

Institutional Quality and Economic Development in Sub-Saharan Africa: Can Management Effort and Bribes Compensate for Low-Quality Institutions?

Gori Olusina Daniel, Kun Fu, and Wilfred Dolfsma

Abstract: The industrial development in sub-Saharan Africa is perhaps more affected by the quality of institutions than that of other regions. We investigate what alternatives managers may have and what their firms would need to function in case the institutional furniture they encounter is of low quality. We find that, in high quality institutional environments, management spending effort to deal with the authorities and to navigate regulations negates the effect of the institutional environment. Managers do not need to spend such efforts. Perhaps surprisingly, we find that the positive effect of high-quality institutional environments on firm performance is enhanced by making informal payments.

Keywords: firm performance, informal payment, institutional quality, institutions, sub-Saharan Africa

JEL Classification Codes: B52, D02, D22, H89, K49

Harry Trebing (1987) convincingly argued against a then mainstream consensus in economics that industry should face as little regulation as possible. The implicit assumption driving this view was that government failure was more likely or more detrimental than the market failures that were recognized. Trebing and others, prominent among these institutional economists, have since been able to demonstrate that the proper functioning of markets depends on appropriate institutions being in place since markets are necessarily embedded in society (Dolfsma 2013).

Following Douglass North (1990), mainstream economists and policymakers have also embraced the idea that institutions affect the economy and firm performance. The World Bank (Burki and Perry 1998), among other key institutions, has followed suit as well. A view has taken hold that, if and when developing countries put in place the formal institutions that characterize western economies,

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private firms operating in their economies would benefit (Khanna and Palepu 2000; Lee and Kim 2009). Without such institutions, the assumption goes, an “institutional void” emerges that hampers firm performance (Mair, Marti and Ventresc 2012; Sutter, Webb, Kistruck and Bailey 2013). In contrast, others have indicated that, even if formal institutions that regulate the economic domain are absent, institutions still affect firms. These can be either informal institutions or formal institutions from a different (adjacent) practice or domain (Olthaar et al. 2017).

Institutions and Firms

In this article, we address another potentially problematic and untested view that underlies the institutional void thesis: namely, the idea that an inappropriate or unsatisfactory institutional “furniture” (Veblen 1961, 236) forces entrepreneurs and managers of firms (we also refer to this as top management team, or TMT) to seek alternative routes to obtain what they need for the functioning of their firms. In this view, the preferred route is one where entrepreneurs and managers rely on clear, predictable, and enforced formal rules that treat all equally – and treat all equally efficiently. Consequently, in high-quality institutional environments, responses from public authorities and service providers become predictable in their nature and speed of delivery (Burki and Perry 1998, 15). Public authorities and service providers deliver a range of key services to firms, such as licenses, permits, access to electricity, tax administration, legal underpinning of contracts between parties, and certainty of property rights. When public institutions are of high quality, firms can focus their efforts and resources on production and other more directly value-creating activities.

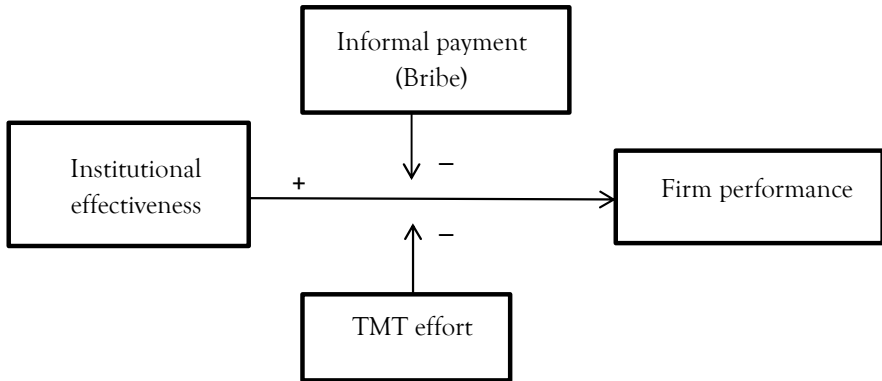
Without high-quality institutions, according to the same view, entrepreneurs and managers must either spend a lot of effort navigating the inefficient regulatory system, or resort to other measures like informal payments (i.e., gifts or bribes)¹ to create an obligation (Darr 2003; Dolfsma, Van der Eijk and Jolink 2009) and to try to ensure that the interests of individuals working in public authorities and service providers would align with those of private citizens and TMT members alike.

