

# Individualism and Corruption: A Cross-Country Analysis

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While the role of cultural norms in determining corruption is well-explored in the empirical literature, the relationship between a specific aspect of culture, that is, individualism versus collectivism, and corruption is rather unexplored. This paper investigates the relationship between individualism/collectivism and corruption in a large cross-section of countries. To establish causality, the paper uses an index of historical prevalence of infectious diseases and a measure of genetic distance between the population in a country from that in the United States to instrument the individualism/collectivism variable. We find that more individualistic countries have lower levels of corruption (perception). This relationship is robust to the inclusion of a rich set of control variables and to the use of alternative measures of corruption.

Keywords: corruption, culture, individualism, collectivism.

A universalist [individualist] will say of particularists [collectivists], “They cannot be trusted because they will always help their friends”; collectivists will say of individualists, “You cannot trust them; they would not even help a friend.” (Trompenaars & Hampden-Turner, 1997, pp. 31–32)

## 1. Introduction

Corruption has a wide range of negative consequences for a country. It not only reduces economic growth by discouraging investments (Mauro, 1995), but also has undesirable consequences for poverty and income inequality (Gupta *et al.*, 2002).<sup>3</sup> To be able to formulate effective policies to constrain corruption, it is important to identify the determinants of corruption. Cultural differences emerge as one of the most important determinants of corruption among the widely acknowledged array of factors such as the level of economic development, institutions, colonial histories, and exposure to democracy (Treisman, 2000; Lederman *et al.*, 2005). However, the role of specific aspects of culture in affecting corruption remains relatively unexplored and elusive. This paper makes an important contribution to fill this gap in the literature by exploring the effects of a specific dimension of culture — individualism versus collectivism — on corruption.

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<sup>3</sup>Recent studies have also reported that corruption influences the allocation of public spending (Moschovis, 2010), and increases the emigration rate of high skilled workers from a country (Cooray & Schneider, 2016).

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Notably, among several dimensions of culture, individualism/collectivism has been argued to be the most important dimension (Heine, 2007). It is, therefore, not surprising that an emerging body of research has started exploring its effects on economic outcomes. The main idea behind these studies is that individualist and collectivist cultures have different reward structures for personal achievements. An individualist society awards greater monetary benefits and social status for personal achievements than a collectivist culture that promotes conformity. As a result, countries with individualist cultures tend to have greater rates of innovation and growth, higher productivity, and better institutions compared to countries having collectivist cultures (Gorodnichenko & Roland, 2010, 2011a). In fact, Gorodnichenko and Roland (2011b) find individualism/collectivism to be the most important dimension of culture and document a significant impact of this cultural dimension on long-run growth.

In this paper, we examine the effects of this specific aspect of culture — individualism versus collectivism — on corruption. In what follows, we first define these two dimensions of culture and explain how these are different from each other. We go on to explain why these differences are important in shaping individuals' actions, and what their implications are for the levels of corruption across countries.

Hofstede (2001) defines individualism/collectivism as the following: "Individualism stands for a society in which the ties between individuals are loose: Everyone is expected to look after him/herself and her/his immediate family only. Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede, 2001, p. 225). In individualist societies, it is acceptable for individuals to pursue their own interests rather than prioritizing the interests of their groups. A person's behaviour in an individualistic society is motivated by her attitude unlike the behaviour of an individual from a collectivist society whose behaviour is influenced by the norms of her group (Triandis, 2001; Hofstede, Hofstede and Minkov, 2010). On the other hand, in collectivist societies, the goals of the group are favoured over the goals of individuals, and individuals are expected to make sacrifices in the interests of the group they belong to. Furthermore, maintaining relationships are more important in collectivist societies than in individualistic societies that deem achieving justice more important (Ohbuchi *et al.*, 1999; Triandis, 2001; Hofstede, Hofstede and Minkov, 2010). In sum, while personal rights, achievements, and autonomy are emphasized in an individualistic society, a collectivist society expects individuals to behave in a way that conforms to the social (group) norms and is in the interests of the group and rewards them for doing so.

Individualism and collectivism are also attached to the value systems of the majority and thereby have strong moral implications: Individualist countries are characterized by a universalist norm, whereas the norm in collectivist countries is particularist (Hofstede, 2001). And, while, in the particularist culture, more attention is given to the obligations of relationships and unique circumstances, the universalist approach is roughly "What is good and right can be defined and always applies" (Trompenaars & Hampden-Turner, 1997: p.8). In collectivist societies, therefore, officials are more likely to bend laws when dealing with acquaintances, friends, and relatives, and less likely to report an illegal activity by a colleague just to keep the relationship intact. On the other hand, people in individualist countries are likely to be more vocal against corrupt activities by their colleagues and even superiors. The emphasis on maintaining relationships in collectivist societies is, therefore, conducive to nepotism and favoritism potentially engendering corruption. Tanzi (1994) discusses the importance of the concept of "arm's length" in determining corruption. In collectivist societies, a preferential treatment from a friend or a group member is expected and a person – as a private agent or as a public employee – refusing to provide such preferential treatment would even be considered as immoral and may be subject to ostracization. In contrast, in individualistic societies, such favours are not expected making it easier for the government officials to follow the arm's length principles resulting in lower levels of corruption. Furthermore, since the individualistic societies promote autonomy and reward personal achievements, the individuals are more likely to feel responsible and accountable for their behaviours and therefore are less likely to engage in corrupt activities. Hence,

corruption among public officials is expected to be lower in individualistic countries than in collectivist countries.

