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Foreign aid's impact on domestic business climates

An empirical analysis with SSA and MENA countries

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Abstract

Purpose – Existing literature has expressed significant pessimism about the outcomes of foreign aid received by developing nations. Foreign aid can lead to negative outcomes by generating greater rent-seeking opportunities and creating aid dependence. While aid's negative impact has been explored in the context of growth, political institutions, and economic institutions, the literature has not investigated the effect of aid on business climate of recipient nations. The purpose of this paper is to explore foreign aid's impact on government regulations on the business climate in Sub-Saharan African (SSA) and Middle East and North American countries.

Design/methodology/approach – The authors consider a panel of 64 countries over six years. Since foreign aid is most likely to be endogenous, as identified in most studies, the identification strategy follows two methodologies – system GMM estimator, that creates its own instruments via moment generating conditions and instrumental variable approach that relies on an external instrument.

Findings – The authors find that aid worsens the business climate by increasing government restrictions. Foreign aid provides the recipient governments and the political elite resources to strengthen their power and reinforce predatory policies that are harmful for the business climate. The results further show that in the presence of long-lasting and sustainable democratic regimes, the negative impact of foreign aid on business climate mitigates to a certain extent.

Originality/value – While aid's negative impact has been explored in the context of growth, political institutions, and economic institutions, the literature has not investigated the effect of aid on business climate of recipient nations. The authors explore the impact of foreign aid on government regulations on the business climate in SSA and Middle East and North American countries.

Keywords Entrepreneurship, Foreign aid, MENA, SSA, Business climate, Political institutions

Paper type Research paper

1. Introduction

While aid may be given with the intention of helping to improve institutions in the recipient country, the literature points to many reasons why the impact may be just the opposite. Bauer (2000), for example, argues that aid suffers from an important asymmetry. Aid is generally a very small percentage of national income, thus it has limited capacity to improve poverty levels; however, it can be a large percentage of the recipient government's budget for funding discretionary spending. With government less reliant on domestic revenue sources and more heavily reliant on less transparent aid funding, it can increase corruption, concentrate political power, and lead to a movement toward greater dictatorship (see de Mesquita and Smith, 2009;

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Smith, 2008; Djankov *et al.*, 2006; Rajan and Subramanian, 2007a, b; Bräutigam and Knack, 2004; Bauer, 2000). Studies that test Bauer's hypothesis, such as that by Djankov *et al.* (2006), find that aid weakens democracy in the recipient country to a greater extent than does the popularized "resource curse"[1]. Following this strand of literature, we explore foreign aid's impact on the domestic business climate of recipient nations employing various measures of business regulations.

A recipient government's internal regulation of business is an important link in the understanding of how aid may impact economic outcomes. Regulations not only suffer from Hayek's (1945) knowledge problems that plague all central-planning efforts but also reduce the rate of entrepreneurship, and thus hamper creative destruction and the market discovery process (see Schumpeter, 1942; Hayek, 2002). Entrepreneurship – the experimentation of new business ventures – is a key source of economic progress. Through a process of trial and error, entrepreneurs search for new combinations of resources that may produce more value than the alternatives that can be produced with those resources. Economic progress is highly dependent upon the use of the competitive market process to discover the best use of resources through entrepreneurial experimentation, knowledge that cannot be determined without the process taking place (see Hayek, 2002). By interfering with this competitive discovery process of creative destruction, higher regulations lead to worse economic performance.

The argument from the previous literature holds that aid can make governments less dependent on internal tax revenue. In doing so, it reduces the government's incentive to care about the level of domestic economic activity as the revenue from taxing is not as important to finance government activities. A regulation that lowers entrepreneurship, and thereby shrinks economic activity, normally costs the government important tax revenue. When tax revenue becomes a lower share of government receipts, essentially it reduces the tax cost of imposing harmful regulations to the domestic government. This indeed may be the channel through which aid causes a deterioration in economic freedom, as the aid reduces the "price" of imposing bad policies that reduce economic activity. This is the link we intend to test here.

An extensive literature has explored the impact of higher regulations on entrepreneurship rates. Costly regulations obstruct the creation of new firms and are most damaging for industries that normally experience high-entry rates. Ardagna and Lusardi (2011) have explore the interlinkages between entry regulations, contract enforcement regulations, and financial development on the decision to become an entrepreneur and the level of employment in new ventures. They find that even after controlling for financial development, entry regulations deter entrepreneurship. Using a two-equation model, van Stel *et al.* (2007) show that entry regulations, in the form of minimum capital requirement to start a business, harm entrepreneurship rates. Cebula *et al.* (2016) find that entrepreneurship is promoted by greater economic freedom – which implies less government interference in private market economic activity.

