



Culture, Institutions, and Firm Performance

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We examine the relationship between institutions, cultural dimensions, and firm performance. Using firm-level data from 74 countries, we show that while institutions matter for firm performance, these institutions themselves are influenced by different cultural attributes. These results also vary with industry: while improvements in the overall quality of institutions benefit manufacturing and construction firms, better institutions do not seem to have similar impact in the service and agriculture sectors. Institutions also have different impacts in different geographical regions. These results provide additional support to the popular view that institutional reforms should be country-specific.

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INTRODUCTION

Kenya's president Mwai Kibaki ran in 2002 on a platform of ousting corruption in what is considered one of the most corrupt countries in the world. His effort to reduce graft in Kenya promised businesses a more hospitable environment for operations and, in turn, a higher economic growth. However, his promises have not come to fruition because corruption is still pervasive in Kenya. Corruption continues to limit the growth of businesses, making it much more difficult to obtain licenses and even birth certificates [Matheson 2005]. Interestingly, corruption does not seem to have a similar impact on economic performance in other regions. Chinese firms, for example, have excelled in the international market, despite the prevalence of corruption [Lin and Li 2003]. The contrasting experience of Kenya and China suggests that the economic impact of social and political variables, such as corruption, deserves more attention from economists.

There is already a large literature on the impact of corruption and other institutions (i.e., social and political variables) on economic outcome [Hall and Jones 1999]. A number of studies have focused on the role of corruption [Kimuyu 2007; Shleifer and Vishny 1993; Mauro 1995], while others have focused on variables such as law and order [Commander and Svejnar 2007; Gaviria 2002]. These studies suggest that the disparity in economic performance across different countries can be partially attributed to differences in their institutional environments. In other words, countries with corrupt government officials, poor legal system, and excess government interference are likely to have poorer economic performance.

An alternative stream of research also focuses on the role of culture as an important determinant of economic performance. According to Hofstede [1983], there are several distinctive culture dimensions (e.g., individualism versus collectivism, society's views on autocratic power relations, etc.) which may affect overall economic performance by shaping social views of work, ethics, and change. These factors can indirectly influence productivity and innovation, which can provide another explanation for the persistent



differences in economic performance across different countries [Barboza 2005]. As Franke et al. [1991] indicate, “differences in national culture rather than in material and structural conditions, are ultimate determinants of human organization and behavior, and thus of economic growth” (p. 165).

This paper brings together two schools of thought: (1) institutions and (2) cultural dimensions. To the best of our knowledge, no study on firm performance has explicitly examined how institutions and culture influence firm performances. In particular, the paper contributes to the literature by exploring the relationship between institutions and culture. Of course, modeling these relationships become difficult due to a number of complexities. For example, it is not clear how government corruption impacts firm performance. On one hand, bribes and managerial resources used to expedite government regulatory activities to obtain business licenses will raise costs and reduce profits. On the other hand, bribes and managerial resources incurred to circumvent government regulations such as health and environmental standards may reduce the net cost to the company, even if it imposes social costs. Cultural attributes, such as individualism versus collectivism or a society’s views on autocratic power relations, may also explain why corruption is more acceptable in some cultures more than others. Thus, cultural attributes may impact institutional variables such as corruption, which in turn, may impact firm performance. As a first step toward understanding the complex relationship between culture, institutions, and economic performance, we therefore examine two questions in this paper. First, how do cultural dimensions affect the institutional environment in different countries? Second, how do these institutional factors influence the economic performance of firms in these countries?

Using firm-level data from 74 countries, we find some evidence consistent with the idea that (1) institutions matter for firm performance and (2) these institutions themselves are influenced by different cultural attributes. Specifically, we observe that institutional variables, such as legal systems and political stability, have a positive impact on firm performance. Surprisingly, corruption does not appear to have a statistically significant impact on firm performance among the countries in our sample. We find that these results also vary across different industries: while improvements in the overall quality of institutions benefit manufacturing and construction firms, better institutions do not seem to have similar impact in the service and agriculture sectors. Institutions also have different impacts in different geographical regions. For example, we observe that better institutions have positive effects on firm performance in Europe, but not in South-Central America.

The rest of this paper is outlined as follows: In the next section, we propose our hypotheses relating institutions and culture to economic performance. This will be followed by a discussion of our data and results. In the final section, we make some concluding remarks.

BASIC FRAMEWORK

Determinants of Firm Performance

Several studies have previously examined the determinants of firm performance [Alvarez and Crespi 2003; Oczkowski and Sharma 2005]. These determinants include firm-specific characteristics, such as age, size, exporting, and ownership status (i.e., whether the firm is owned by a foreign entity), as well as institutional variables. We measure firm performance in terms of firm sales. Unfortunately, in our dataset, we do not have any information on other possible indicators of firm performance, such as net revenue, gross



profits, and firm efficiency. Variables such as net revenue and gross profits may be a better proxy for firm performance since they take into account costs (and thus reflect firm efficiency). Despite these shortcomings, firm sales have been previously used in the literature as a measure of firm performance (see Orlando [2004] for more detailed discussion). In what follows, we describe the expected effect of various firm-specific characteristics on firm sales.