Moreover, since the exchange of gifts is very common in collectivist societies, it may be difficult to distinguish between gifts or bribes (Zheng *et al.*, 2013). Thus, not only the probability of an occurrence of a corrupt activity is greater but also the expected cost of corrupt transactions, if discovered, is smaller in collectivist societies than societies with individualist culture. It can further be argued that the emphasis on conformity may make corruption persistent in collectivist countries – an entrant to public office is more likely to follow established norms in collectivist societies than his/her counterpart in an individualist country. Motivated by these important differences between these two facets of culture, this study hypothesizes that a greater degree of individualism should be negatively associated with corruption.

The present paper is the first study that uses a large cross-section of ninety-nine countries to investigate the link between individualism/collectivism and overall corruption perception. In a cross country setting, however, individualism/collectivism can potentially be endogenous to the model. Hence, to allow a causal interpretation, we adopt an instrumental variable approach. Our first instrument is an index of the historical prevalence of infectious diseases (Murray & Schaller, 2010). Fincher *et al.* (2008) argue that regions with frequent outbreaks of infectious diseases were likely to develop collectivist traits (such as avoiding foreigners and out-group members) as a defence mechanism to inhibit pathogen transmission. Our second instrument is the genetic distance of a country's population from that in the United States, the most individualistic country in our data set (Spolaore & Wacziarg, 2009). Gorodnichenko and Roland (2010) contend that individual cultural attributes can be traced back to parents through cultural transmission. Countries whose populations are genetically distant make this cultural transmission less likely. Hence, this distance can be used as a proxy for cultural differences.

Our findings suggest that there exists a strong, negative relationship between individualism and corruption, implying that more individualistic countries have lower levels of overall corruption perception. This relationship is robust to the inclusion of a rich set of control variables and to the use of three different measures of corruption. Moreover, our conclusions remain valid when inferences are drawn based on three different approaches that are robust to the presence of weak instruments.

The rest of the paper is structured as follows: Section 2 provides a brief review of the literature on the determinants of corruption and outlines our contribution. In Section 3, we present the data, provide data sources and specify our empirical methodology. Section 4 discusses our results, and Section 5 provides the concluding remarks.

## 2. Literature Review

A variety of economic, political, institutional, historical and cultural factors have been identified as determinants of corruption across countries by previous studies. Corruption tends to be lower in economically developed countries where a greater amount of resources can be devoted in the fight against corruption (Treisman, 2000). It has also been argued that excessive government interventions and regulations create opportunities for public employees to extract rents that lead to an increase in bureaucratic corruption (Acemoglu & Verdier, 2000). Thus, corruption is greater in economies that are characterized by heavy government regulations (Holcombe & Boudreaux, 2015).

Regarding political and institutional factors, Lederman *et al.* (2005) underscore the importance of political mechanisms in reducing corruption and argue that strong political institutions reduce corruption by increasing the cost of committing corrupt practices by encouraging punishment of corrupt officials. The authors show that corruption is negatively associated with democracy, parliamentary systems and press freedom. Treisman (2000), on the other hand, finds that while the current degree of democracy is not significantly associated with corruption; a longer exposure to democracy is negatively correlated with corruption. Studies have also underscored the importance of civil society in determining corruption. For example, it has been found that press freedom (a proxy for the monitoring capacities of civil society) and corruption are negatively related (Ahrend, 2002).

Among historical factors, it has been found that legal origins and colonial histories have important bearings on corruption in a country. More specifically, corruption tends to be higher in countries that use French or Civil laws compared to those that have Common laws (La Porta *et al.*, 1999) and lower in countries that have histories of British rule (Treisman, 2000).

### 2.1. Culture and Corruption

The earliest studies that hypothesized a link between culture and corruption were inspired by the notion that some cultures have stricter hierarchical structure than others, and in societies with such cultures, the office holders face little objections against their actions from their juniors (and the public). This, in turn, reduces the cost of corrupt activities and may cause corruption to be greater in these societies compared to those in which individuals are more likely to challenge the actions of persons in power. In an influential paper, La Porta *et al.* (1997) argue that Roman Catholic, Eastern Orthodox and Muslim religions have a hierarchical structure while Protestantism is more egalitarian, and show that corruption is greater in countries where a greater proportion of the population belongs to hierarchical religions. Following this paper, a large body of the empirical corruption literature has utilized religious affiliations of the population as a proxy for culture. These studies have found that corruption is greater in countries that have high populations belonging to hierarchical religions (La Porta *et al.*, 1997) and lower in countries that have high proportion of Protestants (Treisman, 2000).