There are two obvious theoretical reasons why higher levels of aid may lead to higher levels of internal business regulation. First, as pointed out above, by weakening the government's relative dependence on tax revenue from productive, domestic economic activity, it lowers their interest in maximizing the size of the internal economic pie. Second, because aid itself is a centrally planned, top-down policy, it encourages the development of skilled political agents and policies that use this approach to manage the entire economy. Foreign aid distribution in essence is similar to Soviet-style central planning and is subject to all of the same knowledge problems (see Boone, 1996; Svensson, 1999, 2000; Knack, 2001; Brumm, 2003; Ovaska, 2003;

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Djankov *et al.*, 2006; Powell and Ryan, 2006; Coyne, 2013). When aid is a key source of potential income, individuals in these economies find it more valuable to develop their human capital in rent seeking and manipulating the political process. When these skills are enhanced among the population, it is logical they will be employed in other ways, leading to more government intervention and central planning for the sake of rent-seeking.

Thus, once a more "public choice" view of political actors in a recipient country is adopted, it becomes clearer as to why aid may be counterproductive. Quite simply, the assistance is used to further the self-interests of the political actors, who do not necessarily have the public interest in mind (see e.g. Bauer, 2000; Easterly, 2001, 2006). Aid may in fact reinforce the predatory policies in existence.

Studies that examine the impact of aid on overall measures of country institutions, such as measures of economic freedom, generally find that aid does not improve institutions and may instead erode them (see e.g. Powell and Ryan, 2006; Heckelman and Knack, 2008, 2009; Dreher and Rupprecht, 2007; Knedlik and Kronthaler, 2007; Bearce and Tirone, 2010). Studies that decompose these institutional measures find that aid increases government spending as a share of GDP (Remmer, 2004), specifically, government consumption spending (Boone, 1996); decreases the rule of the law and property right security; and increases regulation (Coviello and Islam, 2006; Ear, 2007). Finally, several papers attempt to focus on the bigger picture questions of why and how aid fails and how to improve it (see Williamson, 2010; Prokopijevic, 2006; Leeson, 2008; Coyne and Ryan, 2009).

We take the analysis further and explore aid's impact on domestic business regulations. A recent subset of literature has argued that foreign aid may not have the ability to fundamentally change political institutions like a democracy into dictatorship but can definitely strengthen the existing powers of the regime (Frey and Eichenberger, 1994; Morrison, 2007, 2009; Kono and Montinola, 2009; de Mesquita and Smith, 2009; Wright, 2009; Nielsen and Nielson, 2010). Following this strand of literature, we explore whether democratic regime sustainability affects aid effectiveness. We wonder if it is the case that the degree of dictatorship or democracy in a country affects the degree to which aid influences the level of regulation, and also whether the stability and tenure of the regime matters for this relationship.

Our results show that foreign aid inflows do indeed worsen the business climate of recipient nations by increasing government regulations (by several measures including start-up cost, dealing with construction permits, getting credit for business, investor protection, enforcement of contracts, and ease of closing a business). Therefore, our results suggest a secondary effect of foreign aid is that it results in the adoption of policies that expand domestic central planning and interfere with the domestic market discovery process in recipient countries – leading to worse economic outcomes.

2. Empirical data employed

2.1 Choice of countries

In this paper, we look at a sample of Sub-Saharan African (SSA) and Middle East and North African (MENA) countries. Data from World Bank's Doing Business Report shows that almost 68 percent of SSA and 50 percent of the MENA countries have a business climate ranking of below 100 (out of 189 countries) In terms of foreign aid, the flow of aid to SSA countries is significant – more than 50 percent of SSA nations report aid to be more than 10 percent of their respective GNI. The share of aid in GNI for MENA countries is somewhat lower (around 2-3 percent for developing MENA nations).

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2.2 Dependent variables

Our dependent variables are various measures that capture the business regulatory climate of a country. All these variables are taken from the "Doing Business" database, published by the World Bank. The Doing Business project offers different measures of government regulation of business for each country. The various categories of business regulations considered in the project are those that impact the cost or number of procedures involved in starting a business, dealing with construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, or closing a business (termed "resolving insolvency" in the new version of the database). The starting a business category measures all official procedures that are required for an entrepreneur to formally set up the business, including licenses, permits, verifications, or inscriptions for the company. The various subcomponents of this category are procedures (in number), time (in days), cost required to complete each procedure (as percent of income per capita), and minimum capital requirement (as percent of income per capita). The higher the number in all these subcategories, the more difficult it is to start up a business in that country.

