

**Matthias Busse, Ruth Hoekstra,  
and Robert Osei**

The Effectiveness of Aid in Improving Regulations –  
Empirical Evidence and the Drivers of Change in  
Rwanda



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Matthias Busse<sup>1, 2, \*</sup>, Ruth Hoekstra<sup>1</sup>, and Robert Osei<sup>3</sup>

<sup>1</sup> Ruhr-University Bochum, Germany

<sup>2</sup> Hamburg Institute of International Economics (HWWI), Germany

<sup>3</sup> Institute of Statistical, Social and Economic Research (ISSER), Ghana

**THE EFFECTIVENESS OF AID IN IMPROVING  
REGULATIONS – EMPIRICAL EVIDENCE AND THE  
DRIVERS OF CHANGE IN RWANDA**

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\* Corresponding author: Matthias Busse, Ruhr-University Bochum, Faculty of Management and Economics, Chair of International Economics, Universitaetsstr. 150, GC 3/145, 44780 Bochum, Germany, phone +49-234-32-22902, e-mail: matthias.busse@rub.de.

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© Institut für Entwicklungsforschung und Entwicklungspolitik  
der Ruhr-Universität Bochum  
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## **Abstract**

The paper assesses the impact of foreign aid on the change in the quality of regulations, and identifies the drivers of this change in a case study on Rwanda. In the empirical analysis, we find that highly targeted Aid for Business has a significantly positive impact on regulations across developing countries, but we do not find any effects for overall aid or aid directed at broad governance areas. In the country case study, we depart from Rwanda's excellent regulatory performance to explain how aid is effective in changing the regulatory environment, driven by the country's strong political leadership and its singular institutional history.

Keywords: Foreign Aid, Governance, Business Regulations, Rwanda

JEL Classification: F35, G28, L51, O55



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# 1 INTRODUCTION

Starting in the 1990s, it has been increasingly recognized around the world that governance matters for economic and social development – that institutions, rules and political processes play a major role in influencing whether economies grow, whether poverty is persistent, whether children attend school, and whether human development moves forward or backward (Engerman and Sokoloff 1997, Acemoglu et al. 2001, World Bank 2005).

Within the broad area of governance, one important dimension is the quality of regulations or economic freedom in general, as economically free nations have a higher average Gross Domestic Product (GDP) per capita than non-free economies (Djankov et al. 2006). Regulations refer to various forms of governance that are about steering the behavior of economic actors on labor, product and financial markets. These include, for example, hiring and firing regulations, market entry regulations or costs of compliance with regulations. Simple and transparent regulations lower transaction costs of the private sector, which then can operate more efficiently. Private investment is likely to increase and entrepreneurship is boosted, as a higher quality of regulations reduces the cost of doing business (World Bank 2004).

There is hardly any investment or business decision taken by firms that is not subject to some kind of regulation. Policy reforms in this area directly translate into improvements of the business environment, for instance when the number of documents needed to start a business is considerably reduced. As reforms to remove regulatory restraints are not very costly to implement, it is not surprising that developing countries have increasingly become interested in the subject in recent years (World Bank 2012a). Furthermore, since business regulations are quite important for economic development (De Haan et al. 2006), they will be the main focus of this paper.

While the importance of regulations is generally recognized, opinions differ on the drivers of change of improving the quality of regulations (or even governance more broadly) in a country. While some scholars believe in the importance of history, social norms or political factors, such as leadership, democracy and/or some form of state centralization (Acemoglu and Robinson 2012, De Haan and Sturm 2003, Easterly 2006), others identify the relevance of international trade (Acemoglu et al. 2005, Levchenko 2011) or the impact of reforms in neighboring countries (Gassebner et al. 2011) as determinants of the quality of regulations (governance).

Another potential driving force is foreign aid. This will be the key topic in this paper, that is, whether or not foreign aid can induce changes in the quality of regulations in developing countries, and *how* these changes are brought about in one specific country. In theory, foreign aid could release governments from binding revenue constraints and enable them to concentrate on enforcing the quality of regulations; also, it provides developing countries with much needed technical assistance in building effective institutions to improve regulations (Sachs 2005). On the other hand, due to moral hazard problems and rent seeking, high levels of aid could delay or block necessary domestic reforms to improve regulations (Bräutigam and Knack 2004, Heckelman and Knack 2008). Hence, the net impact of foreign aid on governance is unclear at the outset.



The empirical evidence linking aid and regulatory quality (or economic freedom in general) is rather mixed.<sup>1</sup> Among those studies focusing on the impact of aid on regulation, Kilby (2005) finds that development assistance improves regulation, employing instrumental variable methods (using population as an instrument for aid) on data for 71 aid receiving countries over 1970-1995. Coviello and Islam (2006), on the other hand, find that the level and changes in development assistance as percent of GDP have a negative effect on regulation from 1970-2000. When the authors account for time-invariant country-specific effects, this effect disappears.

Heckelman and Knack (2008) empirically analyze the impact of aid on market-liberalizing reforms, correcting for endogeneity by instrumenting for aid using initial levels of life expectancy, population and sectoral composition of the economy. Over the 1980-2000 period, their results show that economic freedom decreases with aid. However, when disaggregating economic freedom into its components, the coefficient for regulation becomes insignificant.

Also, Ear (2007) finds that Official Development Assistance (ODA) reduces regulatory quality and political stability from 1996-2004, using infant mortality as an instrument for aid. Boockmann and Dreher (2003) examine World Bank aid and find that credits have a negative impact, while the number of World Bank programs increase economic freedom. Dreher and Rupperecht (2007) do not find a robust (positive or negative) impact of aid on economic freedom. If at all, aid tends to worsen economic freedom, depending on the model specification and area of economic freedom. They do find a negative influence of International Monetary Fund programs on economic freedom, for instance.

The empirical studies to date analyze the impact of total ODA or merely distinguish the grant element of ODA, or the share of technical assistance, not taking into account that some forms of aid may be more effective than others, or that the heterogeneous aid sectors included in ODA might have diverging objectives. Since the data has become available only recently, no study has examined the impact of targeted aid to a specific sector on measures of governance quality in exactly that sector. We fill this gap in the empirical literature by examining the impact of business aid on regulatory quality in developing countries using panel data. Business aid is a narrow aid category concerned with supporting business associations, chambers of commerce, public-private sector networking, and reforms to improve the business and investment climate (OECD 2012). As our regulation indicator captures the extent to which restraints and bureaucratic hurdles influence the operation of the private sector in business, credit and labor markets, we can derive tangible results on the effectiveness of business aid. By applying the system Generalized Method of Moments (system-GMM) estimator (Blundell and Bond 1998), we control for the potential endogeneity of foreign aid. This is important as increases in regulatory freedom might be rewarded with increases in aid, implying reverse causality. Overall, we find that business aid has a highly significant, positive impact on regulations which is robust across different specifications and sample checks.

Having established a systematic link between business aid and regulations across countries, we go further to try and explain the drivers of change of regulatory reform. For this purpose we break down our findings and analyze one specific country. In terms of improvements in

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1 See Dreher and Gehring (2012) for an extensive literature survey on aid and economic freedom.

the quality of regulations, a star performer overtaking all other countries in the regulation index is Rwanda (Gwartney et al. 2012). The small landlocked country in East Africa has managed to achieve regulatory freedom in recent years and places a high emphasis on developing its private sector. Therefore, it lends itself well to a case study. We take Rwanda's above average regulatory performance as a starting point to complement our empirical study with an investigation of the determinants for the country's progress in this area. The cross-country results that (business) aid is a significant determinant of regulatory freedom can be confirmed for Rwanda. We explain how aid for the private sector is effective in changing the business environment, driven by strong political leadership and Rwanda's singular history.