- (a) *Firm size* Large firms are likely to perform better because they have market power, have access to better resources, and enjoy the benefits from economies of scale. However, it is also possible that for some firms, an increase in size may lead to temporary coordination problems within the firm, resulting in poorer performance. We use indicator variables for firm size (1 = small, 2 = medium, 3 = large) in this paper [McArthur and Teal 2002].
- (b) *Firm age* The literature suggests that firms become more successful as their stock of experience grow and they identify and reject previously used inefficient production methods [Malerba 1992]. However, some studies raise the possibility that older firms may be less successful and less profitable if they fail to upgrade to new production technology and adapt to changing market conditions [Little et al. 1987]. Some empirical studies also suggest that the link between age and firm performance may depend on the nature of the industry. For example, Lundvall and Battese [2000] finds a positive relationship between firm performance and age among Kenyan firms in the textile sector, but fail to identify any effect of firm age on firm performance in the food, wood, and metal sectors. Given the multitude of connections between age and firm performance, the net effect is therefore an empirical matter.
- (c) *Exporting* It is well known that exporting activities are associated with better firm performance. This may be due to the fact that firms ‘learn by exporting,’ i.e., they improve their productivity and performance after learning about different marketing strategies, production techniques, etc. Alternatively, the positive relationship between exporting and firm performance may be due to a ‘self-selection’ bias in the export market, i.e., larger, more profitable, and more successful firms self-select themselves into the export market. See Alvarez and Lopez [2005] for a survey of this literature.
- (d) *Ownership* Foreign ownership can improve firm performance due to greater access to foreign technology, management talent, and an established distribution network [Faruq 2008]. On the other hand, foreign ownership may also be associated with lower efficiency due to coordination problems and high cost of learning about a different market [Bernard and Sjöholm 2003]. Thus, the link between foreign ownership and firm performance may be an empirical question. In this paper, we use an indicator variable to represent the foreign ownership of a domestic firm. The indicator variable takes the value of 1 if the firm is owned by a foreign entity, and takes the value of 0 otherwise.
- (e) *Institutional variables* A number of social and political factors can impact firm performance. For example, corruption can raise costs, create uncertainty, deter investment, and reduce profits [Mauro 1995; Kimuyu 2007]. On the other hand, bribes and managerial resources incurred to circumvent government regulations can help businesses avoid excess regulations, evade tax payments, and gain other privileges. In addition, some firms may find it more difficult to procure resources in an environment characterized by weak contract and property rights laws. This may result in higher costs for those firms. A weak legal system may also induce more corruption, which can subsequently influence the firm’s performance. Frequent



policy changes caused by different types of political instability and/or a weak bureaucracy may render the legal system ineffective. Again, this may increase the cost of acquiring resources for some firms and make it difficult for them to succeed. To capture the effects of institutions on firm performance, we focus on specific variables such as corruption and law and order (as a measure of the strength of the contract and property law system).

As a broader measure of each country's institutional environment, we also create an institutional index based on each country's socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality. Socioeconomic factors such as declining consumer confidence can both constrain government action and impact firm performance. Military involvement in politics may result in higher defense budget at the expense of other budget allocations, lead to more corruption, and create an uneasy environment for foreign businesses. Religious involvement in politics may be the symptom of a single religious group dominating governance. This can lead to situations ranging from inappropriate policies through civil dissent to civil war. Democratic accountability can influence the stability of the political system and impact government policies and consequently, economic performance. As discussed above, strong bureaucracy can govern without significant policy changes or interruptions in government services. Note that in our data, a higher value of each institutional variable represents better institutional quality. The main model we use to analyze the determinants of firm performance is as follows:

$$(1) \quad \log(\text{sales})_i = \beta_0 + \beta_1 Z_c + \beta_2 X_i + \text{Industry dummy variables} \\ + \text{Country dummy variables} + \varepsilon_{ic}$$

Here Z_c is a vector of social and political institutions (corruption, law and order, etc.) for each country c and X_i denotes a vector of characteristics (size, age, and foreign ownership) for each firm i . All estimations are performed with the ordinary least squares (OLS) method. Standard errors are heteroskedasticity robust.

Relationship Between Culture and Institutions

Hofstede [1983] defines culture as “that part of our conditioning that we share with other members of our nation, region, or group but not with members of other nations, regions or groups.” According to Hofstede, culture affects the ability of societies to create and properly manage institutions. For example, following the Second World War, several East Asian countries used their bureaucracies to allocate credit to national industries to encourage economic growth. This may not work in all societies, since such bureaucracies have to be shielded from undue political influence and overt corruption. Similar institutions created in Latin America, Africa, and other parts of the world proved much less effective than their East Asian counterparts. While effective industrial policy is partly shaped by institutional variables, it is also influenced by culture. In this paper, we view culture through Hofstede's lens, since Hofstede's classifications of cultural dimensions are widely used in the relevant literature. Hofstede's cultural dimensions are as follows:

- (1) *Large or small power distance* This dimension measures how people perceive (and accept) power differences. In cultures with large power distance (e.g., Malaysia), individuals accept power relations that are autocratic or paternalistic. Likewise, in



cultures with small power distance (e.g., Denmark), people accept power relations that are more democratic.