The next category, dealing with construction permits, includes all procedures that are needed by a business "to build a standardized warehouse" (The World Bank, 2012). This includes multiple things like submitting all project-specific documents to the authorities, obtaining necessary clearances, receiving all necessary inspections, and so forth. The subcategories include procedures (in number), time (in calendar days), and cost (as percent of income per capita). The third category registering property includes the subcomponents procedures (in number), time (in calendar days), and cost (as percent of property value). Overall, this category measures the necessary actions that are required for a business (buyer) to purchase a property from another business (seller). Similar to the starting a business category, higher scores are worse for the second (dealing with construction permits) as well as the third category (registering property).

Getting Credit is the fourth category which is indicative of the legal rights that protect the borrowers and lenders with respect to secured transactions and sharing of credit information. The subcomponents are strength of legal rights index (ranging from 0 to 10), depth of credit information (ranging from 0 to 6), public credit registry coverage (as percent of adults), and private credit registry coverage (percent of adults). For the consistency of our analysis, we have rescaled the variables so that higher numbers mean a worsening business situation for all of them. The next category considered is protecting investors, which takes into account "the strength of minority shareholder protections against directors" and misuse of corporate assets for personal gain' (The World Bank, 2012). The subcomponents are transparency of related party transactions (named as "extent of disclosure index," ranging on a 0 to 10 scale), accountability for self-dealing (termed as "extent of director liability index," ranging on a 0 to 10 scale), shareholders' ability to sue higher authorities for unlawful behavior (termed as "ease of shareholders index," ranging on a 0 to 10 scale), and the strength of investor protection index (which is a simple average of the other three indices). Similar to the getting credit category, we have rescaled these variables as well so that higher numbers denote a higher level of regulation.

The next category is paying taxes which records the taxes and obligatory contributions imposed on a medium-size company as well as the administrative burden involved with making such payments. The subcomponents are tax payments (number of payments is adjusted per year for electronic and joint filing), time required to fulfill the three major taxes (hours per year), and total tax rate (expressed as percent of profit

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before all taxes). Again, a higher number will imply a worse business climate. "Trading across borders" is the next category which measures the cost to export and import a cargo of goods via ocean transport. The subcomponents considered are documents required to export and import, time involved in export and import, and the cost required for doing the same.

The second to last category, enforcing contracts, captures the "efficiency of the judicial system in resolving a commercial dispute" (The World Bank, 2012). It consists of procedures (the steps involved in filing a claim, obtaining a judgment, and enforcing it), times (days required to settle a commercial dispute), and cost (as percent of claim value). The last category is closing the business or resolving insolvency which measures the time, the cost, and the outcome of insolvency dealings of domestic entities. The subcomponents are recovery rate (expressed in terms of cents on the dollar), time (expressed in years), and costs required to recover debt (expressed as percent of the debtor's estate).

2.3 Independent variables

Our independent variable of interest is foreign aid inflows to a nation. As a measure of foreign aid, we consider the net official development assistance plus official aid a country receives as a percentage of its GNI. This includes grants and loans made on concessional terms to promote economic development and welfare (net of repayments of principle), excluding assistance for military purposes, by multilateral institutions and official donor agencies. This ratio is computed using values in US dollars converted at official exchange rates. The data are taken from WDI (2010) database.

In Table AI, we provide the list of countries used in our analysis. We divide the list based on SSA countries and MENA countries. Table AII provides the summary statistics for the different business regulation indicators for our sample. We consider a panel of 64 countries over six years (2004-2009).

3. Empirical methodology and benchmark results

3.1 Empirical methodology

In this section, we test the impact of foreign aid inflows on government regulations of business for SSA and Middle East and North African (MENA) countries over the period 2004 to 2009. The obvious challenge we face here is that of endogeneity. Studies have shown (see Djankov *et al.*, 2006; Rajan and Subramanian, 2007a, b; Burnside and Dollar, 2001, 2004; Easterly *et al.*, 2004) that foreign aid suffers from endogeneity problems. While aid may have an impact on the business environment of a country, a poor state of development caused by a bad business climate may attract greater foreign aid inflows. A solution to this problem is to find efficient instruments and adopt an instrumental variable (IV) methodology. The literature has come up with a set of efficient instruments (see Djankov *et al.*, 2006; Rajan and Subramanian, 2007a, b; Burnside and Dollar, 2001, 2004; Easterly *et al.*, 2004; Bräutigam and Knack, 2004). However, as noted by Baum (2008) and Murray (2006), IV estimates suffer from inherent bias and their finite-sample properties are problematic. According to Roodman (2008), though the IV estimator fulfills the consistency condition (see Hansen, 1982), the chance of it being unbiased is low, as in finite samples, the exogenous instruments, in most cases, are not perfectly correlated with the endogenous variables. Furthermore, in the presence of weak instruments, IV estimators may not be an improvement over OLS estimators. So, though we check our results with IV estimation techniques as part of robustness analysis, we rely on superior dynamic panel estimators for our benchmark results.