While the religious affiliations of the population can broadly be a proxy for culture, it is imperative that researchers explore the effects of specific aspects of culture on corruption, which may further help formulate effective policies. This is especially important since the culture, as proxied by the religious affiliations, can have multiple facets, and it is quite possible that some of these facets may impact corruption in opposite directions. Recognizing this, some of the recent studies have examined the role of specific aspects of culture, particularly the role of individualism/collectivism in affecting corruption. For instance, in a study, Husted (1999) explores the role of various aspects of culture on corruption, and fails to find a statistically significant association between individualism/collectivism and corruption, and believes that the absence of this relationship may be due to the fact that there is a high correlation between individualism and GNP per capita, a primary control variable in his study. However, his study is based on a cross-country analysis of only forty-four countries, and potentially suffers from endogeneity and sample selection bias. Hence, his findings, as the author himself concurs, can only be treated as tentative. Furthermore, in a separate study, Zheng *et al.* (2013) investigate the possibility that “interdependent self-construal and particularist norms in collectivist countries” may lead to greater corruption in bank lending. Although their study only deals with corruption in bank lending in a sample of thirty-eight countries, their analysis of firm-level data suggests that firms located in collectivist countries perceive greater corruption in bank lending relative to firms that are domiciled in individualist countries.

The findings from this literature, therefore, suggest that while the individualism/collectivism dimension is important for corruption, the evidence remains rather inconclusive. These findings, thus, suggest that a further investigation of the relationship between this specific aspect of culture — individualism/collectivism — and corruption is both necessary and a worthwhile exercise. More specifically, there is a need for studies that can complement the existing studies in three important ways: (i) by expanding the sample size to include a greater number of countries to check whether the relationship is valid only for a small set of countries included in previous studies or can be applied universally, (ii) investigating the effects of individualism/collectivism on the overall corruption level in a country to investigate whether this relationship can be generalized to the overall corruption level in a country or the relationship is limited to the specific sector, that is, corruption in bank lending, and (iii) at the same time, establishing a causal interpretation of this relationship given that the possibility of individualism/collectivism being potentially endogenous cannot be ruled out in a cross-country setting due to omitted variable bias. This study aims to fulfil all these three extensions.

### 3. Data and Methodology

#### 3.1. Data

The primary measure of corruption used in this study is the 2010 Control of Corruption Index (CCI) from the World Bank.<sup>4</sup> The CCI takes values from  $-2.5$  (highly corrupt) to  $2.5$  (corruption-free). It captures the corruption perception and is constructed on the basis of surveys of firms, households, business analysts, non-governmental organizations and public sector agencies. These surveys are designed to capture the extent of government corruption including political, judicial, police, customs and bureaucratic corruption, and to measure the frequency of household bribes as well as the extent of corruption in the business sector. Several of these surveys record responses from individuals and domestic firms with first-hand experiences with corrupt practices.

Following the literature, we use the individualism index developed by Hofstede (2001) as a measure of individualism/collectivism. The initial version of Hofstede (2001)'s individualism index was based on the surveys of IBM employees in forty countries that were carried out with an objective to comprehend the cultural differences among employees in different countries. The survey contained fourteen questions that were designed to evaluate the importance an employee assigns to different work goals such as challenges at work place (sense of personal accomplishment), desirable area to live, an opportunity for high earning, cooperation, opportunities for training, fringe benefits, recognition, physical working conditions, freedom of approach to adapt to the job, employment security, opportunity for advancement, relationship with the manager, opportunity to use skill and ability at work place, and personal time (Hofstede, 2001). The responses to these questions were standardized by country to eliminate acquiescence, and a factor score analysis was used to construct the individualism index. Over the years, more surveys have been conducted in different countries to expand the data coverage. The index takes values between 0 and 100, where a higher value reflects a more individualistic society, and conversely, a lower value reflects a more collectivist society.

Richer countries can not only afford to control corruption more effectively, but also the incentives to engage in corrupt activities are smaller while costs are higher in economically prosperous countries. Consequently, corruption tends to be higher in poor countries and lower in economically developed countries (Treisman, 2000). Hence, our regression model controls for the purchasing power adjusted Gross Domestic Product (GDP) per capita to control for the level of economic development. As discussed in the literature review, studies have found that corruption tends to be lower in countries with stronger political institutions in the form of effective democracy and judiciary (Treisman, 2000; Lederman *et al.*, 2005). Hence, our baseline specification controls for the 2010 political rights index as a measure of the quality of political institutions and current democracy.