- (2) *Individualism versus collectivism* In individualist cultures (e.g., the U.S.), people develop and display their individual personalities and choose their own affiliations. In collectivist cultures, people are defined as a member of a long-term cohort (e.g., Japan).
- (3) *Masculinity versus femininity* This dimension is associated with different attributes of traditional gender roles. For example, ‘masculine’ cultures are expected to value competitiveness, assertiveness, and the accumulation of wealth and material possessions, while ‘feminine’ cultures value relationships and quality of life.
- (4) *Weak versus strong uncertainty avoidance* This dimension measures a society’s attitude toward risk. In cultures with strong uncertainty avoidance, people are expected to prefer explicit rules (e.g., about religion and food) and formally structured activities, while cultures with weak uncertainty avoidance are expected to prefer flexible rules and informal activities.

One limitation of these classifications is that they ignore cultural differences within the same society. Despite this limitation, Hofstede’s study is useful since it provides a general overview of cultural differences and is supported by extensive statistical information. Unfortunately, there is a dearth of literature on how these cultural dimensions may affect institutions in different countries. Although this makes it difficult for us to postulate any relationship between institutions and culture, we expect to see the following results based on the definitions of cultural and institutional variables used in this paper.

First, *ceteris paribus*, we expect to find a negative relationship between power distance and institutional quality. This is because high power distance societies may be more resistant to change, and power relations in these societies may be more autocratic. As a result, these societies may be more likely to experience government corruption, bureaucratic inefficiencies, and limited democratic accountability.

Second, *ceteris paribus*, we are more likely to observe better property rights (and consequently, less corruption) in individualistic societies since they value individual rights and freedom. Collectivistic societies may be more susceptible to illegal transactions in co-operation with friends, relatives, or other types of personal networks.

Third, we are not sure about the nature of the relationship between institutional quality and uncertainty avoidance a priori. On one hand, high uncertainty avoidance societies prefer to avoid uncertainty and may therefore avoid reforms that can change their well-known environments. As a result, these societies may be unwilling to change existing problems in the institutional environment (government corruption, bureaucratic inefficiencies, weaknesses in the legal system, etc.). On the other hand, since high uncertainty avoidance societies prefer to avoid uncertainty, they may avoid any kind of changes that bring economic or political instability. This may result in stable and better institutions in high uncertainty avoidance societies.

Finally, it is difficult to predict whether masculine or feminine attributes are more effective in promoting better institutions. On one hand, the relationship between masculinity and institutional variables may be positive if the competitive nature of masculine cultures results in the refinement of institutions (e.g., better property rights and anti-trust laws) which value competition, ambition, and hard work. On the other hand, the relationship may be negative if masculine societies have a stronger drive for material prosperity and may therefore engage in corruption and other activities which weaken the existing institutional environment. The net effect may therefore be an empirical matter.



To summarize this discussion, we expect cultures characterized by high power distance and low individualism (i.e., collectivism) to experience what Barboza [2009] refers to as ‘cultural rigidity’ to change. While Barboza [2005] mainly refers to ‘cultural rigidity’ in terms of changes in economic conditions, we view societies with high power distance and collectivism as resistant to social and political changes, which can, in turn, translate into poor economic performance. To examine these relationships, we estimate the following model using macro-level data from different countries:

$$(2) \quad Z_c = \gamma_0 + \gamma_1 Y_c + \gamma_1 PCGDP_c + \varphi_{ic}.$$

Here Z_c is a set of social and political institutions (corruption, law and order, etc.) for each country c , Y_c refers to Hofstede’s four cultural dimensions for each country c , and $PCGDP_c$ is per capita GDP. The latter controls for the level of development in each country c .

DATA AND RESULTS

Data

We obtain data on firms from 74 countries from *The World Business Environment Survey* (WBES). The WBES was conducted by the World Bank in 1999 and surveyed firms in different countries about their performance, various characteristics (such as size and age), and different barriers to doing business. Data on social and political variables (such as corruption and bureaucracy) are obtained from the *International Country Risk Guide* (ICRG). The ICRG is annually published by the Political Risk Services group, a private risk rating agency that uses the same survey methodology in different countries to assess the political risk of doing business in those countries. In this paper, we view institutions mainly through the lens of corruption and law and order condition in different countries. As mentioned earlier, we also use a broader measure of each country’s institutional environment to check the robustness of our results. This measure is based on each country’s socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality. The reason we combine these different variables to create a composite measure of each country’s institutional environment is that these variables are likely to be highly correlated with each other and may therefore make it difficult to identify the effect of each of these variables on firm performance separately. The ICRG definitions for these variables are summarized in Appendix A.