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To overcome serious panel data challenges, the commonly employed estimation procedure for a dynamic panel data model is the Arellano-Bond (1991) and Arellano and Bover (1995)/Blundell and Bond (1998) dynamic panel estimators. These estimators are particularly well suited for small T (fewer time periods), large n (many sample units whether it be countries, states, or individuals), models that are linear, models with a single dependent variable that is dynamic (depending on its own past realizations), models having independent variables that are not strictly exogenous, models having fixed country effects, and finally, models with the presence of heteroskedasticity and autocorrelation across countries (see Roodman, 2006). Our model meets all of these criteria – we have a panel of 64 countries over six years, our empirical model is linear, the dependent variables are dynamic in the sense that the level of business climate in year t should be dependent on the level of business climate in year $t-1$, aid as well other independent variables suffer from endogeneity concerns, and the presence of fixed country effects (many country characteristics like colonial origins, legal origins, ethnolinguistic fractionalization have the potential to affect business environment of a country and are captured by our fixed effects).

For both the system GMM and difference GMM estimators, the model is transformed into first differences, and sequential moment conditions are used. Furthermore, lagged levels of the variables are used as instruments for the endogenous differences and the parameters (Arellano and Bond, 1991). According to Blundell and Bond (1998), the first differenced GMM estimator can have very poor finite-sample properties in terms of bias and precision when the series are persistent, as the instruments are then weak predictors of the endogenous changes (Bun and Windmeijer, 2010). Blundell and Bond (1998) suggested the system GMM estimator which proposed the use of extra moment conditions that "rely on certain stationarity conditions of the initial observation". Thus, we use system GMM as our benchmark estimator. We also test our results with IV estimation as part of robustness analysis.

Our reduced equation takes the following form:

$$BC_{it} = \alpha_0 + \alpha_1 BC_{it-1} + \alpha_2 Aid_{it} + \alpha_3 X'_{it} + \gamma_i + \theta_t + \varepsilon_{it} \quad (1)$$

where BC_{it} represents any one of our indicators of the business climate for country i in period t. BC_{it-1} is the lagged business climate measure and captures the persistence of the variable. Aid_{it} is the amount of aid inflows for country i in the year t. X'_{it} is the matrix of other explanatory variables, γ_i is the time-invariant country fixed effects, θ_t is the vector for time dummies, and ε_{it} represents the random error term. We are interested in the sign of α_2. If $\alpha_2 > 0$, then higher aid inflows worsen the business climate of a country. For $\alpha_2 < 0$, it would imply that aid inflows improve the business climate of a country.

3.2 Benchmark results

Table I provides some examples from the raw data. It forms the starting point of our empirical analysis.

Table I (Panel A) provides a list of the top 20 countries in our sample that have received the most aid relative to the sample average over the period 2004 to 2009 (our sample average for foreign aid is 10.8). Correspondingly, we show the country's "ease of doing business rank" for the year 2010. We see an obvious trend in the table. The countries receiving relatively high-aid levels tend to be lower ranked on the business climate measure. Except for Rwanda (ranked 70) and Zambia (ranked 84),

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Country	Avg. aid (higher than sample av.)	2010 rank
A. List of top 20 aid-recipient countries		
Liberia	93.06392	152
Burundi	47.37398	181
Sierra Leone	27.72626	143
Iraq	26.69797	131
Congo, Democratic Republic	23.44235	179
São Tomé and Principe	22.74137	176
Mozambique	22.48932	130
Malawi	20.73849	132
Rwanda	20.5009	70
Eritrea	16.12756	180
Guinea-Bissau	15.36192	175
Gambia, the	14.7277	141
Madagascar	14.71962	138
Ethiopia	14.47657	103
Cape Verde	14.37702	142
Zambia	14.13483	84
Uganda	13.67824	129
Burkina Faso	13.46798	154
Niger	13.46162	171
Tanzania	13.16612	125
Average business climate rank		141.8
Country	Avg. aid (lower than sample av.)	2010 rank
B. List of bottom 20 aid-recipient countries		
Namibia	2.454751	68
Lebanon	2.4303015	109
Seychelles	1.792290833	92
Botswana	1.786018983	50
Swaziland	1.715041	126
Angola	1.660427417	164
Yemen, Republic	1.6477475	104
Morocco	1.288091	114
Tunisia	1.1971338	58
Egypt, Arab Republic	0.997528533	99
Mauritius	0.859264183	20
Equatorial Guinea	0.65348195	161
Gabon	0.606861467	158
Bahrain	0.5387098	25
South Africa	0.325816583	32
Syrian Arab Republic	0.289905117	144
Algeria	0.272727733	136
Oman	0.05645706	57
Iran, Islamic Republic	0.053731567	131
Saudi Arabia	−0.00283033	12
Average business climate rank		93

Table I.
List of top and bottom aid-recipient countries and business climate rankings

the rest of the countries have quite low rankings. In Table I (Panel B), we list the 20 countries which received the least aid relative to the sample average; here, though we do not find as obvious a trend as Table I (Panel A)[2]. While the average rank for the high-aid-level countries is approximately 142, the average rank for the other group is around 93. Overall, we can see in the raw data that while higher amounts of aid are

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associated with worse business environments, lower levels of aid are not as obvious a reflective of a good business climate. While these raw data comparisons are interesting, we now turn to our formal empirical estimation to uncover the true relationship.

