDP. All specifications include period dummies.

Table 2: World Bank Allocation Equation
Dependent variable: log of World Bank disbursements ($WBAID_{it}$)

	WB 1		WB 2		WB 3		WB 4		WB 5		WB 6		WB 7	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
FGR_{it}			0.013	0.20	-0.056	-1.12	-0.018	-0.41	-0.029	-0.69	0.097	1.59	0.105	1.58
AID_{it}							0.447	6.92 **	0.303	5.02 **	0.453	6.12 **	0.341	1.32
$WBAID_{it-1}$					0.356	5.28 **	0.265	4.50 **	0.295	4.57 **	0.109	2.61 **	0.116	2.65 **
$WBrepay_{it-1}$					0.027	1.56	0.027	1.65	0.027	1.69 *	-0.011	-0.44	-0.013	-0.51
GDP_CAP_{it}	-0.815	-8.06 **	-0.819	-7.83 **	-0.569	-6.38 **	-0.217	-2.55 **	-0.328	-5.22 **	-0.893	-4.77 **	-1.027	-4.03 **
POP_{it}	-0.193	-4.35 **	-0.191	-4.23 **	-0.123	-3.38 **	0.056	1.44			0.427	0.81		
SSA_i	-0.165	-0.85	-0.163	-0.84	-0.138	-1.07	-0.058	-0.51	-0.081	-0.82				
$EASIA_i$	-0.195	-1.46	-0.198	-1.45	-0.217	-1.96 **	-0.161	-1.74 *	-0.182	-1.94 *				
$EGYPT_i$	-0.747	-7.46 **	-0.745	-7.40 **	-0.644	-8.38 **	-0.977	-11.24 **	-0.870	-11.31 **				
$CENTAM_i$	-0.157	-0.61	-0.164	-0.63	0.008	0.04	-0.055	-0.40	-0.032	-0.22				
$ISRAEL_i$	0.148	1.07	0.175	0.96	-0.234	-1.50	-0.773	-4.92 **	-0.598	-4.28 **				
N	367		367		367		367		367		367		367	
n	80		80		80		80		80		80		80	
T	7		7		7		7		7		7		7	
R-sq	0.5309		0.5309		0.6405		0.7053		0.6985		0.3826		0.5843	
within											0.4191		0.4138	
between											0.3962		0.6734	
Method	OLS		OLS		OLS		OLS		IV		FE		IV&FE	

t-statistics and significance levels computed with robust standard errors.
*=10% significance level; **=5% significance level.
Aid variables (AID, WBAID, WBrepay) are measured as the log of the 5 year average of gross real disbursements as a share of real GDP.
All specifications include period dummies.

Table 3: Regulation Equation
Dependent variable: Freedom from Government Regulation (FGR_{it})

	FGR 1		FGR 2		FGR 3		FGR 4		FGR 5		FGR 6	
	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat	Coef	t-stat
AID_{it-1}							0.052	1.06	0.021	0.36 [A]	-0.025	-0.27
$WBAID_{it-1}$			0.195	2.62 **	0.079	2.10 **			0.067	1.37	0.137	2.18 **
FGR_{it-1}					0.664	13.52 **	0.665	12.78 **	0.662	13.00 **	0.217	3.41 **
GDP_CAP_{it-1}	0.270	2.17 **	0.374	2.89 **	0.097	2.08 **	0.078	1.33	0.102	1.97 *	0.107	0.55
$ARMS_{it-1}$	-4.537	-5.40 **	-4.307	-5.20 **	-1.463	-3.93 **	-1.724	-4.64 **	-1.549	-3.88 **	0.127	0.14
$ETHNIC_i$	0.147	0.43	0.180	0.53	-0.046	-0.37	-0.040	-0.32	-0.037	-0.29		
CFA_i	-0.391	-1.89 *	-0.397	-1.86 *	-0.272	-3.62 **	-0.297	-3.60 **	-0.283	-3.40 **		
SSA_i	0.006	0.02	-0.050	-0.19	-0.132	-1.40	-0.139	-1.39	-0.142	-1.39		
$EASIA_i$	0.037	0.13	0.093	0.35	0.092	0.93	0.090	0.96	0.097	1.00		
$EGYPT_i$	0.178	0.83	0.273	1.36	0.119	1.66	0.069	0.98	0.112	1.44		
$CENTAM_i$	0.726	3.33 **	0.711	3.48 **	0.190	1.46	0.152	1.22	0.176	1.32		
N	376		376		310		310		310		310	
n	74		74		74		74		74		74	
T	7		7		6		6		6		6	
R-sq	0.280		0.304		0.681		0.679		0.681		0.534	
within											0.178	
between											0.825	
Method	OLS		OLS		OLS		OLS		OLS		FE	

t-statistics and significance levels computed with robust standard errors. *=10% significance level; **=5% significance level.
Aid variables (AID, WBAID) are measured as the log of the 5 year average of gross real disbursements as a share of real GDP.
All specifications include period dummies.
[A]We can reject the joint hypothesis that $AID_{it-1}=0$ and $WBAID_{it-1}=0$ at the 95% confidence level.