RESULTS

Table 1 presents the descriptive statistics. The means and standard deviations suggest that there is sufficient variation in the explanatory variables with which we can explain changes in institutions and log (sales). It should also be noted that the number of observations for each variable in Table 1 differs due to missing values for some countries or industries. We use the STATA software to carry out regression analysis, which automatically removes missing observations. Hence, the sample sizes for the regression results presented in other tables may be different from the sample sizes presented in Table 1.

The correlations between some of these variables are illustrated in Figure 1a–d. More specifically, these figures illustrate the relationship between Hofstede’s cultural dimensions and an aggregate index of institutional quality. As expected, we find that



Table 1 Descriptive statistics

	<i>Observations</i>	<i>Mean</i>	<i>Std. Dev.</i>
Dependent variable	8,121	10.36	8.04
Sales (log)			
Firm characteristics			
Age (in years)	7,131	19.58	25.90
Size (1 = small, 2 = medium, 3 = large)	9,057	1.81	0.74
Exporter (1 = exporter, 0 = otherwise)	8,537	0.60	0.48
Foreign Ownership (1 = foreign, 0 otherwise)	8,739	0.50	0.39
Institutions			
Corruption (out of 6)	9,072	2.98	1.11
Law and order (out of 6)	4,200	3.95	1.24
Institutional Index (average score)	4,200	4.96	0.84
Cultural dimensions			
Power distance (out of 104)	4,523	68.18	13.74
Individuality (out of 76)	4,523	33.49	18.76
Masculinity (out of 88)	4,523	49.28	14.73
Uncertainty avoidance (out of 104)	4,523	68.29	21.25

Notes: The institutional index is based on each country's socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality). Higher values of these variables represent better institutional quality. Hence, a higher corruption rating is tantamount to lower risk of corruption.

cultures characterized by low power distance and high individualism are associated with better institutions. We also observe that masculine and high uncertainty avoidance cultures are associated with better institutions. These observations suggest that among the countries in our sample, the masculine and high uncertainty avoidance cultures value institutions which are stable and promote material prosperity.

Next, we use regression analysis to examine these relationships more formally. Unlike Figure 1a–d, our regression analysis allows us to control for the level of development in each country, which we proxy with per capita GDP. Table 2 presents the regression results based on Eq. (2). In column (1) of Table 2, we examine the relationship between Hofstede's cultural dimensions and corruption. In the ICRG dataset, a higher corruption rating is defined as a lower risk of corruption. Hence, we expect to see a negative relationship between the ICRG corruption rating and power distance. More specifically, higher power distance societies are more autocratic and may thus have more corruption (and hence, lower ICRG corruption ratings). We also expect to observe a positive relationship between the ICRG corruption ratings and individuality. Individualistic societies value individual rights and freedom and may therefore be more likely to have a better legal system and lower corruption. Thus, more individualistic societies may be associated with lower corruption (and a higher ICRG corruption rating).

We find that the coefficients of both power distance and individuality in column (1) of Table 2 have the expected signs and are statistically significant. We observe the same pattern in column (2), where we examine the relationship between law and order condition and cultural variables. We expect to see a better legal system in a society which has less autocratic power relations (i.e., higher power distance) and more individualism. We find that our law and order (which is our proxy for the strength and effectiveness of the legal system) variable is negatively associated with power distance and positively associated with individualism. In column (3), we check the robustness of our results by regressing these cultural dimensions on a more general index of institutional quality. This 'institutional index' is based on a number of factors such as each country's