Table II presents our benchmark results. We consider several subcomponents of the different categories. We present the results for only those variables for which the aid coefficient is significant. As we can see from the table, the coefficient, α_2, is positive and significant for most of the specifications. Higher aid inflows worsen the business environment of a country whether be it in terms of starting a business, dealing with construction permits, getting credit, enforcement of contracts, or closing the business. As mentioned earlier, to maintain consistency in the sign of our variables of interest, we have rescaled some of the variables. For our paper, higher numbers for all types of business regulations indicate worsening business regulations. Aid flows appear to clearly worsen domestic business climates. In terms of economic significance, for example, a one standard deviation increase in aid (16.1) will make "starting a business" more difficult by raising procedures by 0.48 units, time by 4.1 days, and cost by 63 percentage points of income. A similar rise in aid inflows will worsen "dealing with construction permits" by increasing the time it takes by almost 13 days.

4. Exploring the indirect channel

4.1 Can efficient political institutions make a difference?

Recipients' existing political institutions have been shown to affect effectiveness in terms of its impact on future political institutions (see e.g. Dutta and Williamson, 2015; Dutta *et al.*, 2013; Morrison, 2007, 2009; Kono and Monitola, 2009). While dictatorships may be supported and entrenched by aid that reduces their dependence on tax revenue, democracies at least have weak feedback mechanisms to discipline elected officials. In addition, democracies tend to generally allow for greater freedom of speech allowing more honest feedback on the aid process to flow to citizens. We thus re-evaluate the impact of aid on the different measures of business climate in the presence of different political institutions.

The measure we use for political institutions is TENSYS, which measures the durability of the political system. The data are taken from database of political institutions. The variable score is based on a point scale, and countries with a score of 6 or less are deemed to be autocratic. Countries with scores of 6 and above are deemed to be democratic, and for these countries, the score is incremented by 1 for every additional year it stays democratic. While the extent of democracy is important, the survival of a political regime of a country is a factor very critical for the growth and development of a country. Nascent democracies might suffer from imbalances due to the transition process and the adjustment phase in the institutional framework (Sung, 2004; Mohtadi and Roe, 2003; Montinola and Jackman, 2002). Our specification is as follows:

$$BC_{it} = \alpha_0 + \alpha_1 BC_{it-1} + \alpha_2 Aid_{it} + \alpha_3 Ten_{it} + \alpha_4 Aid \times Ten_{it} + \varepsilon_{it} \quad (2)$$

where Ten_{it} is the measure for political institutions and $Aid \times Ten_{it}$ is the interaction term of aid and the measure of political institutions. If the coefficient on the interaction term is negative, while the coefficient on *Aid* remains positive, it would imply that better political institutions can mitigate the harmful impact of aid on domestic business climates. Alternatively, if the coefficient on the interaction term is positive, it means that aid harms the business climate even more in democratic countries. This can be

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Table II.
System GMM specifications: impact of foreign aid on business regulation measures

	Starting a Business			Dealing with construction permits		Getting Credit	Protecting Investors	Enforcing Contracts	Closing a Business
	(1)	(2)	(3)	(4)	(5)	(6)	(8)	(9)	(10)
Independent Variables↓	Procedures (numbers)	Time (days)	Cost (% of income per capita)	Time (days)	Cost (% of income per capita)	Depth of credit information	Extent of director liability index	Cost of claim	Recovery rate
Business Climate measure (lagged)	0.739***	0.716***	0.110***	2.209***	0.0340***	1.03***	1.055***	0.999***	0.566**
	(0.0641)	(0.0466)	(0.00234)	(0.167)	(0.00199)	(0.03188)	(0.00955)	(0.0001)	(0.0313)
Aid (as % of GNI)	0.0284***	0.250**	3.937***	0.780***	354.0***	0.0076***	0.00176*	0.001***	0.007*
	(0.00659)	(0.116)	(1.495)	(0.0459)	(4.524)	(0.0015)	(0.00106)	(0.0005)	(0.0065)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.953***	6.156***	34.89**	−298.8***	−1,535***	−0.28**	0.151**	0.02***	19.69***
	(0.658)	(2.270)	(15.04)	(53.47)	(265.2)	(0.136)	(0.0623)	(0.004)	(1.233)
Observations	267	267	267	170	170	222	173	266	266
Number of countries	59	59	59	58	58	59	59	59	59