The political rights index, published by the Freedom House, takes values in the range of 1–7. A score of 1 reflects a wide range of political rights as measured by the fairness of elections, the ability of elected leaders to rule, the competitiveness of political parties, the role played by the opposition, and the effective participation of minority groups in the political process through self-government and informal consensus. On the other hand, countries with a score of 7 enjoy few to no political rights and are characterized by severe government oppression, may lack an effective central government, warlords may dominate political power, suffer from extreme violence, and occasionally face civil wars. The civil liberties index, published by the Freedom House, is used as an alternative measure of institutional quality. The index takes values in the range of 1–7. A rating of 1 in the civil liberties index implies the broadest range of civil liberties where people enjoy “freedom of expression, assembly, association, education, and religion,” and fair and established rule of law, women and minorities enjoy equality of opportunity, and free economic activity is promoted. Countries that have little to no civil liberties are rated a score of 7 in civil liberties index.

<sup>4</sup>Refer to Kaufmann *et al.* (2011) for details regarding the construction of the CCI.

Following previous studies (e.g. Treisman, 2000), we control for the proportions of the population belonging to Christian, Hindu, and Muslim faiths as a proxy for culture using the data from the Association of Religion Data Archive. Colonial histories have been used by the previous studies to capture the institutional set-up of countries and it has been found that countries with British colonial origins are less corrupt (Treisman, 2000). Hence, following Treisman (2000) we include a dummy for “Former British Colonies” and a dummy for “Never Colonized” countries in our regression specification using the data from Treisman (2007). Lastly, we also control for the years of secondary schooling using the data from the World Development Indicators to capture the effects of human capital on corruption. Note that the evidence on the effect of education on corruption has been found to be contingent on the monitoring capabilities of the civil society. For instance, Ahrend (2002) finds that education reduces corruption only when the civil society has well developed monitoring capacity. Otherwise, education may even lead to higher levels of corruption.

### 3.2. Methodology

Our empirical exercise relies on a cross-sectional analysis given that individualism/collectivism is considered to be time invariant at least over the medium run.<sup>5</sup> All the variables used in our paper refer to the year 2010 unless specified otherwise. Hence, our baseline specification uses data for ninety-nine countries from around the world

$$\text{Corruption}_i = \alpha + \beta \text{Individualism}_i + \delta_1 \log(\text{GDPPC})_i + \delta_2 \text{Political Rights}_i + \varepsilon_i$$

The baseline specification controls for the GDP per capita and the political rights index, which are the most common control variables in the empirical corruption literature (see, for example, Treisman, 2000; Lederman *et al.*, 2005). In addition, we include a number of control variables in our analysis as described in the Data section. In all our specifications, we include continent dummies to capture any potential continent fixed effects.

We transform the CCI and the political rights index such that a greater value implies greater corruption and better political rights respectively. Hence,  $\beta$ ,  $\delta_1$  and  $\delta_2$  are expected to be negative. Table 1 provides the summary statistics for all the variables used in this study and Table 2 provides the resulting correlation matrix.

## 4. Results

### 4.1. OLS Estimation

We present the OLS results in Table 3. In the baseline specification reported in column 1, we find that the coefficient of individualism index is negative and highly statistically significant suggesting a negative relationship between individualism and corruption. In next columns, we control for a number of variables to check the robustness of our results and to minimize the possibility of omitted variable bias. First, in column 2, we replace the political rights variable with the civil liberties index, a broader measure of civil rights. We transform the index such that higher values imply greater civil rights and, therefore, the coefficient of civil liberties index is expected to be negative. The relationship between individualism and corruption remains negative and statistically significant even with the use of the civil liberties index.

In column 3, we control for the fractions of the population belonging to Christian, Muslim, and Hindu faiths to capture the effects of culture besides individualism/collectivism. In column 4, we control for colonial dummies to further capture the impact of institutions. Finally, column 5 controls for the average years of secondary level of education to capture the impact of human capital. The relationship between individualism and corruption remains negative and statistically highly

<sup>5</sup>Further, the lack of data on country-specific time variant information on the individualism/collectivism variable restricts us from pursuing a panel study.