Low-quality institutions, therefore, can increase the transaction costs of dealing with public authorities as they provide incentives to individuals at all levels of government to look for their own interests first, before those of society as a whole. In such a situation of government failure (cf. Dolfsma 2013), extra efforts may be required by non-principal individuals and TMT members in repeatedly meeting and consulting with authorities to clarify requirements, answer demands, maintain visibility, and drive progress on previously agreed promises by monitoring procedures, or by obtaining the resources that firms require from rogue agents. Under these conditions, informal payments (as described) and TMT efforts are thus perceived as substitutes for the quality of institutional furniture. Moreover, they can be thought to

¹ On the difference between gifts and bribes, see Susan Rose-Ackerman (1998). For a review of the literature on gift exchange, see Wilfred Dolfsma, Rene Van der Eijk, and Albert Jolink (2009).

compensate for the strength or quality of a country’s institutional furniture. Figure 1 illustrates the conceptual model that characterizes informal payments and TMT efforts as substitutes for the quality of the institutional furniture in a country.

Figure 1. Conceptual Model



We empirically test this view in the context of sub-Saharan Africa. Focusing on this region of the world is appropriate because institutional quality there varies substantially, following the differing pace and success of reforms in different countries to deepen their democratic values and institutions, as well as to adopt market liberating policies (UNIDO and UNCTAD 2011). It is generally believed that TMT efforts dealing with an inefficient regulatory system, as well as the prevalence of informal payments, are rife in the region.

Method

Data Sample

We use the World Bank Enterprise Surveys (WBES) of firm-level data, which contains information about private firms from key manufacturing and service sectors for 139 countries across the world. The Enterprise Surveys adopt standardized survey instruments and a uniform sampling frame to produce a representative sample and harmonized data that are comparable across a wide range of economies. This enables the understanding of how and which factors and institutions in the business environment affect firm performance over time and across countries (World Bank 2007). We draw data to compile the country-level variables from the Economic Freedom Index of the Fraser Institute, and we use statistics regarding countries’ overall socioeconomic conditions from the World Bank and the IMF. We draw our sample from a population of firms surveyed in 35 African countries over a ten-year period between 2006 and 2015. A total of 17,757 observations are included in our sample. Our variables are as follows:

- **Dependent variable:** *Firm performance* is the dependent variable and is measured by a fiscal year's *total sales of a firm*. We convert the local currency into the internal dollar and factor in the purchasing power parity to ensure the comparability across countries over time.
- **Independent variables:** *Institutional effectiveness* is concerned with how well institutions relate with each other, and are fit for the purpose from the perspective of the wider society (Rodriguez-Pose 2013). We measure this by the overall degree of the Economic Freedom Index of the Fraser Institute, which draws on a composite measure of 42 distinct variables across five major areas: (i) size of government; (ii) legal system and security of property rights; (iii) sound money; (iv) freedom to trade internationally; and (v) regulation. *Top management effort* is the percent of senior management's time spent in dealing with regulations. We measure it by taking the difference between a firm's TMT effort and the sector-level average value of the TMT effort in the country within which the firm is located. *Informal payment* is the gifts or informal payments paid to public officials to "get things done" with regard to customs, taxes, licenses, regulations, services, etc. This is measured by the percent of a firm's total annual sales paid as informal payment.
- **Control variables:** We control for a set of firm-level and country-level variables, which are associated with firm performance and measured as a number of variables. *Age of a firm* (Johanson and Vahlne 1990) is measured by the difference between the year of observation and the year in which the firm was formally registered. *Size of a firm* (Schumpeter 1947) is measured by the number of employees of the firm, and coded as a categorical variable taking the value "1" for small size firms with less than twenty employees, "2" for medium size firms with less than one hundred employees, and "3" for large size firms with no less than one hundred employees. *Industrial sector*, in which a firm's primary business lies, is measured by a categorical variable taking the value "1" for manufacturing industry, "2" for service industry, and "3" for other industries. *Ownership* of a firm (McGahan and Victor 2009) is measured by the percent of the firm owned by private foreign individuals, companies, or organizations, and it is measured by a dummy variable with the value "1" for foreign firms that are more than 50 percent foreign-owned and "0" for domestic firms. *Manager's experience* (Ayyagari, Demirgüç-Kunt and Maksimovic 2011) is measured by the number of years a firm's top manager has been working in the sector. Because a country's wealth has been shown to influence firm performance, we control for the country's *GDP per capita* (USD) adjusted for purchasing power parity (PPP). We control for *population* size of countries as it captures the market size within a country. The *year effect* is controlled for as well.