Notes: Standard errors in parentheses; higher values of the dependent variable indicate a higher level of regulation (worse business climate). ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

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seen by examining the partial derivative of the business climate measure with respect to aid in our equation:

$$\frac{\delta BC_{it}}{\delta Aid_{it}} = \alpha_2 + \alpha_4 Ten_{it} \tag{3}$$

Recall that our business climate measure is increasing in the level of regulation. If aid worsens the business climate measure, then $\alpha_2 > 0$; this is what we found in our initial estimations. Because Ten_{it} takes on only positive values, if $\alpha_4 < 0$, it implies that the (harmful) impact of aid on the business climate is lessened. In fact, if these two conditions are met, and in addition, $|\alpha_4 Ten_{it}| > |\alpha_2|$, then the overall impact of aid will be negative on the business climate measure. Given how we measure it, this would imply that the business climate improves in the country with higher levels of aid. This structure allows for it to be possible for some countries (those with dictatorships, for example) to have business climates becoming worse with aid, while others (those with stable democracies) to have business climates becoming better with aid. In fact, by setting Equation (3) equal to zero and solving, we can find the point or threshold at which the impact turns from positive to negative, $Ten^{*}_{it} = -\alpha_2/\alpha_4$.

Table III presents the results including this new variable. As we can see from the table, the coefficient of $Aid{\times}Ten_{it}$ is indeed negative and significant for all the columns indicating that in the presence of good political institutions (higher values of TENSYS), the negative impact of aid on a country's business climate is reduced. The threshold values for TENSYS (Ten^{*}_{it}) for columns (1) to (5) are 12.0, 6.6, 2.5, 3.3, and 6.0, respectively. Above these values for TENSYS, aid can improve a country's business climate. Alternatively, below these scores, aid worsens a country's business climate. Thus, in general, being democratic is important; and longer a country remains in a democratic regime, aid effectiveness in terms of business climate will improve. But more importantly, supporting dictatorships with aid does indeed appear to cause a worsening of regulations and the country's internal domestic business climate.

5. Robustness analysis

We perform a battery of robustness tests by including additional controls, checking our results for different sub-samples of countries and performing alternate tests for endogeneity of foreign aid. To start with, we check our results by adding more controls. Along with considering TENSYS as an additional control, the other controls considered are GDP per capita and government consumption. GDP per capita is an indicator of economic well-being and macroeconomic environment and should affect the business climate of a region. Furthermore, we control for government consumption which is a measure of government policy. Keeping the space constraint in mind, the results have not been reported but they are available on request. The results remain robust to the inclusion of these controls. The indicators for which the aid coefficient is significant are procedures, time, and cost (as percent of income per capita) under the starting a business category, time, and cost (as percent of income per capita) under dealing with construction permits; time under registering property; depth of credit information index under getting credit' and recovery rate under the closing the business category. We check for the presence of second-order autocorrelation over identifying restrictions. The p values are above the threshold level and satisfy both of these conditions.

The dynamic panel estimators control for the potential concerns of endogeneity related to foreign aid. Yet, as part of our robustness analysis, we test our results with IV

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Table III.
System GMM specifications: impact of foreign aid on business regulation measures, interaction with TENSYS

	Starting a business			Registering property	Closing a business
	(1)	(2)	(3)	(4)	(5)
Independent variables	Procedures (numbers)	Time (days)	Min capita (% of income per capita)	Cost (% of property value)	Recovery rate (cents on the $)
Business climate measure (lagged)	0.954 (0.0451)***	1.007 (0.0722)***	0.619 (0.0173)***	0.988 (0.0192)***	0.530 (0.174)***
Aid (as % of GNI)	0.0405 (0.00424)***	0.530 (0.0621)***	1.991 (1.077)*	0.00776 (0.00550)	0.055 (0.046)
TENSYS	0.0232 (0.0143)	1.089 (0.280)***	13.65 (2.117)***	0.00159 (0.0266)	0.131 (0.157)
Aid × TENSYS	−0.00329 (0.00123)***	−0.0829 (0.0185)***	−0.797 (0.387)**	−0.00389 (0.00220)*	−0.011 (0.006)*
Year dummies	Yes	Yes	Yes	Yes	Yes
Constant	−0.425 (0.500)	−18.25 (5.522)***	−56.47 (30.16)*	0.0335 (0.339)	19.96 (7.08)***
Observations	259	259	259	211	259
Number of countries	57	57	57	57	57

Notes: Standard errors in parentheses; higher values of the dependent variable indicate a higher level of regulation (worse business climate). ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

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specifications using the efficient instruments identified in previous literature[3] on foreign aid (see Burnside and Dollar, 2000, 2004; Djankov *et al.*, 2006). The results are presented in Table IV. Our results remain robust to the IV specifications. Aid is positive and significant for the specifications in columns (1), (2), (3)[4], (8), and (10), implying the same conclusion – higher aid inflows are associated with a worse business climate.

