

# Values Versus Regulations: How Culture Plays Its Role

Runtian Jing  
John L. Graham

**ABSTRACT.** This study examines the impact of culture on regulation and corruption. Our empirical results suggest that cultural values have significant effects on countries' regulatory policies, levels of corruption, and economic development. Contrary to the conclusions drawn by others, this study shows no significant relationship between the regulatory policies of countries and their perceived levels of corruption. Thus, evidence of the "public choice view" toward entry regulation derived in related studies seems to be at least attenuated.

**KEY WORDS:** regulation, entry, culture, economic development, corruption, time

In recent decades, the social sciences have witnessed a dissociation between the studies of values, symbols, and studies of social relations, modes of organizing, and institutions. Cultural studies processed as if mental products were manufactured in an institutional vacuum, while studies of social relations ignore how people justify to themselves and to others the way in which they live. One of the most important contributions of our socio-cultural theory, we believe, is bringing these two aspects of human life together (Thompson et al., 1990, p. 21).

Regulation is one important component of market mechanisms, reflecting the existence of social order by both the presence of regulatory rules and attempts to enforce them (Hancher and Moran, 1989). The presence of these rules is represented in the form of

governmental legislation and law, and the attempt to enforce these rules depends on the authority structures in societies. Two questions, "Who benefits most from regulation?" and "Who makes regulatory decisions?" are plainly central to understanding the difference between various views of regulation theory.

As to the first question, the "Public Interest Theory" and the "Public Choice Theory" provide quite distinctive answers. Since Adam Smith, the logic of regulation theory flowed from the goal of governmental intervention to lessen or eliminate the inefficiencies provoked by market failure (Pigou, 1960, pp. 336–380). This early approach is called "Public Interest Theory," and it is open to continued dispute. However, most were reluctant to challenge and test it until the 1960s.

Stigler and Friedland (1962) introduced "Public Choice Theory" in their pioneering study of the effects of regulation on electricity rates. Contrary to previous expectations, they found that electricity rates were not lower after regulation,<sup>1</sup> and they argued against the apparent benefits of regulation. Then, in his classic article in 1971, Stigler argues that regulation is actually promoted by industry, and is designed and operated primarily for industry's own benefits; and such an approach he called the "Capture Theory."

As another branch of "Public Choice Theory," the "Tollbooth Approach" holds that regulation is pursued for the benefits of politicians and bureaucrats rather than the welfare of society as a whole. Such regulation activities concentrate on rent creation, that is, the use of governmental power to create rents via entry controls, regulatory cartel enforcement, or raising rivals' costs (Banfield, 1975; Shleifer and Vishny, 1993). Another prominent feature of the "Tollbooth Approach" is called rent extraction, which means the intent to threaten

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*Dr. Runtian Jing is a Professor and Vice Dean of the School of Management, University of Electronic Science and Technology of China.*

*John L. Graham is Professor of International Business, The Paul Merage School of Business, University of California, Irvine.*

private rents through price controls, threats to withdraw special licenses and charters, destruction of name-brand capital, and imposition of excise taxes (McChesney, 1997).

A related second question concerns the allocation of authority in societies. The objectives of forcing organizations to behave according to a common set of behavioral norms can be attained through two different regulatory regimes, either government legislation or industry self-regulation. Government legislation concentrates on institutional solutions ultimately defining unacceptable behaviors as illegal ones. However, one disadvantage of this regime comes from its high-social costs such as financial expense, red tape, stultification of innovation, corruption, and implementation delays.

In the 1980s and 1990s, the apparent failures of regulation, particularly in command economies, evoked a growing trend toward “deregulation” or “self-regulation”(Reich, 1984). Many economists have tried to provide evidence of the efficacy and benefits of self-regulation (Shaked and Sutton, 1981) based on its reduction of rent seeking. They argued that self-regulation could help societies develop obligation and responsibility. However, others have pointed out the dysfunctional aspects of its complete dependence on social values and behavioral mechanisms (Brien, 1998).

A huge contribution was made to the study of regulation and its antecedents and consequences by the publication of Djankov et al. (2002) data on entry regulations around the world. They collected regulation data from 85 countries covering the number of procedures, time for entry permits, and official cost that start-up firms must bear before being allowed to operate legally. Using an OLS regression approach to analyzing their data, Djankov et al. (2002) showed that “...stricter regulation of entry *is* associated with sharply higher levels of corruption, and a greater relative size of the unofficial economy.” (p. 4). In associated comments and in their use of a regression model they imply a causal relationship between economic factors, regulatory factors, and their defined dependent variable, corruption, while explaining some 80% of the variance in the last: “The evidence is inconsistent with public interest theories of regulation, but supports public choice views that entry regulation benefits politicians and bureaucrats” (Djankov et al., 2002, p. 1).

The proof provided by Djankov et al. (2002) appears quite convincing, particularly given their innovative and uniquely diligent approach to measuring the extent of entry regulations across countries. However, the veracity of their results and conclusions begins to fade with simple reference to a plot of their regulation data and data on cultural values collected by Hofstede (1991) – the demonstrated correlation between the two country-level measures is above 0.6 ( $n = 48, p < 0.0001$ , see Figure 1 for the scatter plot). In the pages to follow we examine several aspects of findings of Djankov et al. and report contrary results based on the addition of culture variables into the analyses and a more rigorous analysis approach using structural equations modeling.

## Theoretical background and hypotheses

### *Different regulatory patterns*

Regulation patterns are different from nation to nation (Nicoletti, 2001). Different national traditions conceive of the allocation of social authority in different ways, and likewise allow access to regulatory space to different organizations and agencies (Hancher and Moran, 1989). Certainly the data presented by Djankov et al. (2002) best demonstrate such differences.