Data Analysis

The WBES dataset is hierarchical in structure, which means that the firm-level observations are nested within the country-level observations. With this data

structure, firm-level data are likely to be correlated within countries. Traditional multiple regressions, such as the ordinary least square regressions with a pooled data, could result in biased estimations due to ignoring the nested data structure, thus violating the assumption of data independence (Hofmann, Griffin and Gavin 2000). We, therefore, apply multi-level modelling techniques to analyze the data, while accounting for the hierarchical structure of the dataset. We specify a two-level model with random intercept to evaluate firm performance by factoring in both the impact of institutional conditions at the country-level and the influence of informal payment and top management effort at the firm-level at the same time. The models are specified below:

$$\text{Level-1 equation: } Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + e_{ij}$$

$$\begin{aligned} \text{Level-2 equations: } \beta_{0j} &= \gamma_{00} + \gamma_{01}W_j + u_{0j} \\ \beta_{1j} &= \gamma_{10} + u_{1j} \end{aligned}$$

The level-1 equation predicts the direct effects (i.e., betas) of level-1 predictors on level-1 outcomes, where Y_{ij} is the dependent variable for an individual observation at level 1 (subscript i refers to a firm and subscript j refers to the country that the firm belongs to). X_{ij} is the firm-level (level-1) predictor. β_{0j} is the intercept of the dependent variable in country j (level-2). β_{1j} is the slope for the relationship in country j between the firm-level predictor and the dependent variable. e_{ij} is the firm-level residual. The level-2 equations predict the effects (i.e., gammas) of level-2 predictors on level-1 betas, as well as on the level-1 intercept, where γ_{00} is the overall intercept, which is the mean of the intercepts across countries. W_j is the country-level predictor. γ_{01} is the slope or main effect of country-level predictor. γ_{10} is the slope or main effect of the individual-level predictor. u_{0j} and u_{1j} are country-level residuals. Variance inflation factors (VIFs) of all variables in the model are between 1.04 and 2.9, indicating that our analysis is unlikely to be influenced by multicollinearity between variables. The multilevel equation specified in this study is as follows:

$$Y_{ij} = \gamma_{00} + \gamma_{01} \text{InstitutionEffectiveness} + \gamma_{02} \text{GDPperCap}_j + \gamma_{03} \text{Population}_j + \gamma_{10} \text{TopManagement Effort}_{ij} + \gamma_{20} \text{Size}_{ij} + \gamma_{30} \text{Age}_{ij} + \gamma_{40} \text{Ownership}_{ij} + \gamma_{50} \text{ManagerExperience}_{ij} + \gamma_{60} \text{Sector}_{ij} + \gamma_{70} \text{Year}_{ij} + u_{0j} + e_{ij}$$

Results

Table 1 reports the descriptive statistics and correlations of all variables for the analysis. Table 2 shows the regressions results, in which Model 1 is the baseline model including only control variables, Model 2 is the main effect model containing the key explanatory variables, and Model 3 is the full model with interaction terms added to the model. The likelihood ratio tests show that adding institutional effectiveness, top management effort, and informal payment as independent variables together in Model 2 and interaction terms in Model 3 both result in a statistically significant

improvement in the model fit: LR $\chi^2(3) = 237.5$, $p < 0.001$, and LR $\chi^2(2) = 28.21$, $p < 0.001$, respectively.

Table 1. Descriptive Statistics and Correlation of Variables

	1	2	3	4	5	6	7	8	9	10	11	12
Mean	23353.69	2.11	6.24	-0.14	1.48	15.54	0.10	13.49	1.57	3725.52	55.40	2009.70
Std. dev.	2600197	6.55	0.69	14.38	0.68	13.32	0.30	9.48	0.59	3185.55	56.70	3.22
Min.	0	0	4.79	-25.55	1	1	0	0	1	559.39	1.25	2006
Max.	345000000	100	7.85	95.23	3	167	1	50	3	15306.39	176.00	2015
1 Sales (million)	1											
2 Institutional effectiveness	0.13	1										
3 Top management efforts (%)	0.07	0.02 ^d	1									
4 Informal payments (%)	0.01 ^a	-0.02 ^d	0.12	1								
5 Size	0.39	0.02 ^d	0.07	-0.04	1							
6 Age	0.17	0.02 ^c	0.04	-0.03	0.33	1						
7 Ownership (foreign = 1)	0.21	0.03	0.02 ^d	-0.02 ^c	0.19	0.04	1					
8 Management experience	0.11	-0.01 ^a	0.04	-0.04	0.20	0.53	0.05	1				
9 Sector	-0.04	-0.07	-0.003 ^b	0.004 ^a	-0.15	-0.13	-0.001 ^a	-0.08	1			
10 GDP per cap_PPP (USD)	-0.20	0.47	0.001 ^a	-0.03	-0.001 ^a	-0.01 ^b	-0.03	-0.04	-0.07	1		
11 Population (million)	-0.15	-0.06	0.01 ^b	0.04	0.01 ^a	0.02 ^d	-0.17	-0.06	-0.12	-0.004 ^a	1	
12 Year	-0.12	-0.05	0.09	-0.04	0.07	0.16	-0.04	0.14	0.002 ^c	-0.01 ^b	0.18	1