Table 4: Fixed Effects Estimates using Bilateral and Multilateral Aid

	BAID				BEDA		
	Coef	t-stat			Coef	t-stat	
FGR_{it}	0.041	0.75		FGR_{it}	0.027	0.25	
$MAID_{it}$	0.159	2.70	**	$MEDA_{it}$	0.362	3.81	**
$BAID_{it-1}$	0.162	2.75	**	$BEDA_{it-1}$	0.220	2.48	**
GDP_CAP_{it}	-0.393	-2.21	**	GDP_CAP_{it}	1.791	4.40	**
POP_{it}	0.239	0.50		POP_{it}	1.034	0.83	
$ARMS_{it-1}$	0.945	1.37		$ARMS_{it-1}$	-0.844	-0.59	
N	367				243		
n	80				71		
T	7				4		
R-sq	0.328				0.014		
within	0.411				0.484		
between	0.358				0.074		
	MAID				MEDA		
	Coef	t-stat			Coef	t-stat	
FGR_{it}	0.125	2.34	**	FGR_{it}	0.162	2.00	**
$BAID_{it}$	0.147	2.50	**	$BEDA_{it}$	0.175	2.90	**
$MAID_{it-1}$	0.105	1.73	*	$MEDA_{it-1}$	0.199	2.29	**
GDP_CAP_{it}	-1.137	-6.86	**	GDP_CAP_{it}	-1.793	-5.73	**
POP_{it}	-1.088	-2.37	**	POP_{it}	-1.263	-1.33	
N	367				243		
n	80				71		
T	7				4		
R-sq	0.592				0.502		
within	0.317				0.299		
between	0.699				0.666		
	FGR 7				FGR 8		
	Coef	t-stat			Coef	t-stat	
$BAID_{it-1}$	-0.032	-0.41		$BEDA_{it-1}$	0.065	1.35	
$MAID_{it-1}$	0.194	2.29	**	$MEDA_{it-1}$	0.069	1.15	
FGR_{it-1}	-0.15	3.31	**	FGR_{it-1}	0.28	4.25	**
GDP_CAP_{it-1}	0.136	0.68		GDP_CAP_{it-1}	-0.194	-0.85	
$ARMS_{it-1}$	-2.292	-0.17		$ARMS_{it-1}$	-0.054	-0.05	
N	310				280		
n	74				71		
T	6				5		
R-sq	0.514				0.259		
within	0.179				0.216		
between	0.745				0.360		

*=10% significance level; **=5% significance level.

Aid variables (BAID, MAID, BEDA, MEDA) are measured as the log of the 5 year average of gross real disbursements as a share of real GDP. All specifications include period dummies.