The paper is organized as follows: Section 2 is devoted to the cross-country time-series empirical analysis. After introducing the research design, including the methodology, the variables and sample used, the empirical results are presented. In addition, the results for various robustness checks are displayed. Section 3 embraces the country case study on Rwanda. After briefly introducing the regulatory reforms that were carried out, we analyze the drivers of regulatory change in that country. The paper concludes in Section 4 and gives some policy implications derived from both the empirical and anecdotal evidence.

## 2 AID AND REGULATIONS: EMPIRICAL EVIDENCE

### 2.1 Research Design

As a measure for the quality of business regulations for our dependent variable, we rely on the regulation component of a detailed set of economic freedom indicators compiled by the Fraser Institute. In their annual report *Economic Freedom of the World* (Gwartney et al. 2012), they provide extensive data on different dimensions of economic freedom. More than forty variables are employed to construct an overall summary index as well as to measure the degree of economic freedom in five broad areas: the size of government, the legal structure and property rights, access to sound money, freedom to trade internationally, and regulation of credit, labor and business.<sup>2</sup>

The fifth indicator, regulation, will be used in this study as a proxy for the quality of business regulations.<sup>3</sup> This indicator includes a broad range of subjective and objective sub-indicators for regulations that affect firms in various forms in labor, product and credit markets, for example, hiring regulations and minimum wages, mandated costs of worker dismissal, market entry barriers, licensing restrictions, bureaucracy costs, or administrative requirements, which is based on whether complying with permits or regulations issued by the government is burdensome or not. All of these regulations are highly relevant for private sector development. The overall regulation indicator ranges from 1 (low) to 10 (high quality regulations). Higher scores reflect less burdensome administrative hurdles for firms and imply a better, more business-friendly governance. For example, countries with higher difficulty of hiring are given lower ratings, while countries are ranked higher when the work-week can extend to 50 hours or more temporarily, or if annual paid vacation is 21 working days or fewer.

We use changes in the indicator as we are primarily interested in the drivers of change in regulations rather than the determinants of levels of regulatory quality. The variable is labeled *RegulationChange*. While we would have preferred to use a longer time series, the analysis has to be restricted to the period 2002 to 2009. Before 2002, no information on the disaggregated aid variables is available. That leaves us with eight annual observations and a sample of 77 countries for which we obtained sufficient data.<sup>4</sup>

To find out what drives changes in regulations, we include a broad set of independent variables. As mentioned before, our main interest is to investigate the influence of foreign aid on changes in regulatory quality. We use three different aid variables. The first one, labeled *AidTotal*, refers to the total amount of ODA a country receives.<sup>5</sup> By employing this variable, we both investigate the impact total aid has and replicate the research design of previous studies. All aid measures are normalized by using logs (e.g.,  $\ln AidTotal$ ) and, in

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2 Another source for information on regulatory quality is provided by the Heritage Foundation (Miller and Holmes 2012). While their indicator “Regulatory Efficiency” is fairly similar to the one published by the Fraser Institute, the latter includes slightly more information on the different dimensions of business regulations.

3 We use the chain-linked version of the indicator to ensure comparability over time.

4 See Appendix C for the country sample.

5 For all aid variables, we use disbursements and constant (2010) US dollars. Data sources and descriptive statistics can be found in Appendices A and B.

addition, by dividing by GDP (then labeled *AidTotalGDP*). This approach ensures that we perform a first robustness check using aid variables with different normalizations. For more disaggregated aid categories, it can also be argued that the total amount of aid matters for its effectiveness. Projects aimed at changing the regulatory framework might need a certain size to be effective.

Following this, we disaggregate aid by sector to examine possible differences in its impact on regulatory reform. As the second aid variable set, we use ODA provided for government and civil society (*AidGovernment* and *AidGovernmentGDP*), which includes, among others, financial and technical assistance for public sector policy and administration, decentralization and support to subnational government, anti-corruption organizations and institutions, legal and judicial development, democratic participation and civil society, elections, legislatures and political parties, media and free flow of information, human rights, and women's equality organizations and institutions. While *AidGovernment* is a much more specific aid category than total ODA, it nevertheless is relatively broad in terms of coverage of the different governance areas, and mainly concerned with legal and participatory political issues. Between 2002 and 2009, donors' total aid for government and civil society amounted on average to around USD 86.8 million per year, a share of around 10.3 percent of total ODA (OECD 2012).

Finally, the most detailed aid category concerning its thematic coverage is ODA for business and other services (*AidBusiness* and *AidBusinessGDP*) which includes support to trade and business associations or chambers of commerce, legal and regulatory reform aimed at improving the business and investment climate, and private sector institution capacity building and advice. It is a quite narrow category that received around USD 8.6 million in annual aid disbursements on average over 2002-2009, which amounts to a share of one percent of total ODA (OECD 2012). We argue that this is the most appropriate aid indicator for measuring the impact of aid on improvements in the quality of regulations because it is directly concerned with business-related aspects of governance. Furthermore, it is categorized as belonging to "Building Productive Capacity", an aid area targeted at investments in industries and sectors to allow countries to diversify production and exports.<sup>6</sup> Accordingly, this is the main aid variable of interest in the empirical analysis.

In addition to these aid variables, we include a set of further control variables that are likely to influence changes in the quality of regulations:

- *RegulationLevel* stands for the level of regulations in the previous period. The level is likely to have an impact on changes in regulations, as the scope for improvements decreases with better regulations (and higher scores for that variable). Hence, we expect a negative impact on changes in regulations.
- *GDPpc* stands for the real income per capita, using GDP in constant US Dollars. Citizens living in countries with higher income levels have strong preferences for better governance and thus regulatory quality. At the same time, richer countries have the financial resources to improve government regulations (Jütting 2003). We thus expect a

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6 This broad aid category is one of the major Aid for Trade categories to help developing countries trade by addressing supply-side and trade-related obstacles. These constraints do not only affect international trade, but also the ability of the private sector to engage in productive activities in general.

positive impact of income per capita on changes in regulations. Correspondingly to the aid variables, we take the natural logarithm of income per capita.

- *TradeGDP* is defined as the sum of total exports and imports of a country divided by its GDP. From a theoretical perspective, there are two main channels through which openness to trade could affect regulatory quality (governance) in a positive way: Firstly, economic agents in open economies may learn from the experience in their trading partners' countries by adapting (or imitating) successful regulations; secondly, international competition may force countries to improve their regulatory setting as domestic producers would go out of business without reforms (Acemoglu et al. 2005, Gassebner et al. 2011, Levchenko 2011).
- *Population* acts as a proxy for the country size and refers to the total number of people. It might be easier for a larger country to push through necessary reforms or required rules to improve regulations, since it possesses a critical financial mass. Yet bigger countries might face more information asymmetry problems, higher transaction costs, and/or more intensive ethnical conflicts, which could impede improvements in regulations. Therefore, the sign of this control variable is unclear. We take the natural logarithm of population to reduce the skewness in the data.
- Democracy is an indicator of democratic rights in a country, ranging from 0 (no democracy) to +10 (strongly democratic). Democracy might have a positive impact because an independent judiciary is necessary for (regulatory) liberalization; secure property rights depend on political rights, and dispersed political power limits political rent-seeking and is conducive to contestability and competition (De Haan and Sturm 2003). On the other hand, democracy can make it harder for a government to enforce necessary changes which are unpopular because of the costs incurred in the short term and the uncertainty of positive long-term effects, and vested interests and their rent-seeking activities might increase inefficiencies and delays in the decision-making process. There can be a trade-off between a democratic society and changes in regulatory governance, because changes in regulations discriminate against certain groups, making it more difficult to implement reforms (De Haan et al. 2006). Therefore, we expect Democracy to have an ambiguous impact on RegulationChange.