**Table 1.** *Summary Statistics*

Variable	Obs	Mean	SD	Min	Max
Control of Corruption Index	99	-0.209	1.059	-2.414	1.319
ICRG Corruption Index	94	-2.946	1.172	-6.000	-1.000
Corruption Perception Index	97	-4.692	2.258	-9.300	-1.500
Individualism Index	99	39.606	22.522	6.000	91.000
GDP Per Capita, PPP	99	21,216.790	18,245.120	707.788	91,146.850
Political Rights	99	-2.727	1.889	-7.000	-1.000
Civil Liberty	99	-2.727	1.621	-7.000	-1.000
Muslim Share	99	0.196	0.322	0.000	0.989
Hindu Share	99	0.029	0.109	0.000	0.733
Christian Share	99	0.599	0.360	0.001	0.985
Never Colonized	83	0.325	0.471	0.000	1.000
British Colony	83	0.373	0.487	0.000	1.000
Years of Secondary Schooling	91	3.170	1.378	0.248	7.439
Disease Index	95	0.019	0.660	-1.310	1.160
Genetic Distance to the United States, Weighted	87	0.819	0.479	0.000	2.057

*Notes:* The reported variables refer to the year 2010. Each corruption index is transformed so that higher values imply more corruption. Similarly, political rights and civil liberty variables are transformed so that higher values imply greater political rights and greater civil liberties respectively.

significant in all these columns. According to the specification presented in column 5, a one-standard deviation increase in the individualism index causes 0.23 points (or approximately one-fifth of a standard-deviation) improvement in the CCI.

#### 4.2. Instrumental Variable Estimation

Concerned with the possibility that individualism/collectivism can be potentially endogenous to the model, especially because of the possibility of the omitted variable bias that cannot entirely be ruled out in a cross-country specification, next we perform an instrumental variable analysis. We use two different instruments allowing us to check for the validity of the overidentifying restrictions. Our first instrument is an index of the historical prevalence of infectious diseases obtained from Murray and Schaller (2010). Murray and Schaller (2010) create this index for a large number of geopolitical regions across the world using the data obtained from old epidemiological atlases. It is argued in the literature that the regions that had experienced frequent outbreaks of infectious diseases were likely to develop collectivist traits as a defence mechanism to inhibit pathogen transmission. This defence mechanism resulted in a selection procedure by individuals through a distinction between in-group and out-group members (such as avoiding strangers and foreigners) and through a stronger emphasis on traditions (such as focusing on traditional food habits) to avoid disease transmission (Fincher *et al.*, 2008).

Our second instrument is a measure of genetic distance between the population in a country from that in the United States, the most individualistic country in our sample. The genetic distance data come from Spolaore and Wacziarg (2009) and is measured as the differences in allele (a particular form of gene) frequencies between forty-two population groups in the world, aggregated to the country level using the ethnic composition of the countries. As discussed in the introduction, a larger genetic distance between two countries implies a longer separation between these countries' populations over time. This separation, in turn, reduces the possibility of a greater cultural transmission. Hence, the United States being the most individualistic country, countries genetically farther from its population must display greater collectivist traits. Thus, our instruments should be negatively (positively) correlated with individualism (collectivism).

**Table 2.** *Correlation Matrix*

	CCI	Individualism	Log (GDPPC)	Political rights	Muslim share	Christian share	Hindu share	British colony	Never colonized	Secondary schooling
CCI	1									
Individualism	-0.654	1								
Log (GDPPC)	-0.702	0.468	1							
Political rights	-0.600	0.483	0.343	1						
Muslim share	0.342	-0.273	-0.124	-0.527	1					
Christian share	-0.265	0.266	0.153	0.559	-0.745	1				
Hindu share	0.160	-0.080	-0.205	-0.102	-0.032	-0.274	1			
British colony	0.144	-0.033	-0.155	-0.256	0.330	-0.294	0.194	1		
Never colonized	-0.387	0.404	0.408	0.258	-0.207	0.085	-0.028	-0.532	1	
Secondary schooling	-0.624	0.513	0.783	0.350	-0.181	0.125	-0.162	-0.008	0.332	1



**Table 3.** *The Effect of Individualism on Corruption: OLS Estimates*

	Dependent variable: control of corruption index				
	(1)	(2)	(3)	(4)	(5)
Individualism index	−0.011*** (0.004)	−0.011*** (0.004)	−0.009*** (0.003)	−0.010*** (0.004)	−0.010*** (0.004)
Log (GDP per capita, PPP)	−0.499*** (0.109)	−0.465*** (0.096)	−0.517*** (0.112)	−0.520*** (0.119)	−0.536*** (0.145)
Political rights	−0.208*** (0.048)		−0.202*** (0.045)	−0.196*** (0.049)	−0.196*** (0.049)
Civil liberty		−0.313*** (0.056)			
Muslim share			0.951*** (0.293)	0.880** (0.346)	0.895** (0.377)
Christian share			0.992*** (0.360)	0.898** (0.405)	0.921** (0.441)
Hindu share			0.895* (0.511)	0.725 (0.533)	0.763 (0.582)
British colony				0.001 (0.166)	−0.032 (0.183)
Never colonized				0.057 (0.255)	0.039 (0.252)
Schooling					0.018 (0.100)
Continent dummies	Yes	Yes	Yes	Yes	Yes
<i>N</i>	99	99	99	83	82
<i>R</i> <sup>2</sup>	0.679	0.712	0.713	0.744	0.743

Notes: ;\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . A higher value of the corruption indices implies greater corruption. Constant not reported. Heteroscedasticity-robust standard errors in parentheses.