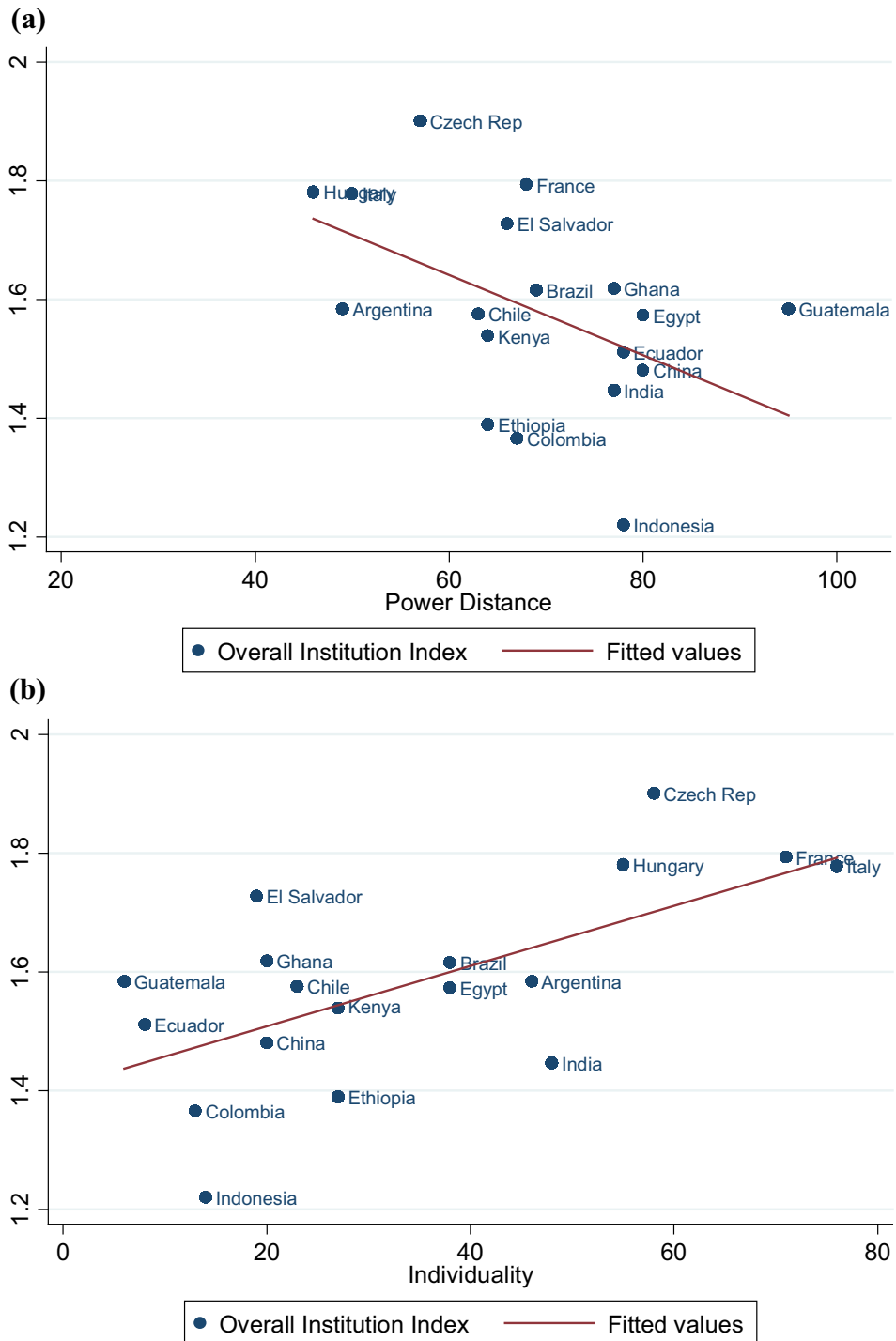


Figure 1. a Relationship between institutions and culture (Power Distance). b Relationship between institutions and culture (Individuality). c Relationship between institutions and culture (Masculinity). d Relationship between institutions and culture (Uncertainty Avoidance).