Apart from the population size and the political regime, all independent variables are likely to be endogenous, that is, they have an impact on changes in the quality of regulations but they are influenced by *RegulationChange*, too. Above all, various studies have shown that better regulations will lead to enhanced income per capita or more international trade (Jütting 2003, World Bank 2005, Djankov et al. 2006). Obviously, the same applies to foreign aid as countries that have had a strong track record in regulatory reforms might receive more aid. This calls for an appropriate instrumental variable approach. We use system-GMM estimations (Blundell and Bond 1998) that allow us to analyze changes across countries and over time (panel analysis), while effectively dealing with reverse causality by using lagged levels and differences as a set of instruments for the endogenous variables.

To obtain the model specification, we begin with a relatively simple model specification in levels:

$$(1) \quad \text{Regulation Level}_{it} = \alpha_i + \beta_1 \text{Aid}_{it-1} + \gamma' X_{it-1} + \lambda_t + \varepsilon_{it}$$

where  $RegulationLevel_{it}$  stands for the level of business regulations in country  $i$  in period  $t$ ,  $\alpha_i$  is the country fixed effect,  $Aid_{it}$  represents the three different aid variables (as explained above),  $X_{it}$  denotes the set of control variables,  $\lambda_t$  is a set of time dummies which is supposed to capture period specific effects, and  $\varepsilon_{it}$  stands for the error term. We use lagged observations for all independent variables as the impact on the quality of regulations is likely to involve some time lags.

We then subtract the lagged level of regulatory quality ( $RegulationLevel_{it-1}$ ) from both sides, which yields:

$$(2) \quad RegulationChange_{it} = \alpha_i + \beta_1 RegulationLevel_{it-1} + \beta_2 Aid_{it-1} + \gamma' X_{it-1} + \lambda_t + \varepsilon_{it}$$

where  $RegulationChange_{it}$  stands for the change in the level of business regulations in country  $i$  from period  $t-1$  to period  $t$ .

The consistency of the system-GMM estimator requires a lack of second-order serial correlation in the residuals. The regression statistics, reported at the bottom of each regression output table, show that there is no second-order serial correlation, as the null-hypothesis is always rejected.<sup>7</sup> To test the appropriateness of the instruments used, we report the results of a Hansen test of over-identifying restrictions in all tables. The  $J$ -statistics show that the applied instruments are valid.

## 2.2 Empirical Results

Following the introduction of the variables and the econometric method used, we now turn to the empirical results. In all regressions, we incorporate the above introduced control variables. We then add each of the three aid variables separately. We begin with the first set of aid variables, that is,  $AidTotal$  and  $AidTotalGDP$ , reported in columns 1 and 2 in Table 1. In line with the results of some earlier studies, we do not find a significant impact of total aid on changes in regulatory quality. The total ODA variables are either positive or negative, but do not reach conventional threshold levels in terms of statistical significance.

Concerning our control variables, we find that the level of regulation in the previous period ( $RegulationLevel_{t-1}$ ) has a negative influence on changes in regulations from the previous to the current period. This is in line with our expectation as countries that start off with better government regulations have less room for improvements. In terms of the regulation indicator, this implies that, for example, increasing the score from 3.5 to 4 is easier than from 8.5 to 9, as regulations are of high quality in the latter case already, and further improvements are more difficult.

The two other drivers of change in regulations (with a significant and positive impact) are the size of the country ( $Population$ ) and openness to trade ( $TradeGDP$ ). However, that outcome is not robust when we include our different aid variables (columns 2 to 6). Throughout all six regressions,  $Democracy$  never has a statistically significant impact on

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<sup>7</sup> First-order autocorrelation of the residuals is always rejected by another Arellano-Bond test.

*RegulationChange*. The performance of the control variables has to be seen in light of the research design. Since we use annual changes in the regulation indicator, a stronger performance of the control variables (in terms of statistical significance) can hardly be expected.

Next, we use *AidGovernment* to see whether aid provided to improve different areas of government and civil society has an impact on regulatory reforms. Again, we do not find any significant impact on changes in regulations (columns 3 and 4).<sup>8</sup> Arguably this aid category deals with aspects of governance that are not directly related to regulatory factors enhancing the freedom of exchange for business, but rather concern the (political) organization of the government itself. Also, *AidGovernment* might still be too broad, i.e. contain too many diverse measures to have any specific impact on changes in business regulations. We thus turn to the third and most specific aid indicator (*AidBusiness*). For *AidBusiness* in logs, we obtain a positive and significant coefficient at the 10 percent level (column 5). For the second variable, *AidBusinessGDP*, the significance level even reaches the 1 percent level (column 6).

In addition to being statistically significant, targeted Aid for Business is of economic relevance for changes in regulations, too. Taking the estimated coefficient for *AidBusiness* in column 5 at face value, a small increase in the amount of aid by one percent improves the score for regulatory quality by 0.034. Though this effect appears to be rather small, it is equal to an increase in the regulations indicator of some 34 percent at the mean.<sup>9</sup> Highly targeted Aid for Business thus is an important driver of change for the quality of regulations.

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8 For the more disaggregated aid variables (*AidGovernment* and *AidBusiness*) we always include residual aid flows, that is, total aid minus the specific aid category. In column 3, for example, we compute and add  $\ln(\text{AidTotal} - \text{AidGovernment})$  to the regression.

9 The mean of *RegulationChange* is 0.10.

Tab. 1: Aid and Business Regulations, Benchmark Results

Independent variables	Dependent variable: RegulationChange					
	(1)	(2)	(3)	(4)	(5)	(6)
RegulationLevel	-0.0634***	-0.0444**	-0.0594**	-0.0483**	-0.0731***	-0.0426**
	(-2.713)	(-2.306)	(-2.502)	(-2.425)	(-2.958)	(-2.403)
ln GDPpc	-0.0224	-0.00899	-0.0344	-0.0102	0.00680	0.0221
	(-0.677)	(-0.254)	(-0.923)	(-0.229)	(0.193)	(0.635)
TradeGDP	0.0035*	0.0021	0.0024	0.00074	0.0030*	0.00077
	(1.868)	(1.266)	(1.357)	(0.397)	(1.734)	(0.495)
ln Population	0.0395*	0.0207	0.0341	0.00724	0.0106	0.0155
	(1.736)	(1.232)	(1.330)	(0.291)	(0.512)	(0.886)
Democracy	0.0014	0.0010	0.0071	-0.00041	0.00012	-0.0044
	(0.289)	(0.200)	(1.181)	(-0.0874)	(0.0145)	(-0.926)
ln AidTotal	-0.0197			-0.116	0.0609	
	(-0.745)			(-1.313)	(0.614)	
AidTotalGDP		0.0241				
		(0.195)				
ln AidGovernment			-0.0444			
			(-1.540)			
AidGovernmentGDP				-1.547		
				(-0.381)		
ln AidBusiness					0.0336*	
					(1.922)	
AidBusinessGDP						40.39***
						(2.822)
Residual aid flows (total aid minus specific aid category)			0.0177	0.0382	0.00454	0.0183
			(0.532)	(0.310)	(0.118)	(0.141)
Observations	509	509	509	509	470	474
Countries	77	77	77	77	75	75
Hansen Test (p-value) <sup>1</sup>	0.90	0.80	0.64	0.65	0.64	0.45
Instruments	48	48	46	46	46	46
AB 2 (p-value) <sup>2</sup>	0.74	0.64	0.74	0.57	0.95	0.93

Notes: Significance at the 10, 5, and 1 percent level is denoted by \*, \*\*, and \*\*\*, respectively. Estimation based on two-step system-GMM estimator with robust standard errors; corresponding z-values are reported in parentheses. Constant terms and time dummies are always included but not reported. All independent variables are lagged by one period (t-1).