In Table 4, we report the second-stage IV estimates in the top panel and the first-stage estimates in the bottom panel. Consistent with the hypothesis, both the prevalence of infectious diseases and the genetic distance are negatively correlated with the individualism index. While the disease index is a significant predictor of individualism in all the columns, genetic distance is statistically significant only in columns 3–5. Our instruments are, thus, weak with the Kleibergen-Paap  $F$ -statistics being considerably smaller than the reported Stock-Yogo values, which may lead to invalid inferences. Hence, we draw inferences using three alternative approaches that allow for robust inferences in the presence of weak instruments: conditional likelihood ratio (CLR) (Moreira, 2003), LM-J (Kleibergen, 2002), AR (Anderson & Rubin, 1949) tests. We report  $p$ -values for all these three statistics against the null that the coefficient of our variable of interest, the individualism index, is zero. In addition, we report the confidence sets obtained by the CLR approach.<sup>6</sup>

The top panel of Table 4 presents the estimates from the second-stage regressions. Notice that, although the coefficient of individualism is statistically not significant in columns 1–2 (according to the Wald Statistic that is subject to bias in the presence of weak instruments), it is statistically highly significant according to all the three weak-instrument robust tests ( $p < 0.05$  for CLR, AR, and LM-J). In each column, all the weak-instrument robust statistics reject the null that the coefficient of individualism index is zero. Moreover, the minimum value of the CLR confidence

<sup>6</sup>All the weak-instrument robust statistics are obtained using “rivtest” command in STATA developed by Finlay and Magnusson (2009).

**Table 4.** *The Effect of Individualism on Corruption: IV Estimates*

	Second stage regression				
	Dependent variable: control of corruption index				
	(1)	(2)	(3)	(4)	(5)
Individualism index					
	-0.029 (0.019)	-0.030 (0.019)	-0.037** (0.017)	-0.030** (0.013)	-0.037** (0.016)
CLR (95% CS)					
CLR ( <i>p</i> -value)	[-0.105, -0.007]	[-0.104, -0.010]	[-0.105, -0.016]	[-0.083, -0.014]	[-0.101, -0.016]
AR ( <i>p</i> -value)	0.013	0.005	0.000	0.000	0.000
LM-J ( <i>p</i> -value)	0.026	0.010	0.001	0.001	0.001
	<0.05	<0.05	<0.05	<0.05	<0.05
Log (GDP per capita, PPP)					
	-0.382** (0.187)	-0.345** (0.175)	-0.306 (0.192)	-0.391** (0.155)	-0.485*** (0.167)
Political rights	-0.134 (0.084)		-0.089 (0.078)	-0.117 (0.074)	-0.105 (0.083)
Civil liberty		Yes	Yes	Yes	Yes
Cultural variables				Yes	Yes
Colonial dummies				Yes	Yes
Schooling				Yes	Yes
Continent dummies	Yes	Yes	Yes	Yes	Yes
<i>N</i>	83	83	83	74	73
<i>R</i> <sup>2</sup>	0.591	0.602	0.524	0.663	0.608
	First stage regression				
	Dependent variable: individualism index				
Disease index	-11.972** (5.718)	-12.151** (5.716)	-14.166** (5.726)	-15.170** (5.972)	-13.752** (6.186)
Genetic distance to the					
United States, weighted	-6.465 (6.112)	-6.435 (6.366)	-10.787* (6.310)	-13.880** (6.913)	-11.690* (6.942)
Kleibergen-Paap <i>F</i> -Statistic	2.869	2.958	4.301	5.432	4.577
Stock-Yogo critical value	19.93	19.93	19.93	19.93	19.93
J-statistic ( <i>p</i> -value)	0.330	0.373	0.688	0.258	0.451

Notes: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . A higher value of the corruption indices implies greater corruption. The *p*-values for the CLR, AR and LM-J statistics are against the null that the coefficient of individualism index is zero. Figures in square brackets correspond to the 95% confidence sets based on the CLR approach. The *p*-values reported for the weak-instrument robust *J*-statistic for the over-identification test are against the null that instruments are valid. Cultural variables: proportions of Christians, Hindus, and Muslims in the total population. Colonial dummies: dummies for former British colonies and Never colonized. Constant not reported. Heteroscedasticity-robust standard errors in parentheses.

sets for the coefficient of the individualism index is always negative suggesting that individualism negatively impacts corruption. Furthermore, the p-values for the weak-instrument robust J-statistic indicate that the validity of the overidentifying restrictions cannot be rejected in any of the specifications. Even according to the most conservative IV estimates, a one-standard deviation increase in the individualism index causes 0.66 points (or two-third of a standard-deviation) improvement in the CCI. Our findings from both OLS and IV estimations lend credence to the theoretical arguments put forward in the introduction and suggest that corruption is lower in individualistic societies than in collectivist societies.