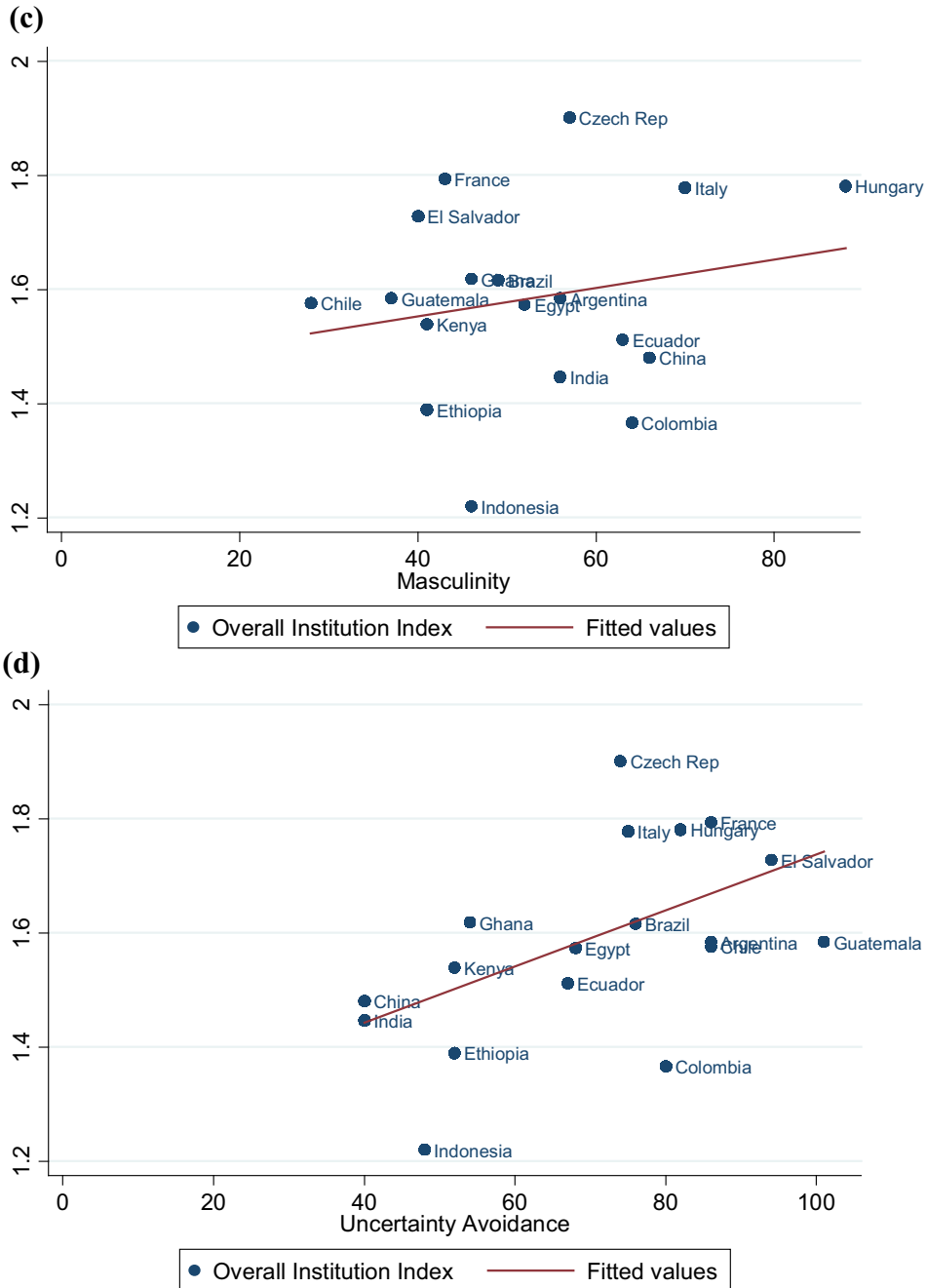


Figure 1. continued.

socioeconomic environment, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality in addition to corruption and law and order. Once again, our results in terms of power distance and individuality hold: countries with high power distance and low individuality are likely to have lower quality of institutions.



Table 2 Relationship between cultural dimensions and institutions

	(1) <i>Dependent variable: corruption</i>	(2) <i>Dependent variable: law & order</i>	(3) <i>Dependent variable: institutional index</i>
Power distance	-0.61** (6.40)	-0.72** (4.90)	-0.12** (8.63)
Individuality	0.23** (8.99)	1.26** (46.08)	0.14** (35.71)
Masculinity	-0.56** (13.27)	0.21** (2.99)	0.08** (10.03)
Uncertainty avoidance	0.20** (4.22)	0.67** (7.59)	0.38** (50.42)
(Log) GDP per capita	0.45** (38.43)	0.26** (7.75)	0.01* (2.47)
Constant	2.23** (5.96)	1.48 (1.31)	-1.26** (12.71)
Adjusted R ²	0.40	0.53	0.63
Observations	4,423	2,128	2,128

Notes: Dependent variables are corruption, law & order, and a broad institutional index (based on each country's socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality). Higher values of these variables represent better institutional quality. Hence, a higher corruption rating is tantamount to lower risk of corruption. Heteroskedasticity robust standard errors used. Absolute values of t-statistics in parentheses.

**, * Significant at 1 percent and 5 percent, respectively.

Interestingly, the regression results in Table 2 concerning the relationship between masculinity and institutional quality are mixed across columns (1)–(3). We find in column (1) that masculine cultures have lower corruption ratings. Since low corruption ratings in our data represent *more* corruption, this means that masculine cultures are associated with more corruption. On the other hand, in columns (2) and (3), masculinity appears to have statistically significant and positive relationships with both law and order condition and a broader measure institutional quality, respectively. Since these results are not consistent across different specifications, we will not push this result too hard.

In Table 2, we also observe that high uncertainty avoidance is associated with low corruption, better law and order conditions, and better institutions in general. This is consistent with the idea that high uncertainty avoidance cultures prefer to have stable political and economic systems. Not surprisingly, GDP per capita – which is our proxy for the level of development in each country – appears to have a statistically significant and positive effect on different measures of institutional quality. To examine whether our results are biased due to potential correlations between GDP per capita and Hofstede's cultural dimensions, we examine the variance inflation factor (VIF) associated with each of these variables. All VIF scores are relatively low, giving us more confidence in our results.

Thus, the results in Table 2 show that cultural dimensions influence the political and social institutions in different societies. Next, we examine how these institutions themselves influence firm performance in Table 3. In order to do so, we estimate Eq. (1), in which we use sales as a measure of firm performance. Column (1) only includes firm-specific characteristics (such as size and age) as determinants of firm performance. As expected, we find that larger, more experienced, and foreign-owned firms perform better. These results also hold when we include corruption and law and order in column (2) and



Table 3 Relationship between institutions and firm performance

	(1)	(2)	(3)
Size	1.43** (9.31)	2.59** (13.26)	2.31** (11.50)
Age	0.07** (9.10)	0.05** (7.82)	0.06** (8.46)
Exporter	0.16 (0.79)	0.84** (2.92)	1.29** (4.40)
Foreign ownership	4.33** (18.06)	2.98** (9.91)	3.31** (9.99)
Corruption		-0.06 (0.51)	
Law and order		1.22** (10.56)	
Institutional index			3.57** (4.57)
Constant	13.72** (21.01)	4.75** (3.79)	2.41 (1.54)
Adjusted R ²	0.12	0.22	0.14
Observations	6,854	3,240	3,240

Notes: Dependent variable is log of sales for each firm. The institutional index is based on each country's socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality. A higher value of each institutional variable represents better institutional quality. Hence, a higher corruption rating is tantamount to lower risk of corruption. Heteroskedasticity robust standard errors used. Absolute values of t-statistics in parentheses.