Note: ^aindicates $p > 0.1$, ^bindicates $p < 0.1$, ^cindicates $p < 0.05$, ^dindicates $p < 0.01$, all the rest $p < 0.001$; $n = 17,757$.

Table 2. Estimation Results Using Multi-Level Linear Regression Models

	Model 1	Model 2	Model 3
Institutional effectiveness		0.808*** (0.054)	0.805*** (0.054)
Top management effort		0.043*** (0.005)	0.039*** (0.005)
Informal payment		0.001 (0.005)	0.002 (0.005)
Top management effort x institutional effectiveness			-0.024*** (0.006)
Informal payment x institutional effectiveness			0.021*** (0.006)
Size (medium)	0.499*** (0.013)	0.498*** (0.012)	0.497*** (0.012)
Size (small)	1.190*** (0.019)	1.180*** (0.019)	1.181*** (0.019)
Age	0.082*** (0.007)	0.081*** (0.007)	0.081*** (0.007)
Ownership	0.261*** (0.018)	0.263*** (0.018)	0.262*** (0.018)
Management experience	0.004 (0.006)	0.005 (0.006)	0.006 (0.006)
Sector (service)	0.025* (0.011)	0.019+ (0.011)	0.020+ (0.011)
Sector (other)	-0.026 (0.027)	-0.016 (0.027)	-0.015 (0.027)
GDP per cap_PPP (USD)	-2.418*** (0.132)	-1.743*** (0.128)	-1.755*** (0.128)

Table 2 continued

Population (million)	5.472*** (0.544)	0.898** (0.332)	0.807* (0.328)
Year 2007	0.321*** (0.031)	0.159*** (0.034)	0.158*** (0.034)
Year 2009	0.436*** (0.081)	0.091 (0.084)	0.100 (0.083)
Year 2010	0.189** (0.065)	0.201*** (0.054)	0.196*** (0.053)
Year 2011	0.382*** (0.106)	-0.419*** (0.120)	-0.384** (0.120)
Year 2013	-0.445*** (0.107)	-0.054 (0.076)	-0.030 (0.076)
Year 2014	-0.189+ (0.107)	0.068 (0.078)	0.084 (0.077)
Year 2015	1.047*** (0.169)	-0.149 (0.184)	-0.105 (0.184)
Constant	3.281** (1.193)	0.442 (0.459)	0.365 (0.451)
Random-effects parameters			
Country-level variance	42.63 (12.739)	4.614 (2.158)	4.43 (1.963)
Firm-level residual	0.474 (0.005)	0.47 (0.005)	0.469 (0.005)
Likelihood-ratio test			
Degree of freedom	16	19	21
LR chi ²		237.5***	28.21***
Observations	17,757	17,757	17,757
Number of countries	35	35	35

Notes: Standard errors in parentheses. Continuous variables all standardised. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

The results in Table 2 show that our expectation that top management effort as well as informal payments can be used as substitutes for effective institutions only holds true for the former. Indeed, less top management effort is required to navigate regulations in high-quality institutional environments, typically characterized by clear, predictable, and properly enforced rules and regulations (Burki and Perry 1998). The variable for TMT efforts dealing with authorities and regulations also has a significant direct impact on firm performance. What is perhaps surprising is that informal payments are not a substitute for low-quality institutional environments. The positive effect of high-quality institutions on firm performance is enhanced by a firm making informal payments. Informal payments do not have a direct effect themselves on firm performance, as expected. We graphically illustrate the interaction effects of top

management effort and informal payments, each matched against the overall institutional effectiveness of countries in Figure 2 and Figure 3, respectively.