### 4.3. Robustness Checks

#### *Sensitivity to Alternative Measures of Corruption*

We check the sensitivity of our results to the use of alternative measures of corruption – Transparency International’s Corruption Perception Index (CPI) and International Country Risk Guide’s (ICRG) corruption index for the year 2010 respectively – in Table 5. Besides the CCI, these are the two most widely used corruption indices in the empirical literature. The CPI takes values in the range of 0–10 and is constructed using the responses collected by different surveys that are conducted by a number of independent sources to measure the extent of corruption in a country. The ICRG corruption index takes values in the range of 1–6. The index is constructed using the information on the prevalence of nepotism, excessive patronage, the nexus between business and politics, and secret party funding.<sup>7</sup> A greater value implies lower corruption in both cases. To be consistent, we transform these indices such that a greater value implies greater corruption and hence the coefficient of individualism is expected to be negative.

We present the results using these alternative measures of corruption in Table 5. The first two columns present the OLS results, while the IV estimates are reported in the last two columns. In addition to the baseline control variables, we control for the cultural variables (fractions of the population belonging to different religious groups), colonial dummies, schooling, as well as continent dummies in all these columns. The coefficients of the individualism index, obtained from the OLS regressions, are negative and statistically significant in both cases – when the dependent variable is CPI (column 1) and the ICRG corruption index (column 2). In columns 3 and 4, we present IV estimates from two-stage least squares regressions using the disease index and the genetic distance as instruments for the individualism index. The weak-instrument robust J-statistics reported in the bottom row indicate that the validity of the overidentifying restrictions cannot be rejected in either column. The individualism index is significantly and negatively correlated with both the CPI and the ICRG corruption index in columns 3 and 4 respectively. Further, since our instruments are weak given that the Kleibergen-Paap F-statistics are considerably smaller than the reported Stock-Yogo critical values, we draw inferences based on the weak-instrument robust statistics, that is, CLR, AR, and the LM-J. All three weak-instrument robust statistics indicate that the relationship between the individualism index and both the CPI and the ICRG corruption index is statistically highly significant (for CLR and AR,  $p < 0.01$ ). Moreover, the IV coefficients of the individualism index are greater than the OLS coefficients in both the cases.

#### *A Fractional Response Model Approach*

Note that all our dependent variables, the CCI, the CPI and the ICRG corruption index, are bounded. In this case, the application of a linear regression model such as OLS may fail to capture the non-linear effects that the control variables may have on the dependent variable. And, the inclusion of non-linear functions of control variables in such models to deal with this problem may result in predicted values that lie outside the bounded interval (Papke & Wooldridge,

<sup>7</sup>Visit <http://www.transparency.org/research/cpi/overview> and <http://www.prsgroup.com/about-us/our-two-methodologies/icrg> for further details regarding the construction of the CPI and the ICRG corruption index respectively.

**Table 5.** *Individualism and Corruption: Using Alternative Corruption Indices*

	OLS estimates		IV estimates second stage regression	
	CPI	ICRG index	CPI	ICRG index
Individualism index	−0.022** (0.008)	−0.014** (0.007)	−0.095** (0.046)	−0.046* (0.026)
CLR (95% CS)			[−0.275, −0.039]	[−0.148, −0.014]
CLR ( <i>p</i> -value)			0.000	0.004
AR ( <i>p</i> -value)			0.000	0.008
LM-J ( <i>p</i> -value)			<0.05	<0.05
Log (GDP per capita, PPP)	−1.176*** (0.316)	−0.321* (0.175)	−1.072*** (0.377)	−0.225 (0.229)
Political rights	−0.369*** (0.107)	−0.181*** (0.064)	−0.215 (0.175)	−0.090 (0.108)
Cultural variables	Yes	Yes	Yes	Yes
Colonial dummies	Yes	Yes	Yes	Yes
Schooling	Yes	Yes	Yes	Yes
Continent dummies	Yes	Yes	Yes	Yes
<i>N</i>	81	79	72	70
<i>R</i> <sup>2</sup>	0.739	0.621	0.536	0.560
			First stage regression	
Disease index			−13.200** (6.150)	−13.606** (6.047)
Genetic distance to the United States, weighted			−7.894 (7.086)	−8.406 (6.893)
Kleibergen-Paap <i>F</i> Stat.			3.108	3.562
Stock-Yogo critical value			19.93	19.93
J-statistic ( <i>p</i> -value)			0.519	0.226

Note: Please refer to Table 4 footnotes.