<sup>1</sup> Hansen-test of overidentification.

<sup>2</sup> Arellano-Bond-test that second-order autocorrelation in residuals is 0; first-order autocorrelation is always rejected (not reported).



After presenting the main empirical results, we display the outcome of a number of robustness checks to examine whether the positive effect we find holds for different model specifications and samples. We only use the two *AidBusiness* variables in the following, since targeted aid is the main focus of this paper and we have not obtained any significant results for the other two aid variables.

We begin with a reduction of the number of instruments. As we use lagged levels and lagged differences, the number of instruments can be quite large in system-GMM estimations. Yet too many instruments can overfit endogenous variables and fail to expunge their endogenous components. Moreover, it also weakens the power of the Hansen test to detect overidentification. Even though we have kept the number of instruments below the number of observations (countries) so far, we reduce them further by using the collapse option in STATA. In this way, the instrument set is minimized into a single column, since it generates a single moment condition. The results, reported in columns 1 and 2 in Table 2, indicate that neither the size nor the significance is much affected reducing the number of instruments.

Second, we exclude outliers that have received either large amounts of or very little business aid. If we exclude the top two and the bottom two aid recipients (top/bottom 2.5 percent in our sample), the outcome is even better in terms of statistical significance (1 percent level for both *AidBusiness* variables), as reported in columns 3 and 4.<sup>10</sup> The result is – again – very similar if we exclude the top four and bottom four recipients of business aid (columns 5 and 6).

Then, we exclude the three countries in the sample that are no longer considered as developing countries as of 2010 (Bahrain, Croatia, and Trinidad and Tobago). These countries have received (business) aid in the period 2002-2009, but might differ from the other countries as they have achieved a higher level of development (in terms of real income per capita). Once more, the result is fairly similar to the full sample of countries (columns 7 and 8).

Finally, we use two additional control variables. Since we use changes in regulations as our dependent variable but levels for real income and the political regime as controls, it can be argued that we should use changes in these variables over time, too. We do so by employing *GDPgrowth* as the annual real per capita growth rate of GDP and *DemocracyChange* as the annual change in the political regime variable. We use both variables in addition to the respective level variables. The results for the two business aid variables are hardly affected (columns 9 and 10).<sup>11</sup> Summing up our results from the empirical part, we find a positive, significant and robust impact of highly targeted Aid for Business on changes in the quality of regulations.

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10 The top business aid recipients are Bangladesh and Pakistan, whereas the bottom two countries are Oman and the Central African Republic.

11 We also include changes in the population indicator, but this does not affect the results either.

Tab. 2: Aid and Business Regulations, Robustness Checks

Independent variables	Dependent variable: RegulationChange									
	Collapse option for instruments		Excluding top/bottom 2.5% outliers <sup>1</sup>		Excluding top/bottom 5% outliers <sup>2</sup>		Developing countries in 2010 only		Additional control variables	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
RegulationLevel	-0.0668*	-0.0490	-0.0746***	-0.0372*	-0.0532**	-0.0341**	-0.0783***	-0.0427**	-0.0741***	-0.0459**
	(-1.796)	(-1.629)	(-3.254)	(-1.954)	(-2.572)	(-1.975)	(-3.526)	(-2.101)	(-2.986)	(-2.107)
ln GDPpc	0.0486	-0.00273	-0.00721	0.0158	0.00269	0.0182	0.00339	0.0235	0.00356	0.0145
	(0.671)	(-0.0451)	(-0.234)	(0.388)	(0.0643)	(0.396)	(0.100)	(0.587)	(0.100)	(0.547)
TradeGDP	0.0016	0.0031	0.0029*	0.00058	0.0017	0.00062	0.0036**	0.00091	0.0027*	0.0016
	(0.380)	(1.021)	(1.726)	(0.318)	(0.960)	(0.324)	(2.327)	(0.492)	(1.793)	(1.385)
ln Population	0.0191	0.0431	0.00583	0.0125	-0.00473	0.0127	0.00443	0.0172	0.00518	0.0225
	(0.421)	(1.535)	(0.251)	(0.701)	(-0.194)	(0.689)	(0.193)	(0.841)	(0.292)	(1.363)
Democracy	-0.0060	0.00033	0.0012	-0.0036	-0.00027	-0.0027	0.0038	-0.0031	-0.0032	-0.0026
	(-0.677)	(0.0568)	(0.140)	(-0.492)	(-0.0300)	(-0.339)	(0.480)	(-0.494)	(-0.381)	(-0.661)
ln AidBusiness	0.0306**		0.0427***		0.0344**		0.0374**		0.0382**	
	(2.263)		(3.383)		(2.236)		(2.265)		(2.213)	
AidBusinessGDP		44.23**		37.20***		38.14***		42.64***		40.66***
		(2.056)		(2.799)		(2.967)		(3.107)		(2.879)
GDPgrowth									0.000485	0.00150
									(0.109)	(0.429)
DemocracyChange									-0.00432	-0.00284
									(-0.470)	(-0.274)
Residual aid flows (total aid minus specific aid category)	-0.0377	0.116	0.0102	0.0181	0.0130	0.0300	0.0225	0.0211	-0.0107	0.0408
	(-1.101)	(0.884)	(0.316)	(0.133)	(0.283)	(0.205)	(0.706)	(0.161)	(-0.312)	(0.406)
Observations	470	474	447	450	428	429	457	461	470	474
Countries	75	75	71	71	67	67	72	72	75	75
Hansen Test (p-value)	0.61	0.48	0.78	0.40	0.48	0.36	0.76	0.49	0.50	0.49
Instruments	28	28	46	46	46	46	46	46	58	58
AB 2 (p-value)	0.88	0.95	0.95	0.94	0.93	0.98	0.96	0.99	0.94	0.92

Notes: See Table 1; significance at the 10, 5, and 1 percent level is denoted by \*, \*\*, and \*\*\*, respectively. <sup>1</sup>Top two countries: Bangladesh and Pakistan; bottom two countries: Oman and Central African Republic. <sup>2</sup>Top four countries: Bangladesh, Pakistan, Ghana, and Egypt; bottom four countries: Oman, Central African Republic, Trinidad and Tobago, and Chad.