Additionally, as a part of the robustness analysis, we check our results with the sub-sample of only SSA countries. The coefficient remains positive and significant for procedures, time, and cost (as percent of income per capita) under the starting a business category; time and cost (as percent of income per capita) under dealing with construction permits category; depth of credit information under getting credit; extent of director's liability index under the protecting investors category; cost (as percent of claim) under enforcing contracts; and finally, recovery rate and cost (percent of estate) under closing the business.

6. Conclusions and policy implications

The vast majority of poor countries, such as those in SSA, score very poorly on business climate measures. Improving the business climates of these countries is an important step toward improving their economic outcomes. These highly regulated economies suffer on many counts, but a key dimension is that these heavy-handed regulatory policies stand in the way of the true economic progress that could be unleashed by relaxing the rules and allowing the market discovery procedure to work through expanding private-sector entrepreneurship rates. These regulations suffer from knowledge problems that plague central planning and significantly distort domestic resource allocations and the dynamic improvement in their use to create wealth through time.

The current literature on foreign aid finds that it can indeed be counterproductive – solidifying dictatorships, increasing corruption, and decreasing broad measures of economic freedom through, for example, expansions in the size of government or deteriorations in the rule of the law. In our study, we focus specifically on the relationship between aid and domestic business regulations. Using a variety of measures, we find strong evidence that aid tends to worsen the business climates of these countries by leading to higher levels of regulation. We subject our empirical models to several robustness checks and estimation techniques, and our results remain consistent.

This finding likely helps to contribute to the explanation for why aid hampers overall economic growth. By degrading the business climate of a country, aid can lessen domestic wealth creation, entrepreneurship, and foreign investment. In essence, higher levels of top down, centrally planned aid lead to these countries following those same steps more heavily to regulate the domestic economy. This could be caused by aid weakening the incentive for domestic governments to care about their own source of tax revenue, in essence lowering the "tax revenue cost" of imposing higher regulations, but it may also be cause by aid causing domestic political actors to invest in building human capital in rent-seeking and central planning. We believe the largest effect is probably through the impact of aid weakening the reliance of government on tax revenue from domestic economic activity – leading to less interest in promoting wealth creation through the competitive market process. Whatever the linkage, higher levels of foreign aid harm domestic wealth creation in recipient countries by resulting in higher levels of government control over businesses through increased regulation – retarding the ability of domestic entrepreneurs to benefit from the true power of price signals, private contracting, and property rights. By weakening competition, creative

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Table IV.
IV specifications: impact of foreign aid on business regulation measures

Independent variables↓	Starting a business (1) Cost (% of income per capita)	Dealing with construction permits (2) Cost (% of income per capita)	Registering property (3) Procedures (number)	Getting credit (4) Depth of credit information index	Protecting investors (5) Extent of disclosure index	Enforcing contracts (8) Cost (% of claim)	Closing the business (9) Recovery rate cents on the dollar	(10) Cost (% of estate)
Aid (% of GNI)	11.43 (4.919)**	362.6 (109.8)***	0.0179 (0.0391)	0.0761 (0.0213)***	0.0870 (0.0412)**	1.718 (0.697)**	0.861 (0.345)***	0.417 (0.206)**
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4.639 (36.29)	−1192 (761.2)	6.503 (0.514)***	−3.4133 (0.320)***	−4.22 (0.314)***	27.66 (3.572)***	−19.79 (3.89)***	15.23 (1.592)***
Observations	321	224	272	276	228	320	320	261
Countries	58	57	58	58	58	58	58	46
Hansen J	$p = 0.35$	$p = 0.52$	$p = 0.10$	$p = 0.29$	$p = 0.10$	$p = 0.32$	$p = 0.56$	$p = 0.10$

Notes: Standard errors in parentheses; Robust standard errors are clustered by country; higher values of the dependent variable indicate a higher level of regulation (worse business climate). ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

destruction, and the market process, the higher domestic regulations linked to increased aid are yet another reason why foreign aid hampers the development of recipient countries. We do find evidence that this impact is the largest for countries with the worst political institutions, and the impact is lessened for the country having a strong democracy.