Some studies in regulation style have shown distinctive cultural and institutional characteristics in individual countries. For instance, France is known for its paternalistic conception of prerogative power toward regulation (Hayward, 1983), compared with the Dutch corporatist tradition toward coping with passionate social interests (Arentsen and Kunneke, 2001; Waarden, 1992). The belief in liberalism gives the U.S.

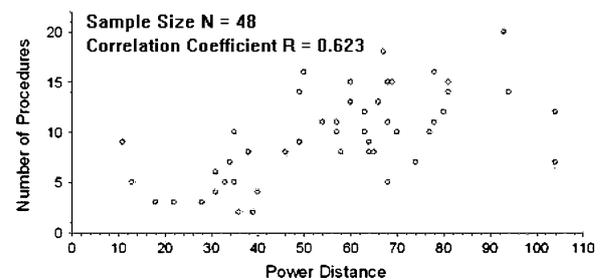


Figure 1. The correlation between regulation and cultural values.

### *Values versus regulations*

a more pluralistic perspective, while in Britain the philosophy of self-regulation exercises control over advertising, financial services, and various other professional activities (Ogus, 1995; Williamson, 1985).

Above all, regulation is the focused reflection of attitudes and beliefs about justice, responsibility and social relations, and these attitudes and beliefs are greatly affected by cultural values (Baldwin et al., 1998, p. 23). Therefore, national culture plays an important role in determining “whether regulation happens at all, its scope, how far it is embodied in statute or formal rules, and how far the struggles for competitive advantage which are a part of the regulatory process spill over into the Courts” (Friedman, 1969, p. 19).

#### *Hall's and Hofstede's views on culture and commerce*

Edward Hall is the seminal thinker, first applying anthropological theories to the study of business settings and commerce. His classic article in 1960, “The Silent Language in Overseas Business,” is still inspiring researchers in the discipline of cross-culture management (Hall, 1960). Based on his earlier book (Hall, 1959), he makes the fundamental point that we are not aware of the power of culture, because it tends to influence thinking below our level of consciousness through what he then termed “silent languages.” Hall specified five such silent languages – those of time, space, things, friendships, and agreements. In subsequent work he extended his ideas about culture and time and distinguished between monochronic (i.e., one thing at a time, time is money, etc.) and polychronic (i.e., multitasking, “mañana” attitudes, etc.) cultures (Hall, 1983). Another important contribution was Hall's (1976) delineation of still another important dimension of cultural difference, the varying salience of social context in communication. In so-called “low-context” cultures information provided in communication dominates attention, while in “high-context” cultures relationships (e.g., hierarchy, friendship, etc.) among people are more important.

Building on and borrowing from Hall's ideas Geert Hofstede (2001) defines culture as the collective programming of the mind that distinguishes the members of one group or category of people from another. Further, culture is composed of visible manifestations (such as symbols, heroes, and

rituals) and invisible values; and values are at the core of all its components. Between 1968 and 1970, Hofstede had more than 100,000 employees of IBM Company in more than 50 countries complete a questionnaire regarding work values. Based on analyses of those data he defined four dimensions of culture – individualism/collectivism index (IND), power distance index (PDI), uncertainty avoidance index (UAI), and masculinity/femininity index (MAS). Most importantly he assigned numerical scores to each of the 51 countries and two regions for each of the dimensions. These data are reported in his book, *Culture's Consequences*, which is now among the most cited sources in the Social Science Citation Index (SSCI) (Hofstede, 1980, 2001). According to his study, the dominant value system of a nation can be classified into the four cultural dimensions as his analyses revealed. Hofstede's work has been widely criticized on a variety of planes (West and Graham, 2004) and other researchers have developed alternative methods of measuring cultural values. However, Hofstede's data continue to be validated through use and they are most closely related to the issues of corruption addressed in this article.

Cateora and Graham (2004) synthesize Hall's observations, Hofstede's empirical results, and findings from a variety of other studies regarding commerce and culture in defining an overarching dimension of cultural difference. That is, they label cultures along a continuum as relationship-oriented versus information-oriented. “For example, American culture is low-context, individualistic, low power distance, and obviously (linguistically) close to English. Bribery is less common and Americans are monochronic time oriented, linguistically direct, foreground focused, and they achieve efficiency through competition...Alternatively, Japanese culture is high-context, collectivistic, high power distance, linguistically distant from English, bribery is more common, polychronic (in part), linguistically indirect, and background focused. Japanese culture achieves efficiency through reduction in transactions costs...” (p. 151). Thus, Cateora and Graham (2004) classify America as an information-oriented culture and Japan as a relationship-oriented culture – very different culturally while recognizing that both are highly industrialized and affluent countries.

### *Hypotheses*

Entry is disruptive. That is, when new businesses commence operations the commercial landscape changes in their area of operations. Other firms go out of business and new relationships among companies are created and old are dissolved. Relationship-oriented cultures will resist change as change damages already existing relationships. Our prediction is that leaders in relationship-oriented cultures will resist disruptions through the creation of barriers to entry for new businesses. These will often be in the form of regulatory barriers. Grendstad and Selle (1995) report that in hierarchical societies generalized regulations are emphasized and individual benefits are sacrificed for collective gain. Schwartz and Thompson (1990, p. 67) conclude that regulation form in hierarchical societies can be described as “leviathan,” while in individualistic societies “laissez-faire” is more preferred. Finally, Hofstede (1991) maintains that weak individualism is always associated with strong governmental intervention in the economy. Thus, we hypothesize:

**Hypothesis 1** Cultural values influence regulation policy. Specifically, relationship-oriented cultures (i.e., higher power distance and lower individualism) will have a heavier entry regulation burden.