### 3 AID AND REGULATIONS: CASE STUDY RWANDA

Looking at the change in regulations over 2002-2009 in relation to the amount of *AidBusiness* the countries in our sample have received over the same period (Figure 1), we observe that one country is a prominent upward outlier to the general positive pattern: Rwanda. It has received above-average aid for business since 2002,<sup>12</sup> but relative to the amount of aid received, it has achieved outstanding economic regulatory reform, having improved its regulatory freedom index value from 6.25 in 2002 to 8.31 in 2009.<sup>13</sup>

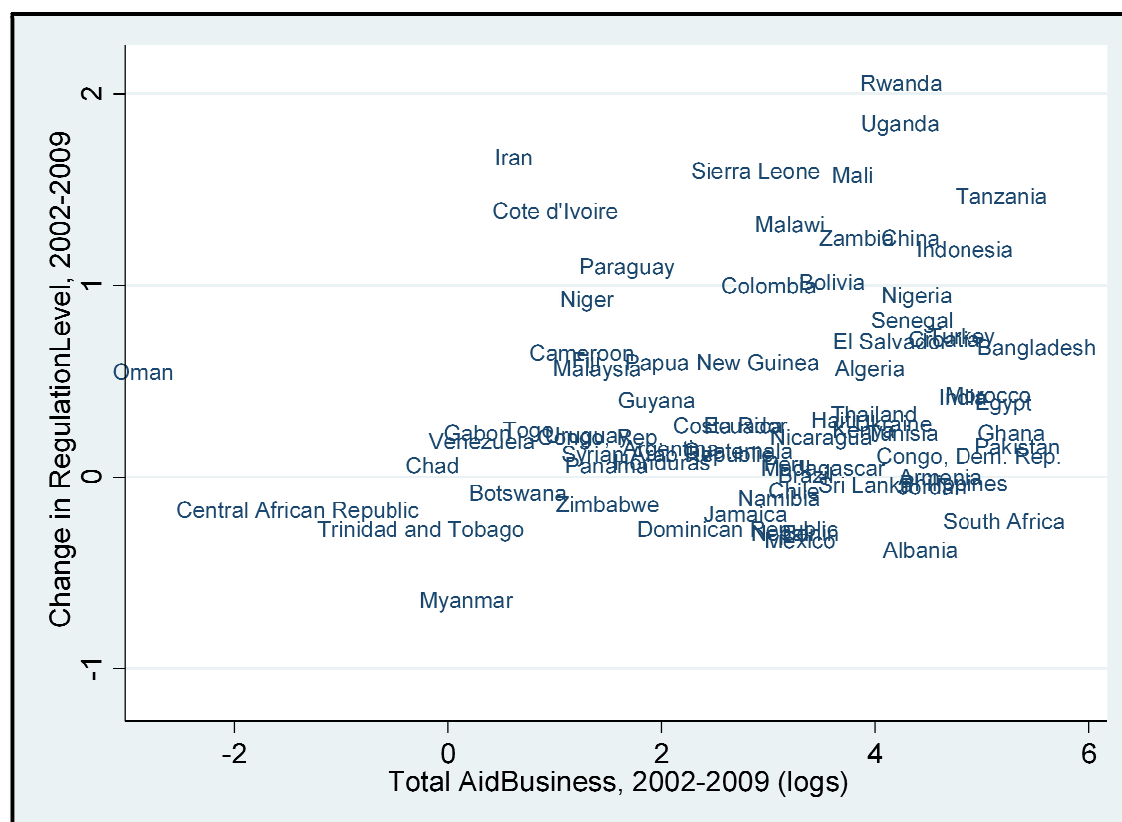


Fig. 1: Change in Regulations and Aid for Business

Note: Figures refer to the total change in *RegulationLevel* and the total amount of *AidBusiness* received over the entire period 2002 to 2009.

The country would not suggest itself for being a regulatory showcase at first sight as it is confronted with major challenges concerning its development. It is a highly import-dependent landlocked country with the highest population density in sub-Saharan Africa. With a per capita income of USD 570 in 2011 (World Bank 2012b), it is one of the poorest least developed countries. After decades of ethnic tensions, the genocide of 1994 killed an

<sup>12</sup> Rwanda's total *AidBusiness* in logs over 2002-2009 is 4.22, compared to the country average of 2.84.

<sup>13</sup> Rwanda ranks 5th in the regulations indicator, ahead of the United States (rank 17) and even Canada (rank 6), and surpassing the other member countries of the East African Community Burundi, Kenya, Uganda and Tanzania by far (Gwartney et al. 2012).

estimated 500,000-800,000 Tutsis and moderate Hutus (Des Forges 1999), led to a breakdown of the economy and human capital base, impoverished most, destroyed the country's institutions and infrastructure, and left the Rwandan society highly traumatized.

Since then, the Government of Rwanda has put considerable effort into rebuilding the economy, which includes macroeconomic stabilization, privatization of state enterprises, building up human resources, and re-building infrastructure and the economic and financial institutions (Investment Climate Advisory Services 2010). The vision of Rwanda is to transform itself into a knowledge-based middle-income economy by 2020, stated in its *Vision 2020* (Republic of Rwanda 2000), and the country is making progress, albeit from a very low level, with its economic transformation still in the fledging stages.

Economic development is seen as a means to fight ethnic tensions and achieve national unity as the “traumatic divisions of the past are healed in the melting pot of commercial activity and burgeoning employment” (Kagame 2007, p. 4). Rwanda has achieved an average annual GDP per capita growth rate of 4.7 percent over 2002-2009, compared to the East African Community average of 3.2 and sub-Saharan African average growth of 2.3 percent per capita over the same period (World Bank 2012b). It has made significant progress in stabilizing its economy and creating economic opportunities by improving its public management, the business environment, and developing the rural sector (Mo Ibrahim Foundation 2012).

### 3.1 Regulatory Reforms

In 2001, the Government of Rwanda started to actively pursue business reforms, which have focused on a complete revision and restructuring of the legal, administrative and regulatory framework based on international “best practice” and on fighting corruption. In 2005, the government created a law reform commission to review and harmonize existing business laws and regulations. Since then, at least 26 business regulation reforms have been implemented (World Bank 2012a). The government has set up a large public investment program mainly financed by donors aimed at reducing the costs of doing business in Rwanda in order to generate employment and exports. During the whole process, the Government of Rwanda has maintained significant control over its economic liberalization and modernization policy agenda. Its second Poverty Reduction Strategy in 2007 was relabeled the Economic Development and Poverty Reduction Strategy (Republic of Rwanda 2007) and aligned with Rwanda's *Vision 2020*, aiming at enhancing Rwanda's reputation as a country with a regional comparative advantage in “soft infrastructure”,

“[...] through implementing the commercial justice, business and land registration programmes, improving economic freedom, improving the regulatory and licensing environment for doing business, and promoting principles of modern corporate governance” (Republic of Rwanda 2007).

The main laws relevant to the investment climate in Rwanda which have been reformed are the company law, the investment law, the law on privatization and public investment,

the land law and the law on protection and conservation of the environment (Bureau of Economic and Business Affairs 2011). In addition to the legal changes, reams of administrative and regulatory reforms have been carried out.

To ameliorate contract enforcement, the government created a Business Law Reform Cell which reviewed 14 commercial laws in 2005 and established the Rwanda Commercial Registration Agency<sup>14</sup> in 2007. In 2008, the Rwanda Development Board was set up by merging eight existing government agencies into one to streamline and facilitate investment in the country. In the same year, lower commercial courts were established and the transfer of property was facilitated by eliminating mortgage registration fees and shifting from a six percent transfer tax to a flat rate. In 2009, the regulatory process was overhauled with a new insolvency law, arbitration law, intellectual property law and a company law.<sup>15</sup> The Government of Rwanda created a one stop center for construction permits in 2010, and decentralized the Office of the Registrar and Land Titles, which is needed to transfer property as part of the business registration process, to eliminate the backlog of cases in Kigali (World Bank 2012a).