Figure 2. Interaction Effects Between Top Management Effort and Institutional Effectiveness

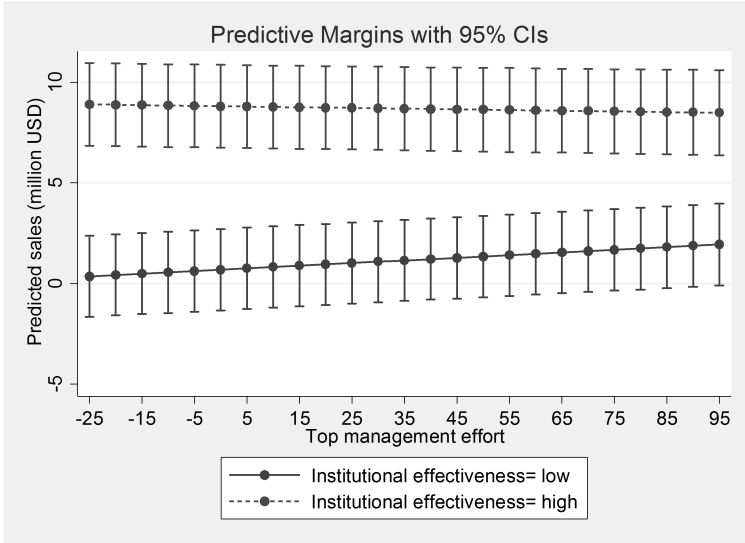
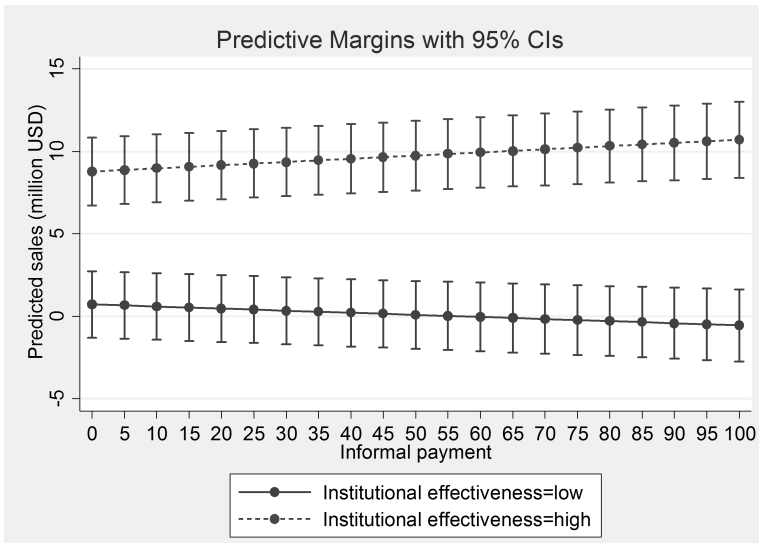


Figure 3. Interaction Effects Between Informal Payment and Institutional Effectiveness



Discussion: Bribes and Institutional Quality

The finding that informal payments enhance institutional quality's positive impact on firm performance is an unexpected one. We can offer a number of possible explanations. First, it might be that a study focusing on other regions (which are perhaps economically more developed) might return different results. Sub-Saharan African countries that have relatively high institutional quality might still not have high enough quality of institutions – i.e., institutions that are free from political interference and treat all equally (equally efficiently). Also, the practice of gift-giving might be more culturally expected and accepted in sub-Saharan Africa. One should be aware, however, that anthropological studies have found the practice of gift-giving rife across a range of countries. In developed countries, there might be more regulations restricting the practice, and certainly the size of gifts, but gift-giving happens there nonetheless (Dolfsma, Van der Eijk and Jolink 2009 Offer 1997; Smart 1993).

Therefore, we believe that a second explanation for our remarkable finding is more plausible. Marcel Mauss ([1954] 2000) argued that there are three essential aspects of gift-giving: giving, receiving, and reciprocating. Reciprocation should not occur immediately, and what is reciprocated should not be predetermined in value. Gift-giving thus creates and sustains relationships between concrete individuals. In a society that is characterized by low institutional quality, much uncertainty exists and conditions for relations to be stable may be absent. When giving a gift, the giver may not be sure that the recipient is there to return a favor at some later stage. A recipient will perhaps also be more inclined to treat an informal payment as a bribe rather than a gift to be reciprocated.

Conclusion

Institutional economists will not be surprised that high-quality institutions in a society will make firms perform better. We find, as expected, that the efforts that a firm's top management spends on dealing with regulation are a substitute for high-quality institutions. What is surprising to scholars, who implicitly would claim that formal institutions are of paramount importance for the economy, is that informal payments actually enhance the positive contribution of high-quality institutions to firm performance. We submit that this is a further support for the view that economists and policymakers need to adopt a more comprehensive understanding of how (and which) formal and informal institutions impact the economy in general, and firm performance in particular.

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