In an early theoretical paper Vitell et al. (1993) argued that business ethics are culturally determined. In particular, they reasoned that managers in individualistic and low power distance cultures (such as the U.S.) would tend to ignore formal norms such as laws about corruption. Since then, several survey-based studies (e.g., Axinn et al., 2004; Christie et al., 2003; Gopalan and Thomson, 2003; Sims and Gegez, 2004; Smith and Hume, 2005) have demonstrated the effects of culture on ethical decision-making, but not necessarily the effects predicted by Vitell and his colleagues.

Moreover, empirical studies of the relationship between Hofstede’s (2001) cultural values and corruption levels in countries (measured using Transparency International’s Corruption Perception Index) consistently report findings contrary to Vitell et al. (1993). For example, Husted’s (1999) comparative study across 44 countries showed that corruption is significantly correlated to power

distance, masculinity, and uncertainty avoidance; and the cultural profile for corruption is high-power distance, high masculinity and high uncertainty avoidance. Likewise, several other studies have proved Vitell’s et al. (1993) predictions to be inaccurate with respect to valence. Getz and Volkema (2001) and Sanyal (2005) have provided further evidence for the positive relation between power distance and corruption level. Finally, Houston and Graham (2001) and Davis and Ruhe (2003) report countries high in social context salience (i.e., relationship-oriented cultures) tend to be more corrupt. Houston and Graham (2001) explain that bribery helps maintain relationships, and when forced to choose between paying friends versus obeying anti-bribery laws, the laws are ignored. Thus, we hypothesize:

**Hypothesis 2** Cultural values influence corruption levels of countries. Specifically, relationship-oriented cultures (i.e., low individualism and high power distance) will exhibit higher levels of corruption.

Among the most important sentences ever written is Smith’s (1776) epiphany about one of Man’s oldest conundrums, choosing between self and group interests: “By pursuing his own interests he frequently promotes that of society more effectually than when he really intends to promote it.”<sup>2</sup> That is, the invisible hand of self-interest leads to the maximal wealth of society. Individualism and competition yield benefits for the greater society. Indeed, Hofstede finds individualism is strongly correlated with GNP per capita (Hofstede, 2001, p. 251). He explains that monopolies are more common in collectivistic countries, while in more individualistic countries competition goes hand-in-hand with greater economic freedom and the associated better-economic performance.

**Hypothesis 3** Cultural values influence economic performance: Information-oriented cultures (i.e., high individualism and low power distance) will exhibit higher levels of economic development.

Many studies have reported economic development and corruption to be related. Usually the relationship is represented as causal, although there is disagreement about its direction. Many studies re-

port that higher stages of economic development cause lower levels of corruption (Alam, 1995; Houston and Graham, 2001; Macrae, 1982; Pavarella, 1996; Sanyal, 2005). On the other hand, a serious argument can be made that corruption impedes economic development, a reversal of the causal relationship. For example, Houston and Graham (2001) also report that high corruption levels in foreign countries have deterred American firms from participating in markets in those countries. This effect is observable in the five years immediately following the passage of the Foreign Corrupt Practice Act (FCPA) in 1977, and in the longer run, as well. Further, recent corruption appears to impede future economic development, which then may provoke even more corruption (Getz and Volkema, 2001). While addressed in this study, we do not *focus on* sorting out this particular causality issue. Instead, here we specify an association between corruption and economic development as a control for potentially competing hypotheses.

**Hypothesis 4** There is significant association between economic development and levels of corruption.

Since, Hotelling's early study on pricing recommended special taxes on public enterprises or natural monopolies (Hotelling, 1938), far more regulatory attention has been paid to industries such as gas, electricity, water, airlines, post, and telecommunications (Becker, 1986; DeLorme et al., 1994; Eads, 1983; Kaserman et al., 1993). Just as specified in "Public Interest Theory," poor market dynamics are the basis of one important premise for regulation policy; and regulation is just an intervention to correct "market failures" (including monopoly, externalities, or some other sources) (Fisher, 1979) or to compensate for "missing markets" (Chick, 1990, p. 1). Many empirical studies have been carried out to test the economic performance of different regulation policies. However, the results are inconsistent (Edwards and Edwards, 1973; Peltzman, 1965). Thus, we hypothesize as following:

**Hypothesis 5** There is an association between economic development conditions and regulatory policy.

Djankov et al. (2002) report a strong association between regulation and corruption. Their use of

regression analysis, including corruption as the dependent variable, implies a causal connection. Further, the authors conclude that the association provides evidence consistent with the "Tollbooth Approach," that is, regulation is not only a sign of corruption, but also a cause of it. This conclusion is based on two assumptions. First, heavier regulation will provide more space/opportunities for corruption and bribery. Second, heavier regulation will also protect "insider" enterprises against intensive competition from new start-up businesses (Posner, 1975). Their results seem to support these assumptions, and the correlation coefficient is over 0.6 (Djankov et al., 2002). Thus, we hypothesize the following:

**Hypothesis 6** Regulation policy is strongly correlated with corruption, and a heavier regulatory burden will be associated with higher levels of corruption.

## **Data**

### *Data sources*

Four different datasets are employed in this study – data on cultural values, entry regulation, corruption, and economic development.

### *Cultural values*

To measure cultural values, we use the data developed by Hofstede (2001) and supported by Triandis (1995) and Hall (1976). Although Hofstede includes four dimensions of cultural values in his original presentation, two have proven more salient in a variety of subsequent empirical studies (e.g., Graham et al., 1994; Roth, 1995) – individualism/collectivism and power distance.

"Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family" (Hofstede, 1991, p. 51). Its opposite is collectivism, where group membership and cooperation are paramount. "Power distance can therefore be defined as the extent to which less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (p. 28). In high power distance countries people tend to accept authority and

dependence. Both these notions are very much related to Hall's (1976) descriptions of high- and low-context cultures. In low-context cultures the social context of communication (e.g., who says it, when it is said, how it is said, where it is said, etc.) have little to do with the interpretation of what is said. Alternatively, in high-context cultures what is said can be understood only with a deep knowledge of the important social contextual factors surrounding the communication. Social hierarchy and personal relationships are important – "it's not *what* you know, it's *who* you know that's important."

Hall's (1976) descriptions of high-context cultures helped Hofstede (1991) form his ideas about (1) collectivistic cultures – "high-context cultures make greater distinctions between insiders and outsiders than low-context cultures do" (p. 112); and (2) high power distance cultures – "Also in high-context systems, people in places of authority are personally and truly (not just in theory) responsible for the actions of subordinates down to the lowest man" (p. 112). Hofstede makes several other such references to the close connections between collectivistic, high power distance, and high-context cultures (e.g., pp. 37, 60, 128, and 157). Hofstede (1980) also notes the high correlation between IND and PDI in his original data ( $r = .67$ ) suggesting that collectivism and hierarchy coincide. Triandis (1995) interprets this coincidence by describing "vertical collectivism" and "horizontal individualism" as being typical patterns around the world, although he does cite a few exceptions (e.g., Australia and France). We interpret all this to suggest that Hall's ideas about high/low context communication styles subsume both Hofstede's IND and PDI dimensions of values. Here these concepts are integrated into what Cateora and Graham (2004) call information-oriented versus relationship-oriented cultures.

#### *Entry regulations*

Two sets of data on entry regulations are included in this study. One set is the regulation data collected by Djankov et al. (2002) on starting up a new businesses, which includes number of procedures, time, and expenditures needed to complete the entire inscription, verification, and notification processes. Due to the needs of their study, regulatory procedures were categorized into the process of screening,

health and safety, labor, taxes, and environment. In the present study, we use only the total number of procedures, as well as the data on time and cost. In the annual Global Competitiveness Report (GCR) several indicators of regulation are included. For example, two such questions are pertinent here: "Approximately how many permits would you need to start a new firm?" and "Considering license and permit requirements, what is the typical number of days required to start a new firm in your country?" (Schwab et al. and World Economic Forum, 1999 and 2002). These latter two indicators are used to check the validity of the data developed by Djankov et al. (2002). Indeed, they are highly correlated with the "number of procedures" and "time needed" in Djankov's study (i.e., the coefficients are 0.55 and 0.52 respectively, for both  $p < 0.05$ ). Compared with the more objective collection methods of Djankov et al., the data in GCR are based on surveys of the subjective perceptions of business executives in each country. Here we use data from both sources as the observed indicators of the entry regulation latent variable.

#### *Corruption*

The Corruption Perceptions Index created by Transparency International (TICPI) is the most commonly used indicator for measuring the level of corruption across countries. It reflects the impressions and perceptions of corruption in dozens of countries based on surveys of business people, risk analysts, and the general public. We use TICPI (1999) as one indicator of the corruption variable in our study (Transparency International, 1999). The scores can vary from "0 = highly corrupt" to "10 = highly clean."<sup>3</sup> Two other indicators from GCR (2002), "bribery and kickbacks" and "irregular payments," are also included into our corruption latent variable. Both are scaled from "1 = strongly disagree" to "7 = strongly agree," "bribery and kickbacks" is defined as "personal bribes and kickbacks to senior politicians are rarely alleged in public discussions and rumors," and "irregular payments" is defined as "irregular additional payments connected with import and export permits, tax assessments, police protection or loan applications are not common." Thus, smaller scores mean higher levels of corruption for all these indicators.

### *Economic development*

Finally, economic development is measured by combining indicators of GDP per capita, economic freedom, and market structure. Gross Domestic Product (GDP) per capita in 1999 is used to measure the stage of economic development (Central Intelligence Agency, 2000). The economic freedom indicator is from "Economic Freedom of the World: 2000 Annual Report" (Gwartney and Lawson, 2000) which measures the extent to which economic agents are free to use the market mechanism for the allocation of resources and the extent to which property rights are protected. Our market structure data comes from one indicator in the Global Competitiveness Report (1999), which is defined as "competition in local markets is intensive and market shares fluctuate constantly." The item is scaled from "1 = strongly disagree" to "7 = strongly agree." Thus, smaller numbers imply higher levels of monopoly and vice-versa.

### *Measurement*

In summary, there are four latent variables in our structural model, CVal (Cultural Values), RGU (Regulation), CRP (Corruption) and ECO (Economic Development). CVal is measured using two observed indicators: X1 (power distance) and X2 (individualism). RGU has five indicators: Y1 (number of procedures), Y2 (time needed), Y3 (cost needed), Y4 (permits to start a firm) and Y5 (days to start a firm); the first three come from the Djankov et al. survey and the latter two come from the GCR. CRP is measured using three indicators: Y6 (TICPI), Y7 (bribes and kickbacks) and Y8 (irregular payments). ECO is measured using three indicators: Y9 (GDP per capita), Y10 (economic freedom) and Y11 (market structure).

The means, standard deviations, and correlation matrix are provided in Table I, as well as skewness and kurtosis statistics to demonstrate the normality of each variable.

## **Results**

Structural Equation Modeling (SEM) is a statistical methodology that applies confirmatory approaches in the multivariate analysis of structural theory

bearing on some phenomenon (Byrne, 1998). In our study, we use such SEM techniques along with the application software package, LISREL 8.3.