As more than half of the population does not have access to credit at all (World Bank 2012c), the public registry expanded its database of financial institutions and improved the content of the credit reporting system in 2005, and started covering loans of all sizes in 2009. In the same year, a new secured transactions law was implemented, permitting for a wider range of assets to be used as collateral and authorizing out-of-court enforcement proceedings. The distribution of information from credit bureaus was newly regulated in 2010, leading to the creation of the first private credit bureau where credit information issues are centralized (World Bank 2012c).

Rwanda's banking system is mostly privatized; however, opportunities to obtain credit are still partly limited due to state control over bank matters (Bertelsmann Stiftung 2012). The credit market is characterized by a few large banks and many semi-transparent government-led community micro finance institutions which ought to increase the access to financial services in rural areas (IMF 2012). The country's financial architecture is deepening, quite recently brought about by institutions from the East African Community opening offices in Rwanda and increasing financial services growth to 20.4 percent in 2011 (World Bank 2012c).

The labor market can be considered to be moderately free with flexible labor regulations conducive to creating new job opportunities, however it is relatively small and has yet to develop (Miller and Holmes 2012). Some of the hiring and firing procedures and the organization of work determined by the labor code in 2001 were criticized as being too rigid considering the small share of formal employment as a share of the total work force (UNCTAD 2006), and were subsequently addressed by labor reforms in 2004 and 2009.

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14 The Rwanda Commercial Registration Agency was renamed to Office of the Registrar General and is now merged with the Rwanda Development Board.

15 With the new company law, entrepreneurs can use standard forms instead of notaries to start a business, an online system for publishing registration notice replaced requirement for physical publication, and a one-stop shop streamlined business registration by reducing the number of interactions required from nine to two. Several new approaches were incorporated, like minority shareholder rights and extensive corporate disclosure (Bureau of Economic and Business Affairs 2012, World Bank 2012a).

Regulatory processes have been revised, but still suffer from excessive bureaucratic obstacles and lower public administration levels with little understanding of private sector needs (Republic of Rwanda 2007). The private sector in Rwanda is quite small yet, with limited free market initiative. In a recent survey on 30 companies that have invested in Rwanda (UNCTAD 2012), almost none of them report problems with registering their company, but more than half of them faced implementation and operational hurdles afterwards. The Rwanda Development Board is considered to be successful in attracting investment and registration procedures, but less so in offering competent services and investment after care (UNCTAD 2012).

After having put much effort in enacting reforms and thus improving *de jure* realities, making Rwanda a success story in the regulation rankings, the government needs to make sure to enforce and implement them in a next step. It has recognized that reforms show an uneven degree of progress, and is constantly aligning them to better reflect business priorities, raising awareness of corporate governance issues, and actively pursuing the more difficult reforms, with effects expected to materialize in the future (Investment Climate Advisory Services 2010). The reform process is continuing with reforms on tax payment processes and additional laws on insolvency, arbitration and competition, for instance (Bureau of Economic and Business Affairs 2012). Considering that 90 percent of firms across developing countries report gaps between formal regulations and what happens in practice (World Bank 2004), Rwanda has markedly improved its business environment. In addition, it has achieved a low incidence of corruption.<sup>16</sup>

### 3.2 Drivers of Change

How can Rwanda's progress and its regulatory changes be explained? We focus on *why* Rwanda has achieved remarkable economic freedom in its regulatory governance. We identify three major drivers of change in Rwanda: the effective use of aid, which is driven by the country's strong political leadership and its singular institutional history.

Rwanda is highly dependent on financial and technical resources from donor agencies, with more than 40 percent of government funds financed by donors (IMF 2012). The World Bank's International Development Association (IDA), the African Development Bank and the United States are the three biggest donors in Rwanda over 2002-2009, followed by the European Union institutions and the United Kingdom (OECD 2012). Concerning specific Aid for Business, 79 percent of all flows to Rwanda are disbursed by IDA over 2002-2009. Another 14 percent is financed by Germany and 3.3 percent by the Netherlands (OECD 2012). Aid for business is about one percent of total ODA to Rwanda over 2002-2009 (OECD 2012).

The World Bank's technical assistance focuses on supporting the Government of Rwanda in its effort to improve the investment climate. Two major programs stand out: The Competitiveness and Enterprise Development Project from 2001 to 2011 which was mainly concerned with business and financial sector reforms, and the Rwanda Investment Climate Reform Program which was initiated through the World Bank's

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<sup>16</sup> Bribery levels are exceptionally low ranking Rwanda 4th in sub-Saharan Africa behind Botswana, Cape Verde and Mauritius and 50th of 174 countries worldwide (Transparency International 2012).

Investment Climate Advisory Services in 2007 and entered in its second phase in 2011 (World Bank 2012a). Some of the major business programs include Germany's project on the promotion of the economy and employment (co-funded by the Netherlands), which comprises support for the business environment, skills development and the labor market from 2004-2013; the United Kingdom's Access to Finance Rwanda project (co-financed by Germany and the World Bank), established as a not-for-profit company supporting the development of the financial sector from 2010-2013; and the United States' private sector programs concentrating in agriculture (e.g., the Rwanda Dairy Competitiveness Project), tourism and youth development (DFID 2010, GIZ 2012, USAID 2012).

Changes in regulations are not very costly to implement (compared to building infrastructure, for instance) but rather need targeted assistance for reforms combined with a coordinated aid architecture on the partner country side. So far, Rwanda has managed aid flows well by directing them towards productive public investment and public services, thus mitigating the risks of heavy reliance on grant financing and potentially prioritizing the country in receiving future funding (World Bank 2012c).

Aid effectiveness is not only considered to be higher with solid aid management, but also when partner countries are strongly committed to the policy agenda. Rwanda's ownership of its development programs is considered to be strong as the country can exercise effective leadership despite its high aid dependence. In 2005, Rwanda centralized control over its aid policy in the External Finance Unit of the Ministry of Finance and Economic Planning and introduced several mechanisms for improving the harmonization of aid and the alignment of donors with national strategies (Hayman 2009). For example, the Government of Rwanda assesses donors annually on their commitments, and has implemented the Donor Division of Labor, which foresees a maximum of three sectors per donor (Republic of Rwanda 2010), implying that donors are pre-assigned to sectors, rendering inter-ministerial competition for funds obsolete.

The changes have led to improvements in aid effectiveness, as measured by several indicators in the OECD's 2010 Aid Effectiveness survey (OECD 2011). For example, together with Tanzania, Rwanda is the most successful country in establishing an operational development strategy. It has furthermore improved the reliability of its public financial management system, and the number of donors' parallel implementation structures within the country has almost been halved since 2005 (OECD 2011). This has increased Rwanda's control and accountability of aid funded activities. As Fraser and Whitfield (2008) assess, the country's unusual strong position vis-à-vis donors comes from its complicated relations with its former main donors like France and Belgium after the 1994 Genocide, the strategic use of its authority as being the one having stopped the genocide, and from Rwanda's reorientation towards new donors who firmly support market liberalizing ideas (the United States and the United Kingdom).<sup>17</sup>

Concerning regulatory reform objectives, aid spending is in line with donor priorities to a large extent, which further enhances the effective use of aid. Donors' disbursement of budget aid is linked to improvements in the popular World Bank's Doing Business Indicator as a benchmark for an enhanced business climate. Contributions to the

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<sup>17</sup> For a critical assessment of Rwanda's technocratic governance, the silencing of critics and how the government exploits the "genocide credit", see Reyntjes (2011).

government budget stand at a crucial 22.4 percent of total sector allocable aid over 2002-2009 (OECD 2012). Climbing up the rankings can be seen a means to secure donor budget financing.<sup>18</sup> It also enhances the tangibility of aid effectiveness – for instance, Rwanda was top reformer worldwide in 2009 (World Bank 2009). Donors' impact appears to go beyond country-specific aid flows and technical assistance as they propagate their ideas of market-oriented reforms around the world (Heckelman and Knack 2008) – and Rwanda is (partly) following international best practice when it comes to eliminating bureaucratic hurdles to entrepreneurial activity.