Notes

1. Other studies finding support for this hypothesis are Knack (2001, 2004), Bräutigam and Knack (2004), Rajan and Subramanian (2007a, b), Smith (2008), and de Mesquita and Smith (2009). Other studies have pointed to the worsening impact of aid with regard to its impact on economic growth (Boone, 1996; Svensson, 1999, 2000; Knack, 2001; Brumm, 2003; Ovaska, 2003; Djankov *et al.*, 2006) and on economic freedom (Dreher and Rupprecht, 2007; Knedlik and Kronthaler, 2007; Powell and Ryan, 2006).
2. We do find countries like Angola, Gabon, and Equatorial Guinea are relatively low ranked in spite of receiving relatively less aid.
3. The exogenous instruments considered are initial GDP, initial population, dummy for Sub-Saharan African countries, dummy for Egypt, and dummy for Franc Zone countries. Literature has also used a dummy for Central American countries, but we do not have these countries in our sample.
4. p value is 0.11.

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Appendix 1

List of SSA countries		List of MENA countries
Angola	Madagascar	Algeria
Benin	Malawi	Bahrain
Botswana	Mali	Djibouti
Burkina Faso	Mauritania	Egypt, Arab Republic
Burundi	Mauritius	Iran, Islamic Republic
Cameroon	Mozambique	Iraq
Cape Verde	Namibia	Jordan
Central African Republic	Niger	Kuwait
Chad	Nigeria	Lebanon
Comoros	Rwanda	Morocco
Congo, Democratic Republic	São Tomé and Principe	Oman
Congo, Republic	Senegal	Qatar
Côte d'Ivoire	Seychelles	Saudi Arabia
Equatorial Guinea	Sierra Leone	Syrian Arab Republic
Eritrea	South Africa	Tunisia
Ethiopia	Sudan	United Arab Emirates
Gabon	Swaziland	West Bank and Gaza
Gambia, the	Tanzania	Yemen, Republic
Ghana	Togo	
Guinea	Uganda	
Guinea-Bissau	Zambia	
Kenya	Zimbabwe	
Lesotho		
Liberia		

Table AI.
List of countries

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Appendix 2

Variable	Obs.	Mean	SD	Min.	Max.
Procedures (number)[1]	350	10.49	2.81	0.00	20.00
Time (days)[1]	350	51.22	40.99	0.00	259.00
Cost (% of income per capita)[1]	350	181.05	422.68	0.00	6,375.50
Min. capital[1]	350	348.73	703.50	0.00	5,111.90
Procedures (number)[2]	247	18.79	5.59	10.00	49.00
Time (days)[2]	247	229.31	129.06	57.00	1,012.00
Cost (% of income per capita)[2]	247	3,258.92	19,395.47	0.80	2,82,212.10
Procedures (number)[3]	297	6.56	2.64	1.00	18.00
Time (days)[3]	297	83.51	82.62	2.00	397.00
Cost (% of property value)[3]	297	10.25	6.72	0.00	30.80
Strength of legal rights index[4]	303	3.97	2.11	0.00	10.00
Depth of credit info. index[4]	303	1.48	1.58	0.00	6.00
Public registry[4]	280	1.86	4.23	0.00	23.40
Private bureau[4]	286	3.70	12.37	0.00	64.80
Disclosure index[5]	251	4.96	2.02	0.00	9.00
Director liability index[5]	251	3.50	2.38	1.00	8.00
Ease of shareholder index[5]	251	4.52	2.11	0.00	10.00
Strength of shareholder[5]	251	4.32	1.23	2.00	8.00
Payments (number)[6]	251	33.90	15.09	3.00	66.00
Time (hours)[6]	251	302.26	198.86	12.00	1,120.00
Total tax rate[6]	251	62.43	65.89	10.40	292.40
Docs (export)[7]	251	7.80	2.18	4.00	14.00
Time (export)[7]	251	33.51	17.13	9.00	102.00
Cost(export)[7]	251	1,513.28	950.57	462.00	5,367.00
Docs (import)[7]	251	8.96	2.69	1.00	20.00
Time (import)[7]	251	40.52	20.66	9.00	102.00
Cost (import)[1]	251	1,823.85	1,123.46	462.00	6,020.00
Procedures (number)[8]	349	40.68	5.81	24.00	55.00
Time (days)[8]	349	658.34	218.10	270.00	1,280.00
Cost (% of claim)[8]	349	43.17	33.08	13.50	151.80
Recovery rate[9]	349	18.84	15.49	0.00	63.20
Time (years)[9]	280	3.44	1.34	1.30	8.00
Cost (% of estate)[9]	280	18.43	12.32	1.00	76.00

Table AII.
Summary statistics for business regulation measures

Notes: The classification categories: (1) starting a business; (2) dealing with construction permits; (3) registering property; (4) getting credit; (5) protecting investors; (6) paying taxes; (7) trading across borders; (8) enforcing contracts; (9) closing a business

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