### *Model competition*

The conceptual structure can be specified in many different ways. For example, consider the question, "which should be the exogenous variable(s) among the four?" One might argue for economic development, cultural values, or both (as did Houston and Graham, 2001; Sanyal, 2005)? In the study we have tested all fourteen of the possible combinations, and the results confirm that only the hypothesized model with cultural values as a single exogenous variable satisfies the basic requirements of the various fit statistics. Please see Table II for details. Hence, the following analyses are based on the model specified wherein CVal is the sole exogenous variable. This analysis calls to question some of the theories, results, and conclusions of not only Djankov et al. (2002), but also Houston and Graham (2001) and Sanyal (2005). The first incorrectly modeled regulation as an exogenous variable, and the latter studies incorrectly modeled economic variables as exogenous.

Next, the model build-up and model competition analyses were performed to find the structural model best fitting the data. As shown in Table III, Model 0 is the most parsimonious with only two covariance relations (Y7/Y6 and Y10/Y7) set free. Then, after adding one covariance or inter-correlation each time in proper order, five other models are tested. That is, the factorial validity of the constructs is evaluated, and the change in  $\chi^2$ , the change in degrees of freedom, and the  $p$ -values (each compared with the previous one) are calculated to show the significance level of each model modification. The results show Model 5 to demonstrate the best fit in all respects: CFI = 1.00, GFI = 0.87,  $p$ -value = 0.750, SRMR = 0.049, RMSEA = 0.000,  $\chi^2/df$  = 0.866. The other five models are nested in Model 5, including the six paths of our hypotheses.

### *Structural model*

Hence, we accept model 5 to best represent the actual structural relationships as shown in Figure 2.

TABLE I  
Descriptive Statistics and Correlation Matrix

Measure	Mean	SD	SK <sup>†</sup>	KU <sup>†</sup>	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	X1	X2
Number of procedures (Y1)	9.65	4.44	0.14	-0.62	1.00												
Time needed (Y2)	42.79	29.22	0.73	0.28	0.63**	1.00											
Cost needed <sup>††</sup> (Y3)	18.87	18.45	1.93	3.65	0.39**	0.45**	1.00										
Permits to start a firm (Y4)	4.95	2.18	0.98	0.46	0.55**	0.48**	0.42**	1.00									
Days to start a firm (Y5)	39.83	23.17	0.91	0.57	0.49**	0.52**	0.46**	0.74**	1.00								
TICPI (Y6)	5.80	2.44	0.19	-1.32	-0.77**	-0.72**	-0.46**	-0.57**	-0.51**	1.00							
Bribes and kickbacks (Y7)	4.15	1.49	0.35	-1.34	-0.72**	-0.65**	-0.40**	-0.52**	-0.52**	0.95**	1.00						
Irregular payment (Y8)	4.96	1.36	-0.36	-1.20	-0.67**	-0.70**	-0.45**	-0.52**	-0.42**	0.94**	0.89**	1.00					
GDP per capita (Y9)	14.39	8.15	0.10	-1.32	-0.58**	-0.65**	-0.47**	-0.41**	-0.36*	0.84**	0.79**	0.85**	1.00				
Economic freedom (Y10)	6.99	0.98	-0.28	-0.59	-0.72**	-0.67**	-0.44**	-0.52**	-0.36*	0.84**	0.73**	0.81**	0.84**	1.00			
Market structure (Y11)	4.78	0.47	-0.91	1.06	-0.16	-0.18	-0.13	-0.13	-0.09	0.21	0.18	0.24	0.30*	0.38**	1.00		
Power distance (X1)	56.73	22.70	-0.03	-0.45	0.62**	0.62**	0.28	0.40**	0.40**	-0.73**	-0.69**	-0.73**	-0.63**	-0.61**	-0.16	1.00	
Individualism (X2)	48.50	24.88	0.03	-1.34	-0.53**	-0.55**	-0.24	-0.27	-0.24	0.63**	0.55**	0.56**	0.59**	0.51**	0.08	-0.64**	1.00

<sup>†</sup> Skewness (SK) and Kurtosis (KU) values. Although no definite cutoff points have been firmly advanced as to when scores indicate non-normal distributions, based on Monte Carlo simulations, Curran considered scores to be moderately non-normal if they demonstrated Skewness values ranging from 2.00 to 3.00, and Kurtosis values from 7.00 to 21.00; extreme non-normality was defined by Skewness values >3.00, and Kurtosis values >21.00. According to these rules, no variable in our dataset demonstrates serious non-normality (Curran et al., 1996)

<sup>††</sup> For simplicity and conformity, Djankov's et al. original cost data have been multiplied by 100  
Notes:

Sample size  $N = 48$

\*\* Correlation is significant at the 0.01 level, \* Correlation is significant at the 0.05 level (2-tailed).