The effective management and ownership of aid in Rwanda is contingent on the government's top-down economic policy approach across all sectors that consolidates power and builds on the President's personal relations with international donors and investors (Friedman 2012). Rwanda's strong political leadership is the second major driver of change. President Paul Kagame follows a rigorous, absolutist governance approach that also made him President in 2003 and ensured that he was overwhelmingly re-elected in 2010. He markets the brand of Rwanda to master the reputational challenge of his country, which most associate with war (Kinzer 2008). Being born 1957 into an aristocratic Tutsi family that fled the country, he was compelled to grow up and live in a refugee camp in Uganda with few rights or guarantees. His personal history might also explain his thrive for a better future with tighter control of what is happening inside the country.

The President's aspiration to transform the agricultural based economy is born out of his belief that poverty, mainly prevalent among the (Hutu) peasantry, aggravated the ethnic tensions in 1994. In his view, only pushing hard for the better, cultivating progress and following an *Imihigo* culture in order to build up an achievement-oriented society can bring forward development. *Imihigo* refers to performance contracts between the President and his 30 district majors to make the local government accountable and foster socio-economic development across the country.<sup>19</sup> The agreements are supposed to be widely applied in public and private administrations and even for households – actually reversing democratic accountability, where the leader is accountable to the citizens (Ingelaere 2011).

The political propensity to transformation in Rwanda affects both aid and regulatory reform to a high degree. Leadership in Rwanda exhibits military and entrepreneurial features, allowing the governing party to successfully enforce its tightly organized transformation of Rwandan society according to its nationalistic ideology (Bertelsmann Stiftung 2012), with the vision of making Rwanda a hub for business and banking by improving the business climate. This country-led development effort pushed forward by the ruling elite has been referred to as 'developmental patrimonialism' in the literature (Booth and Golooba-Mutebi 2012). The government is inclined to reform the private sector, with donors providing the financial means to effectively push through regulatory reforms.

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18 See, e.g., the overview of the Common Performance Assessment Framework 2010/2011, signed between the Government of Rwanda and its donors on the Economic Development and Poverty Reduction Strategy strategic objectives and the expected performance (Republic of Rwanda 2011).

19 *Imihigo* is based on a Rwandan tradition and refers to a cultural practice by which individuals set themselves achievement targets, thus committing themselves publicly to achieve certain goals, being humiliated if they failed (Republic of Rwanda 2012, Ingelaere 2011).



This is made possible by Rwanda's highly structured state system from top to bottom, held together by a network of personal relations and an intensive, well-functioning administration. How did this governance framework come into being? We argue that to fully explain Rwanda's regulatory performance, one has to consider its singular history as another major driver of change, which is further discussed below.

Contemporary policies are not only, amongst others, influenced by institutional structures imported from colonialists (e.g., Acemoglu et al. 2001), but they also depend on pre-colonial traditions and arrangements. One component is the degree of pre-colonial political centralization. Gennaioli and Rainer (2007) define politically centralized pre-colonial groups as those with some form of government with large, territorially integrated political entities. Political centralization involves some form of state structure with a political hierarchy. In contrast, fragmented ethnic groups are organized in many small political units without any political integration above village level.

There are various channels why pre-colonial centralized institutions matter today. The inheritance of a highly structured, centralized state system favors learning by doing in the national administration and the quicker growth-enhancing adoption of Western technologies; it benefits linguistic unity and thus a common identity; it supports the development of positive attitudes towards hierarchical regulation, the moral authority of the state and thus the loyalty of its citizens; and it allows for a profound technological, economic and social transition to statehood over a longer period of time (Englebert 2000, Bockstette et al. 2002, Sylwester 2008, Michalopoulos and Papaioannou 2011). A congruent state history is conducive to a country's capacity to manage development, for example in Botswana (Acemoglu et al. 2003). In contrast, Somalia and the Democratic Republic of Congo are considered to have illegitimate statehood (Englebert 2000).<sup>20</sup>

Unlike most of its African neighbors, Rwanda has a continuous history as a state. Out of several kingdoms that existed around 1700 in modern Rwanda, the Nyiginya dynasty, having emerged from the mid or late seventeenth century with the reign of Ruganzu Ndori, became increasingly powerful by the mid or late eighteenth century (Vansina 2004). Although kings were legitimized by ritual and religious claims, rituals of kingship started to be subordinated to court power (Newbury, D. 2001). As important elements to consolidate the state, kingship was glorified and military power centralized.

The kingdom of Rwanda reached its greatest extent during the late nineteenth century under Kigeri Rwabugiri, who was known for his military and cattle-raiding campaigns to expand the kingdom west and north. He intensified the centralization of authority and initiated administrative reforms, challenging some of the powerful lineages and their political power (Newbury 2001). When the state became stronger in the nineteenth century, the governing elite became more clearly defined and distanced itself from the ordinary people, refining extractive economic institutions by using the poor farmers for unpaid labor in exchange for cattle. The inequalities between cultivators, who were mostly Hutus, and pastoralists, associated with Tutsis, deepened (Vansina 2004).

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20 In Somalia, the current boundaries do not correspond to the area Somali populations live in, and statehood is opposed to Somalia's decentralized history with its population organized in clans. In the Democratic Republic of Congo, borders are highly artificial, drawn across different kingdoms, societies and political systems (Englebert 2000).

When European colonialists took over, they reinforced the state power of local elites and allowed for expanding the court rule to new peripheral areas which were formerly only loosely tied to the Rwandan state under dynastic control (Newbury 2001). They started reforming the administrative structures by regrouping units and installing their own state officials across the country in the 1920s. Although the colonizers altered the political system and intensified political and social inequalities, they did not create a new state, but took over sovereignty for a limited period of time (Newbury 1998). Rwanda can be considered a Tutsi-governed monarchy with Hutu majorities before colonization and a legitimate state whose existing political structures and to a lesser extent its geographical boundaries correspond to the pre-colonial state (Englebert 2000).<sup>21</sup>

According to Herbst's (2000) explanation of state centralization processes, Rwanda was in a favorable position for state consolidation. In Africa, the traditional bias in favor of large states does not hold. Being small is an advantage in the African setting, as the population distribution is the critical political challenge. Rwanda is among the very small countries where population distribution becomes irrelevant – the mass of the state is so small that the capital is close to the majority of the population and the territory they live on. Authority can easily be extended to consolidate politics under a state umbrella.