1996; Wooldridge, 2010). However, it must be emphasized that since these indices are continuous variables, almost all studies exploring the determinants of corruption using these indices (e.g. Treisman, 2000; Lederman *et al.*, 2005) use OLS specification. Nevertheless, we check the robustness of our results using an alternative empirical model that might be appropriate when the dependent variable is bounded.

A valid estimation procedure to deal with the above mentioned problem is the fractional response model. A fractional response model is a quasi-likelihood estimation method that models the mean of the dependent variable conditional on the independent variables. This model is an appropriate estimation method if the values taken by the dependent variable lie in the range of 0 and 1 (Papke & Wooldridge, 1996; Wooldridge, 2010). Hence, we transform our corruption indices so that they take values in the range of 0 and 1 with a higher value implying greater corruption and employ the fractional response model. In this estimation method, we use a logit model for the conditional mean. These results are reported in Table 6. The dependent variables are the CCI in column 1, the CPI in column 2 and the ICRG corruption index in column 3. Each column includes the full set of control variables in addition to our baseline controls. The estimated coefficient of the individualism index is negative and statistically significant at conventional levels in each column. These results reaffirm the negative relationship between individualism and corruption.

**Table 6.** *The Effect of Individualism on Corruption: A Fractional Response Model*

	(1) CCI	(2) ICRG index	(3) CPI
Individualism index	−0.010*** (0.003)	−0.010** (0.004)	−0.009** (0.004)
Log (GDP per capita, PPP)	−0.462*** (0.119)	−0.225** (0.113)	−0.534*** (0.131)
Political rights	−0.175*** (0.040)	−0.126*** (0.042)	−0.161*** (0.043)
Muslim share	0.801** (0.316)	0.362 (0.329)	0.815** (0.350)
Christian share	0.873** (0.376)	0.470 (0.423)	0.951** (0.405)
Hindu share	0.797 (0.512)	0.381 (0.463)	0.804* (0.449)
British colony	−0.016 (0.155)	0.064 (0.173)	−0.133 (0.170)
Never colonized	0.050 (0.233)	0.055 (0.257)	−0.059 (0.234)
Secondary schooling	0.015 (0.083)	−0.065 (0.087)	0.024 (0.090)
Continent dummies	Yes	Yes	Yes
<i>N</i>	82	79	81
Pseudo <i>R</i> <sup>2</sup>	0.11	0.073	0.123

Notes: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . A higher value of the corruption indices implies greater corruption. Constant not reported. Heteroscedasticity-robust standard errors in parentheses.

## 5. Concluding Remarks

Corruption is not only rampant at local and national levels across most of the countries around the world, but even the international agencies such as the United Nations (UN) are not immune to this problem.<sup>8</sup> Several studies have underscored the important role that cultural and social norms play in determining corruption across countries (La Porta *et al.*, 1997; Treisman, 2000). Designing successful anti-corruption policies would, therefore, require a thorough understanding of the link between specific aspects of culture and corruption.

It is important to note that although the individualism/collectivism distinction reflects only one aspect of cultural differences across societies, it has been argued by cross-cultural psychologists to be the primary dimension of cultural variation (Heine, 2007). Moreover, as discussed in the beginning, several characteristics of collectivism are much different from those of individualism and many of these characteristics are conducive for corruption to thrive. For instance, while it is easier for public officials in an individualist country to follow the “arm’s length principle,” the particularist norm in collectivist countries is conducive to nepotism and favoritism. Moreover, while an individualist culture makes no exception in defining “what is good and right” and deems achieving justice more important, the emphasis on maintaining relationships discourages individuals in collectivist societies to report corrupt practices by their co-workers. Motivated by such important differences between these two aspects of culture, we investigate the hypothesis that corruption will be lower in countries

<sup>8</sup>UN officials, for instance, associated with its humanitarian project-“oil-for-food programme in Iraq” – were found to be involved in corrupt practices (Economist, 2005).

that have more individualistic culture. Conversely, corruption will be higher in countries that are characterized by greater degrees of collectivism.

This paper makes several improvements over the existing studies that explore the relationship between individualism/collectivism and corruption. First, we use a large cross-section of ninety-nine countries. Second, we use the overall level of corruption and employ three different measures of corruption. Third, we implement an instrumental variable strategy to address the potential endogeneity concerns. Finally, we draw inferences based on three different approaches that allow for robust inferences in the presence of weak instruments. Consistent with our hypothesis, we find that individualism is negatively related to corruption. This relationship is shown to be robust to the inclusion of a number of control variables and alternative estimation methods. Our IV coefficients are about three times larger in magnitude suggesting that the effect of individualism on corruption is biased downwards in the OLS analysis because of endogeneity. Our findings suggest that individualism can have even broader positive implications for the economy than previously thought. Future studies should be targeted at studying what policies can be implemented to promote individualism in a society. It would also be interesting and worthwhile to explore the effects of other aspects of culture on corruption.

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