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TABLE II  
Exogenous Variable Specification Confirmation

	Exogenous variable	Chi-square	df	<i>p</i> -value	RMSEA	CFI	GFI
1	CVal	72.39	60	0.131	0.06	0.95	0.81
2	ECO	106.69	57	0.005	0.11	0.91	0.78
3	RGU	82.42	62	0.042	0.08	0.94	0.79
4	CRU	Does not converge					
5	CVal, ECO	111.25	61	0.000	0.13	0.87	0.73
6	CVal, RGU	105.20	61	0.000	0.12	0.86	0.74
7	CRP, RGU	Does not converge					
8	CRP, CVal	101.15	61	0.001	0.12	0.88	0.75
9	CRP, ECO	132.51	61	0.001	0.16	0.79	0.70
10	ECO, RGU	122.70	61	0.000	0.15	0.80	0.71
11	ECO, CVal, RGU	142.26	62	0.000	0.17	0.82	0.68
12	ECO, CVal, CRP	154.43	62	0.000	0.18	0.62	0.66
13	RGU, CVal, CRP	174.53	62	0.000	0.18	0.79	0.67
14	RGU, CRP, ECO	131.12	62	0.000	0.15	0.82	0.70

TABLE III  
Model Testing and Development

Model	$\chi^2$	df	<i>p</i> -value	Change in $\chi^2$ *	Change in df *	RMSEA	SRMR	CFI	GFI
Model 0	72.39	60	0.131			0.066	0.065	0.95	0.81
Model 1	72.38	59	0.113	-0.01	-1	0.069	0.065	0.95	0.81
Model 2	58.33	58	0.463	-14.05**	-1	0.011	0.052	0.98	0.84
Model 3	54.47	57	0.571	-3.86**	-1	0.000	0.052	0.99	0.85
Model 4	53.07	56	0.587	-1.40	-1	0.000	0.052	0.99	0.85
Model 5***	47.61	55	0.750	-5.46**	-1	0.000	0.049	1.00	0.87

\*All the changes in  $\chi^2$  and changes in df are calculated with reference to the previous model, and model 0 is the baseline

\*\*These *p*-values are below 5%, and the other two *p*-values are larger than 5%

\*\*\*Specific fitness statistics information for model 5:  $\chi^2_{55} = 47.61$  ( $p = 0.750$ ), RMSEA = 0.000(90% Confidence Interval for RMSEA: 0.000–0.068),

SRMR = 0.049, NFI = 0.91, NNFI = 1.00, CFI = 1.00, GFI = 0.87

Notes: Model 0: The baseline model, the covariance (Y7 and Y6, Y10 and Y7) is set free; Model 1: Based on Model 0, the correlation between CRP and RGU is set free; Model 2: Based on Model 1, the covariance between Y5 and Y4 is set free; Model 3: Based on Model 2, the covariance between Y10 and Y1 is set free; Model 4: Based on Model 3, the correlation between ECO and RGU is set free; Model 5: Based on Model 4, the correlation between ECO and CRP is set free

Better model fits are indicated by lower values of RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Square Residual), as well as higher NFI (Normed Fit Index), NNFI (Non-normed Fit Index), CFI (Comparative Fit Index) and GFI (Goodness of Fit Index)

All the standardized parameters are presented there. The number of observations is 91 ( $13 \times 14 / 2 = 91$ ) and number of parameters is 36. Therefore, 55 degrees of freedom remain, and the model is over-identified.

Table IV shows the final results, including the standardized estimates of the parameters with their respective *t*-values, both for the structural/theoretical model and measurement model.

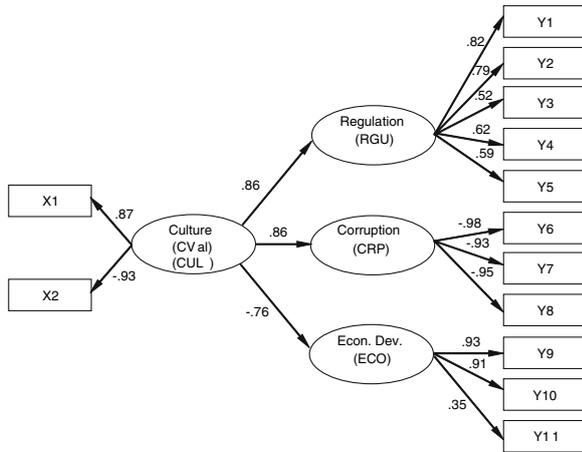


Figure 2. The proposed structural model.

### Hypothesis tests

Please see Table IV for more details regarding the hypothesis testing. Hypothesis 1 is supported by the LISREL analysis ( $\gamma_{11} = 0.86$ ,  $t$ -value = 4.97). This finding suggests that a heavier regulatory burden is the result of differences across countries in cultural values (i.e., higher power distance and lower individualism). Higher regulatory barriers to entry are found in relationship-oriented cultures as predicted.

Hypothesis 2 is supported ( $\gamma_{12} = 0.86$ ,  $t$ -value = 6.02). Cultural values affect levels of corruption across countries. Relationship-oriented cultures (higher on power distance and lower on individualism) tend to be more corrupt.

Hypothesis 3 is supported ( $\gamma_{13} = -0.76$ ,  $t$ -value = -4.92). Cultural values were found to impact economic development. Information-oriented cultures (lower on power distance and higher on individualism) tended to be more developed economically (higher-per capita GNP, greater-economic freedom, and higher-levels of competitiveness).

Hypothesis 4 is supported ( $\beta_{23} = -0.27$ ,  $t$ -value = -2.44). There is significant negative correlation between economic development and the level of corruption. This means that higher stages of economic development are associated with lower levels of corruption.

Hypothesis 5 is rejected ( $\beta_{13} = -0.17$ ,  $t$ -value = -1.47). The correlation between regulation

policy and economic development is not statistically significant in the context of the hypothesized structural equations model.

Hypothesis 6 is also rejected ( $\beta_{12} = 0.19$ ,  $t$ -value = 1.74). The results of our analyses do not support the correlation between regulation policy and the levels of corruption in the context of the hypothesized structural equations model.

### Additional evidence for the salience of cultural values

*Comparing data from Djankov et al. and Brunetti et al.*

The International Finance Corporation (IFC) supported a survey entitled “How Businesses See Government”? conducted in many countries in preparation for the World Development Report of 1997. The questions were mainly about obstacles for doing business, among which there were questions about the regulation of business start-up (Brunetti et al., 1997). Answers to the question “Regulations for starting business/new operations” ranged from “1 = there is no obstacle” to “6 = there are very many obstacles.” One might expect a convergence between the two separate measures of the burden of entry regulations across the Djankov et al. (2002) and Brunetti et al. (1997) studies.