** , * Significant at 1 percent and 5 percent, respectively.

our institutional index in column (3). Additionally, the coefficients on exporting activities become statistically significant in columns (2) and (3). Thus, once we control for different institutional variables, there seems to be a positive relationship between exporting activities and firm performance. While this relationship appears to be strong, it is not possible for us to identify with our dataset whether this is due to 'learning by exporting' or 'self-selection.'

Finally, the results in column (2) of Table 3 show that law and order has a positive and statistically significant impact on firm performance, while corruption does not seem to have a statistically significant impact on firm sales. There may be two explanations for this phenomenon. First, there may be a very strong relationship between corruption and law and order since a weak legal system can lead to a poorer law and order condition as well as more corruption. This may make it difficult for us to pick up the specific effect of corruption on firm performance. Second, local corruption may be more relevant for firm performance than corruption at the national level. While we cannot test the second hypotheses using our existing dataset, we observe that there is a modest correlation between our corruption and law and order indicators (approximately 0.4). One way to circumvent this issue is to include a single indicator of institutional quality in our model. Column (3) in Table 3 reports the estimation results when we include our index of institutional quality. We observe that this institutional index has a positive and statistically significant impact on firm performance.

Since the effect of institutions on firm performance may vary by industry, we estimate Eq. (1) separately for the following industries: manufacturing, service, construction, and agriculture. These results are summarized in Table 4. We find that most of our previous results hold in the manufacturing, service, and construction industries, i.e., size, age, foreign ownership, and institutional quality are all positively related to firm performance.



Table 4 Relationship between institutions and firm performance by industry

	(1) <i>Manufacturing</i>	(2) <i>Service</i>	(3) <i>Construction</i>	(4) <i>Agriculture</i>
Size	1.77** (5.06)	3.68** (12.42)	3.23** (4.48)	-0.64 (0.71)
Age	0.03** (3.15)	0.06** (5.97)	0.14** (4.50)	0.03 (1.29)
Exporter	0.47 (0.96)	1.13* (2.17)	0.02 (0.02)	4.63** (3.55)
Foreign ownership	2.35** (4.67)	3.34** (6.99)	1.26 (0.93)	5.95** (2.69)
Institutional index	6.70** (4.96)	0.56 (0.51)	9.33** (3.50)	-9.00* (2.04)
Constant	-1.38 (0.51)	5.76* (2.48)	-12.40* (2.43)	37.63** (4.30)
Adjusted R^2	0.10	0.23	0.29	0.25
Observations	1,132	1,431	217	149

Notes: Dependent variable is log of sales for each firm. The institutional index is based on each country's socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality. A higher value of each institutional variable represents better institutional quality. Heteroskedasticity robust standard errors used. Absolute values of t-statistics in parentheses.

**, * Significant at 1 percent and 5 percent, respectively.

The evidence on exporting and firm performance appear to be mixed again: exporting seems to be correlated with better performance only in the service sector. Interestingly, these results are quite different in the agriculture sector as shown in column (4). We fail to detect any impact of firm-specific characteristics such as firm size and firm age on firm performance in the agriculture sector. This may be due to the nature of the agriculture sector: if it happens to be relatively homogeneous and fairly competitive, size and past experience may not give firms in this industry a significant competitive advantage over their rivals. Among firms in the agriculture sector, there also seems to be a negative relationship between institutional quality and firm performance. This may be due to the fact that countries with better institutions may also be at a higher stage of development and may therefore have a larger manufacturing base and a smaller (and possibly shrinking) agriculture sector. So, the negative relationship between institutional quality and firm performance reported in Table 4 may simply be a negative correlation between institutional quality and the size of the country's agricultural base.

To examine this relationship further, we select two regions from our dataset for which we observe the least number of missing observations: Europe (with higher income and larger manufacturing base) and South and Central America (with lower income and larger agricultural base). According to the *World Development Indicators* from the World Bank, agriculture contributed, on average, approximately 4 percent to the GDP of the European countries and approximately 12 percent to the GDP of the South and Central American countries in our sample (based on our own calculations).

The regression results for Europe and South-Central America are reported in Table 5. All of our previous results hold for firms in Europe, but the results seem to be somewhat different for firms in South-Central America. More specifically, institutional quality appears to have a negative relationship with firm performance in South-Central America. Thus, the results for the agriculture sector for all countries in Table 4 and the results for the South-Central American countries (which are largely agriculture driven) in Table 5



Table 5 Relationship between institutions and firm performance in Europe and South–Central America

	(1) <i>Europe</i>	(2) <i>South–Central America</i>
Size	1.37** (4.81)	0.62** (4.83)
Age	0.05** (5.85)	0.02** (5.55)
Exporter	1.48 (3.99)	0.38* (2.17)
Foreign ownership	3.67** (6.49)	0.56** (3.10)
Institutional index	13.95** (17.29)	–1.44* (2.50)
Constant	17.52** (9.03)	18.59** (17.11)
Adjusted R^2	0.28	0.42
Observations	353	1,400

Notes: Dependent variable is log of sales for each firm. The institutional index is based on each country’s socioeconomic environment, corruption, law and order, military involvement in politics, religion in politics, democratic accountability, and bureaucratic quality. A higher value of each institutional variable represents better institutional quality. Heteroskedasticity robust standard errors used. Absolute values of t-statistics in parentheses.