Appendix

Table A1: Sample Coverage

Country	Coverage		Periods	Country	Coverage		Periods
ALGERIA	1990	2000	3	MADAGASCAR	1970	2000	6
ARGENTINA	1970	2000	7	MALAWI	1975	2000	6
BANGLADESH	1975	2000	6	MALAYSIA	1970	2000	7
BARBADOS	1975	2000	6	MALI	1975	2000	6
BELIZE	1985	2000	4	MAURITIUS	1975	2000	6
BENIN	1980	2000	5	MEXICO	1975	2000	6
BOLIVIA	1980	2000	4	MOROCCO	1980	2000	5
BOTSWANA	1980	1995	4	NAMIBIA	1995	1995	1
BRAZIL	1970	2000	7	NEPAL	1980	2000	5
BULGARIA	1990	2000	3	NICARAGUA	1985	1995	3
BURUNDI	1975	2000	6	NIGER	1975	2000	6
CAMEROON	1980	2000	5	NIGERIA	1975	2000	6
CENTRAL AFR.R.	1985	1995	3	OMAN	1995	1995	1
CHAD	1985	2000	4	PAKISTAN	1970	2000	7
CHILE	1975	2000	6	PANAMA	1975	2000	6
CHINA	1980	2000	5	PAPUA N.GUINEA	1980	1995	4
COLOMBIA	1980	2000	5	PARAGUAY	1990	2000	3
CONGO	1980	2000	5	PERU	1980	2000	5
COSTA RICA	1975	2000	6	PHILIPPINES	1975	2000	6
CYPRUS	1975	1990	4	POLAND	1990	2000	3
CZECH REPUBLIC	1995	1995	1	ROMANIA	1990	2000	3
DOMINICAN REP.	1980	2000	5	RUSSIA	1995	2000	2
ECUADOR	1980	2000	5	RWANDA	1975	2000	6
EGYPT	1980	2000	5	SENEGAL	1980	2000	5
EL SALVADOR	1985	2000	4	SIERRA LEONE	1975	1995	5
FIJI	1975	1995	5	SINGAPORE	1970	1980	3
GABON	1980	2000	5	SOUTH AFRICA	1995	2000	2
GHANA	1975	2000	6	SRI LANKA	1980	2000	5
GUATEMALA	1970	2000	7	SYRIA	1970	2000	5
GUINEA-BISSAU	1990	2000	3	TANZANIA	1970	2000	7
GUYANA	1995	1995	1	THAILAND	1970	2000	7
HAITI	1990	1995	2	TOGO	1980	2000	5
HONDURAS	1980	2000	5	TRINIDAD&TOBAGO	1975	2000	6
HUNGARY	1990	2000	3	TUNISIA	1970	2000	7
INDIA	1970	2000	7	TURKEY	1975	2000	6
INDONESIA	1970	2000	7	UGANDA	1975	2000	6
IRAN	1980	2000	4	URUGUAY	1980	2000	5
ISRAEL	1970	1980	3	VENEZUELA	1970	2000	7
JAMAICA	1980	2000	5	ZAIRE	1970	1990	5
JORDAN	1970	2000	7	ZAMBIA	1975	2000	6
KENYA	1970	2000	7	ZIMBABWE	1980	2000	5
KOREA, REP.	1975	2000	6				

Table A2: Summary Statistics

Variable	Mean	Median	St. Dev.	Min	Max	N	Units/Scale
AID_{it}	0.390	0.463	1.159	-3.091	3.091	407	log % of GDP
$AIDrepay_{it-1}$	-1.384	-1.340	1.144	-6.793	1.803	397	log % of GDP
$WBAID_{it}$	-1.494	-1.297	1.313	-8.915	0.799	407	log % of GDP
$WBrepay_{it-1}$	-2.858	-2.581	1.793	-18.310	0.044	380	log % of GDP
$BAID_{it}$	-0.025	0.098	1.275	-3.112	3.057	407	log % of GDP
$BEDA_{it}$	-1.125	-0.932	1.287	-8.209	2.047	304	log % of GDP
$MAID_{it}$	-0.426	-0.338	1.123	-5.463	2.107	407	log % of GDP
$MEDA_{it}$	-0.619	-0.523	1.103	-7.133	3.052	310	log % of GDP
FGR_{it}	5.256	5.254	0.991	2.473	7.278	407	0 to 10
GDP_CAP_{it}	7.571	7.646	0.840	5.843	9.329	407	log of 1996 US $
POP_{it}	16.216	16.127	1.641	12.021	20.956	407	log
$ARMS_{it-1}$	0.038	0.014	0.076	0	0.831	407	% of imports
$ETHNIC_i$	0.460	0.530	0.301	0	0.930	384	0 to 1
CFA_i	0.120	0	0.326	0	1	407	indicator
SSA_i	0.349	0	0.477	0	1	407	indicator
$EASIA_i$	0.101	0	0.301	0	1	407	indicator
$CENTAM_i$	0.086	0	0.281	0	1	407	indicator

Table A3: Simple Correlations

	AID_{it}	$WBAID_{it}$	FGR_{it}	GDP_CAP_{it}	POP_{it}	$ARMS_{it-1}$	$ETHNIC_i$	CFA_i	SSA_i	$EASIA_i$
$WBAID_{it}$	0.645									
FGR_{it}	-0.077	-0.033								
GDP_CAP_{it}	-0.564	-0.540	0.303							
POP_{it}	-0.523	-0.152	-0.291	-0.114						
$ARMS_{it-1}$	0.194	-0.008	-0.349	-0.045	0.051					
$ETHNIC_i$	0.172	0.192	-0.078	-0.465	0.137	-0.054				
CFA_i	0.342	0.211	-0.171	-0.327	-0.231	-0.044	0.348			
SSA_i	0.510	0.394	-0.155	-0.665	-0.218	-0.082	0.508	0.511		
$EASIA_i$	-0.339	-0.180	0.021	0.136	0.356	-0.091	0.068	-0.132	-0.259	
$CENTAM_i$	0.098	-0.021	0.222	0.068	-0.198	0.018	-0.180	-0.113	-0.222	-0.103

N=384