However, as shown in Table V there is no statistically significant relationship, and therefore, no convergence, between the two datasets. Perhaps one may attribute the differences to the aging of the Brunetti et al. data? But, we cannot believe that the change would be so great during the two-year period involved (i.e., from 1997 to 1999). And, we do note the convergence of the GCR data with the new data developed by Djankov et al.

Another possible explanation for the discrepancy comes from the differing measurement methods applied. The Djankov et al. data were based on archival information on start-up procedures gleaned from government publications, reports of development agencies, and government web pages. The Brunetti et al. data were collected by surveying entrepreneurs in each country about their attitudes toward regulations. That is, the latter is measuring the psychological gap (“regulation as obstacles”)

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TABLE IV  
Parameter Estimates for Final Model

<i>Hypothesis path:</i>	Standardized Estimates	<i>t</i> -value
Cultural values (CVal) → Regulation (RGU)	0.86	4.97
Cultural values (CVal) → Corruption (CRP)	0.86	6.02
Cultural values (CVal) → Economic development (ECO)	-0.76	-4.92
Economic development (ECO) ↔ Corruption (CRP)	-0.27	-2.44
Economic development (ECO) ↔ Regulation (RGU)	-0.17	-1.47*
Regulation (RGU) ↔ Corruption (CRP)	0.19	1.74*
<i>Measurement loading:</i>		
Number of procedures (Y1) → Regulation (RGU)	0.82	-**
Time needed (Y2) → Regulation (RGU)	0.79	6.14
Cost needed (Y3) → Regulation (RGU)	0.52	3.61
Permits to start a firm (Y4) → Regulation (RGU)	0.62	4.45
Days to start a firm (Y5) → Regulation (RGU)	0.59	4.19
TICPI (Y6) → Corruption (CRP)	-0.98	-**
Bribes and kickbacks (Y7) → Corruption (CRP)	-0.93	-19.49
Irregular payment (Y8) → Corruption (CRP)	-0.95	-17.21
GDP per capita (Y9) → Economic development (ECO)	0.93	-**
Economic freedom (Y10) → Economic development (ECO)	0.91	10.59
Market structure (Y11) → Economic development (ECO)	0.33	2.34
Power distance (X1) → Cultural values (CVal)	0.87	-**
Individualism (X2) → Cultural values (CVal)	-0.74	-5.49

Explained variance ( $R^2$ ) for: RGU = 0.73, CRP = 0.74, ECO = 0.58

\*Based on the level of five percent, the absolute value of test statistic need to be  $\geq 1.96$  before the hypothesis can be rejected. Therefore, two parameter estimates fail to reach this significant level (CRP/RGU, ECO/RGU), all the other parameter estimates are above the five percent level of significance

\*\*The four parameters estimates without *t*-values represent fixed loadings in measurement model

TABLE V  
Comparisons Between Djankov et al. and Brunetti et al. Datasets

	Valid Sample Size	Mean	Standard Deviation	Correlation $r^*$	<i>p</i> -Value
Djankov et al. dataset:					
Number of procedures	85	10.50	4.37	-0.176	0.207
Time needed	85	47.40	30.80	-0.163	0.245
Cost needed	84	0.47	0.79	-0.160	0.258
Brunetti et al. dataset:					
As an obstacle	72	3.80	0.48		

\*This is the Spearman correlation coefficient to Brunetti's indicator "As an obstacle"

between one's ideal regulatory pattern and actual practice.<sup>4</sup>

Indeed, because the measurement approaches are different some additional insight into cultural dif-

ferences across countries becomes available for scrutiny. For example, in the Djankov et al. data, the regulation upon start-up has only four procedures in United States, comparing with twenty procedures in

Russia. However, in the Brunetti et al. data, the perception of “regulation as obstacles” is exactly opposite – the entrepreneurs in Russia were far more satisfied with their regulation policy than their counterparts in the U.S. This might be explained by the fact that Russians are answering the question in the context of their relationship-oriented culture (for Russia IND = 39, PDI = 93; for the U.S. IND = 91, PDI = 40). Such an interpretation is consistent with the findings reported regarding Hypothesis 1. That is, the entrepreneurs in Russia had a higher preference and patience for a stricter regulatory environment.

*Regulation and Hall’s views about time*

Inspired by Hall’s ideas about the variation in cultural values for time, Levine (1997) measured the apparent cultural importance of time for 31 countries. The overall ranking is based on three measures: minutes downtown pedestrians take to walk 60 feet; minutes it takes a postal clerk to complete a stamp-purchase transaction; and accuracy in minutes of public clocks. If culture is influencing regulation we might expect to see a relationship between Levine’s scores and the Djankov et al. (2002) data regarding time.

To check for such a relationship we first transformed the Djankov et al. regulation data into ordinal data. Then, an OLS regression model was used to determine the level of correspondence of the disparate measures. The correlations coefficients reported in Table VI demonstrate strong relationships between cultural values for time and regulation. In particular, when the value of time is higher,

the time needed to complete business start-up procedures is reduced ( $r = -0.6, p < 0.001$ ).

**Discussion**

Djankov et al. (2002) conclude that the association they report between entry regulation and corruption provides evidence to support “Public Choice Theory” and, in particular, the “Tollbooth Approach” aspect of it. That is, politicians and bureaucrats establish more regulations to benefit their own wallets via collecting bribes (tolls) from firms entering markets. Our findings suggest that things are more complicated than that.