** , * Significant at 1 percent and 5 percent, respectively.

are similar. These results lend further support to the hypothesis that agricultural-driven economies may have better performing agricultural firms but weaker institutions.

CONCLUSION

This paper examines the determinants of firm performance in different regions by focusing on (1) firm-specific characteristics, (2) institutional factors (corruption, law and order, etc.), and (3) cultural dimensions (power distance, individuality, masculinity, and uncertainty avoidance). Using firm-level data from 74 countries, we find evidence consistent with the idea that institutions matter for firm performance, while these institutions themselves are influenced by different cultural attributes. More specifically, we observe that societies which are more individualistic, prefer certainty and stability (i.e., high uncertainty avoidance), and have more democratic power relations (i.e., low power distance) tend to have better social and political institutions. These results are by no means conclusive, but they take a step forward in enhancing our understanding of the various ways in which institutions and different cultural attributes may be related to each other.

Consistent with the previous literature, we find that firm characteristics (size, age, and ownership status) matter for firm performance. More significantly, we find that social and political institutions have important effects on firm performance. When we analyze these results by industry, we notice that improvements in the overall quality of institutions benefit manufacturing and construction firms, but they do not seem to have similar impact in the service and agriculture sectors. Institutions also have different impacts in different geographical regions. These results provide additional support to the popular view that institutional reforms should be country-specific.

One potential concern with examining the relationship between institutional variables and economic performance is that these variables may evolve jointly. More specifically,



while institutional variables can impact economic performance, it is also possible that economic performance affects institutional environment (for example, poor economic performance may lead to more corruption among government bureaucrats and business organizations) [Mauro 1995]. However, given the nature of our dataset, we do not think this is a major concern since we do not expect an individual firm's performance to affect the level of corruption and different forms of political instability in the entire economy. For future research, it will be interesting to look at the specific channels through which institutions influence firm performance. Identifying these channels is not possible with our existing dataset, but we hope future researchers will be able to address this issue with the help of more detailed datasets.

Finally, another limitation of our paper is that we are unable to examine the differences of institutions *within* the same country, due to lack of available data. It is likely that institutions at the local, rather than the national, level may be more relevant for firm performance. This may be the case especially for some large countries where some regions may have special economic policies, better institutions and consequently, better firm performance. Again, we leave this issue for future researchers to explore.

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APPENDIX A: DEFINITIONS OF INSTITUTIONAL VARIABLES FROM THE INTERNATIONAL COUNTRY RISK GUIDE

Corruption This is an assessment of both financial corruption (such as bribes connected with import and export licenses, tax assessments, police protection, or loans) and non-monetary corruption (such as nepotism, favors, and suspiciously close ties between politics and business).

Law and Order This assessment is based on both the strength and effective implementation of the legal system.

Socioeconomic environment This assessment is based on socioeconomic pressures caused by low consumer confidence or rising unemployment and poverty which can constrain government action.

Military in Politics This variable measures the degree of military participation in politics and the corresponding level of political risk.

Religious tensions This variable takes into account domination of governance by a single religious group that seeks to replace civil law by religious law and to exclude other religions from the political and/or social process. The risk involved in these situations range from inexperienced people imposing inappropriate policies through civil dissent to civil war.

Democratic accountability This is a measure of how responsive government is to its people. The less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one. The points in this component are awarded on the basis of the type of governance enjoyed by the country in question such as autarchy, one party state, and alternating free democracy.

Bureaucratic quality This measures the strength and expertise of the bureaucracy to govern without drastic changes in policy or interruptions in government services. In



countries with higher bureaucratic quality, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training.

APPENDIX B: LIST OF COUNTRIES IN OUR SAMPLE

Albania	Lithuania
Argentina	Madagascar
Armenia	Malawi
Azerbaijan	Malaysia
Bangladesh	Mexico
Belarus	Moldova
Bolivia	Namibia
Botswana	Nicaragua
Brazil	Nigeria
Bulgaria	Pakistan
Cameroon	Panama
Canada	Peru
Chile	Philippines
China	Poland
Colombia	Portugal
Costa Rica	Romania
Cote d'Ivoire	Russia
Croatia	Senegal
Czech Rep	Singapore
Dominican Republic	Slovakia
Ecuador	Slovenia
Egypt	South Africa
El Salvador	Spain
Estonia	Sweden
Ethiopia	Tanzania
France	Thailand
Germany	Trinidad & Tobago
Ghana	Tunisia
Guatemala	Turkey
Haiti	UK
Honduras	Uganda
Hungary	Ukraine
India	Uruguay
Indonesia	Venezuela
Italy	Zambia
Kazakhstan	Zimbabwe
Kenya	

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