In contrast, Rwanda's large neighbor to the west, the Democratic Republic of Congo, is a classic case of a difficult population distribution, as there are several areas of high population density which are scattered throughout the country, with areas of extremely low population in between posing problems concerning infrastructure, political influence and power consolidation (Herbst 2000). Rwanda's state formation and institution building rested on the need to invest in a permanent military to defend and enlarge its territory due to its high population growth and scarcity of land, thus facing unique structural conditions in state formation different from those of its African neighbors, where land was scarce, but labor was abundant.

Gennaioli and Rainer (2007) confirm that the degree of pre-colonial political centralization in Rwanda is high.<sup>22</sup> For a sample of 42 sub-Saharan African countries, they find that pre-colonial centralization is positively associated with the provision of public goods in post-colonial times because the accountability of local chiefs was strengthened and state control over local chiefs facilitated (Gennaioli and Rainer 2007). The cross-country finding is valid for Rwanda, where the state, by following its *Imihigo* accountability system, becomes intrinsically entwined in local politics, and has a powerful tool at hand to set tangible reform targets, control results and curb corruption and rent-seeking.

For the Government of Rwanda, regulations belong to a set of policy instruments it can use to pursue its objectives, having realized that poor regulations impose significant

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21 Englebert (2000) postulates that the extent to which post-colonial state institutions conflict with pre-existing ones largely accounts for cross-country development differences in Africa, and finds that the more legitimate the state, the greater the quality of its governance. Legitimacy is defined vertically, referring to the right to rule, and horizontally, entailing agreement about the definition of the community to be ruled (Englebert 2000).

22 Only Comoros, Lesotho, Swaziland, and Burundi have a more complete centralization, which is measured as the share of a country's indigenous population that belongs to a centralized ethnic group. A group is considered centralized if it has two, three, or four jurisdictional levels above the local community (Gennaioli and Rainer 2007).

compliance costs for the private sector and involve unnecessary complexities in the operation of business. However, as Rwanda's own recent history impressively shows, an ancient efficient bureaucracy is by no means a guarantee that it is used for economic reforms. Rwanda's history of a state with a high degree of control over its territory is considered one of the main reasons for enabling the state to effectively carry out the genocide in 1994, as the bureaucratic state capacity allowed for undertaking it more systematically (Robinson 2002). It would not have been possible in the Democratic Republic of Congo, for instance, where there is too much land for people to escape from state influence (Herbst 2000).

Summing up, the country's historically centralized politics help shape highly functional and centralized institutions today, allowing for the effective use of aid to implement reforms.

## 4 CONCLUSIONS

The effectiveness of foreign aid has been a central subject in development economics over the last decades, with inconclusive evidence on the impact of aid flows on growth, or on selected variables, like in our case, regulation. The results of our empirical cross-country investigation in the first part of the paper can be summarized as follows: Using total aid, either in absolute flows or as a share of GDP, we can confirm the ambivalent results from previous studies. In fact, we do not find that total aid has an impact on changes in the regulatory framework. That also applies to aid provided to reforms of governance in a broader sense. More targeted business aid, on the other hand, is highly effective and acts as an important driver of change for the quality of regulations. This result is robust using different model specifications and country samples.

The country case study on Rwanda in the second part of this paper provides a detailed explanation of the causes of regulatory change in the country's particular economic, policy, and institutional setting. We find that aid is an important factor for regulatory reform. Rwanda is highly dependent on aid, and its business aid inflows are somewhat above average, but the pure amount of business aid cannot be the only determinant why Rwanda has surpassed most other countries in regulatory freedom. The main reasons are the government's efficient use of donor resources for investments, combined with its strong political leadership and the country's unique history as a centralized state.

Our results from both the empirical and country analysis suggest that policy makers in developing countries should prioritize aid programs that support business regulation reforms. Aid for Business is highly effective, and it has been shown that countries with better regulations grow faster. Regulatory reform is an important part of private sector development to promote economic growth and reduce poverty. This suggests that targeted Aid for Business does have indirect growth effects. What is more, the regulations indicator is based on actual changes in the regulatory environment, and does not concern relatively vague measures of institutions (Djankov et al. 2006). Thus, pro-business growth policies are easier to derive and can increase private investment.

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## APPENDIX

### Appendix A: Definition of Variables and Data Sources

Variable	Definition	Source
RegulationLevel	Credit market, labor market and business regulations, Area 5 of Economic Freedom of the World dataset, levels	Gwartney et al. (2012)
RegulationChange	Annual change in RegulationLevel	
TradeGDP	Total exports and imports of goods and services in percent of GDP	World Bank (2012b)
GDPpc	Real Gross Domestic Product per capita, constant prices (2010 USD)	World Bank (2012b)
GDPgrowth	Real growth of GDP per capita in percent	World Bank (2012b)
Population	Total population	World Bank (2012b)
Democracy	Indicator for democratic rights, Polity IV dataset, ranging from 0 (no democratic rights) to +10 (strongly democratic)	Marshall et al. (2012)
DemocracyChange	Annual change in Democracy	
AidTotal	Total ODA, constant prices (2010 USD millions), disbursements	OECD (2012)
AidTotalGDP	AidTotal in percent of recipient's total GDP	OECD (2012), World Bank (2012b)
AidGovernment	ODA Government and civil society, constant prices (2010 USD millions), disbursements	OECD (2012)
AidGovernmentGDP	AidGovernment in percent of recipient's total GDP	OECD (2012), World Bank (2012b)
AidBusiness	ODA Business and other services, constant prices (2010 USD millions), disbursements	OECD (2012)
AidBusinessGDP	AidBusiness in percent of recipient's total GDP	OECD (2012), World Bank (2012b)

## Appendix B: Descriptive Statistics, Period 2002-2009

Variable	Observations	Mean	Standard Deviation (within)	Minimum	Maximum
RegulationLevel	579	6.07	0.35	3.10	8.39
RegulationChange	579	0.10	0.27	-0.91	1.71
ln GDPpc	579	7.09	0.09	4.42	9.60
GDPgrowth	579	4.36	3.39	-17.67	33.63
TradeGDP	579	76.32	8.01	22.12	212.10
ln Population	579	16.53	0.04	13.37	21.01
Democracy	579	5.36	0.98	0.00	10.00
DemocracyChange	579	0.04	0.90	-9.00	6.00
ln AidTotal	579	6.00	0.46	-0.78	9.51
AidTotalGDP	579	0.10	0.12	0.000005	1.65
ln AidGovernment	579	3.26	0.62	-5.22	6.30
AidGovernmentGDP	579	0.008	0.005	0.0000002	0.07
ln AidBusiness	540	0.61	1.11	-9.43	4.75
AidBusinessGDP	544	0.0005	0.0007	-0.0003	0.010

## Appendix C: Country Sample

Albania, Algeria, Argentina, *Bahrain*, Bangladesh, Benin, Bolivia, Botswana, Brazil, Burundi, Cameroon, Central African Republic, Chad, Chile, China, Colombia, Congo (Dem. Rep.), Congo (Rep.), Costa Rica, Cote d'Ivoire, *Croatia*, Dominican Republic, Ecuador, Egypt, El Salvador, Fiji, Gabon, Ghana, Guatemala, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran, Jamaica, Jordan, Kenya, Madagascar, Malawi, Malaysia, Mali, Mauritius, Mexico, Morocco, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Senegal, Sierra Leone, South Africa, Sri Lanka, Syrian Arab Republic, Tanzania, Thailand, Togo, *Trinidad and Tobago*, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Venezuela, Zambia, Zimbabwe.

Note: Developed countries in 2010 in *italics*.