First of all, the correlation between regulation and corruption reported by Djankov et al. (2002) evaporates when cultural values are considered in a structural equations analysis. The fundamental common cause of both regulations and corruption is cultural values. Please see Figure 2 and Table IV. Scheines (1997) provides a most exemplary metaphor. Smoking leads to both yellowed, nicotine-stained fingers and lung cancer. Thus, we may notice that having yellowed fingers is correlated with lung cancer, but we still cannot say wearing gloves while smoking or amputating the yellow fingers will cure the lung cancer. The situation is the same when we consider the relationship between corruption and regulation. According to Bollen (1989), causality must exhibit three components: isolation, association, and the direction of the influence. While Djankov et al. (2002) demonstrated an association, the other two criteria were not adequately explored in their study.

TABLE VI  
Correlation between Cultural Values for Time and Regulation Data

Independent Variable:	Number of procedures	Time needed	Cost needed
Attitude toward time			
Spearman Correlation r	-0.4802	-0.6018	-0.4084
p-value	0.0112	0.0009	0.0344

Sample size  $N = 27$ . There is 31 countries’ data originally in Levine’s (1997) study. However, after combined with regulation data using listwise method, only 27 observations are left

Moreover, in the primary analyses of this study, data on cultural values collected in the early 1970's does a fine job of predicting *both* regulatory environments and levels of corruption existing across dozens of countries in the late 1990s. The ancillary analyses also support the salience of cultural values. That is, reference to cultural values helps sort out the discrepancies between two separate measures of barriers to entry across countries. Russian entrepreneurs reported less dissatisfaction with greater regulations, because of their relationship-oriented cultural values. Further, simple observations of walking speed, the accuracy of clocks, and the time it takes to buy a postage stamp all add up to well predict the time it takes to get a business license across countries. This is so because all four phenomena are caused by a more general set of cultural values regarding time.

Relationship-oriented cultures, because of their higher values for maintaining relationships, tend to be more regulated *and* more corrupt. Now, of course, one might argue that our findings merely demonstrate that those same corrupt politicians and bureaucrats are really just creating the regulations to keep new entrants from disrupting *their* status quo, for *their* own benefit.<sup>5</sup> However, such a view disregards the societal benefits of stability. And, at this point in time there are not clear answers regarding the stability question. For example, compare regulated Japan with deregulated America – which is the better running economy? Hodgson et al. (2000) note the remarkable stability exhibited by the Japanese economy during the 1990s despite 60% declines in equities and real estate values at the beginning of the decade. Or, how about China's regulated and stable growth versus Russia's freewheeling business cycles in the last decade?

What about policy implications? If you believe that regulation causes corruption, then you believe that reducing regulations will result in less corruption. Indeed, carried to the extreme, this logic is by definition correct – with no regulations you cannot have corruption! But, because all nations regulate entry to some degree, the extreme case is irrelevant. Our findings suggest that within the range of reality, simply reducing entry regulations will have little impact on corruption and bribery. Alternatively, a remedy that seems to have worked was that applied by Lee Kuan Yew in Singapore and the Independent Commission Against Corruption (ICAC) in Hong Kong during the 1970s and

1980s. Consistent with the views of Hofstede (2001), a combination of tough rules, vigilant enforcement, and a rectitudinous leadership apparently succeeded in changing the “culture” of bribery and corruption in those small relationship-oriented countries (for Singapore IND = 20, PDI = 74; and for Hong Kong IND = 25, PDI = 68), while yielding an associated excellent economic performance.

A structural equations model was tested to explore the relations between the cultural, regulatory, corruption, and economic variables. The results show that, culturally determined values have significant impacts upon the regulation policy, level of corruption, and economic development across countries in the datasets. Research can suffer from serious errors of omission when available and pertinent cultural factors are left out of important international comparisons. Discussions of economic policy making cannot ignore the realities of cultural context. Policy advice useful in one cultural context may prove inappropriate in others. Indeed, to the extent that the field of economics ignores such cultural influences it is exposed to the fundamental criticism and limitations of its ethnocentricity.

### **Acknowledgement**

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### **Notes**

<sup>1</sup> California readers, in particular, will be sensitive to the notion that price is not the sole measure of the quality of electrical power services pertinent to consumers and the public good. That is, stability of supply also is important.

<sup>2</sup> The reader will note Smith's hedge: He says “frequently,” not “always” or even “most of the time.” Thus, he left room for regulation.

<sup>3</sup> The validity of the TICPI has been demonstrated in a variety of studies. For example, Kaufmann et al. (1999) have developed their “Graft index” that includes scores for 155 nations. Despite substantial differences in data collection methods, these two datasets are almost identical, correlated at 0.98 (Knack and Azfar, 2001). Although not included in the initial analysis, we have

used the “Graft index” instead of TICPI in a post hoc analysis; and the final results are consistent despite this change.

<sup>4</sup> This is a different kind of question from that asked in the GCR referred to earlier. Like Djankov et al., the GCR asks for specific numbers regarding entry regulations, not opinions.

<sup>5</sup> We must note that Hofstede (2001) appears to subscribe to the “tollbooth theory” of corruption: “Corruption is a way for politicians to escape from poverty, which they need less if there is no poverty” (p. 113).

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*Runtian Jing*  
*School of Management,*  
*University of Electronic Science and Technology of China,*  
*Chendu, 610054, China.*  
*E-mail: rtjing@uestc.edu.cn*

*John L. Graham*  
*The Paul Merage School of Business,*  
*University of California,*  
*Irvine, CA, 92697, U.S.A.*  
*E-mail: jgraham@uci.edu*