

Bribery in the Subcontinent: Trends and Explanations

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Abstract

An analysis of bribe taking in five countries of South Asia—Bangladesh, India, Nepal, Pakistan, and Sri Lanka – over a 10-year period (2010-2019) indicates a significant decline in bribe taking in India, Nepal and Pakistan, but not so in Bangladesh and Sri Lanka. The most important explanatory variable for reduction in bribe taking by public officials is improvements in their Human Development Index—result of investments and favorable policies in health, education, and women's empowerment. Other variables such as nature of political democracy, per capita income, income inequality, size of population, and degree of economic freedom were not found to be statistically significant in the presence of Human Development Index.

KeyWords: Bribery; South Asia; Human Development; Corruption Perception Index

Introduction

The issue of bribery in conducting international business is recognized as a major obstacle to economic growth, political stability, and social well-being. Studies show that bribery retards economic growth, reduces tax revenues (Tanzi and Davoodi, 1997), erodes public respect for the rule of law (Attila 2008), raises the cost of doing business, misallocates resources, retards inward foreign direct investment (Sanyal and Samanta 2008) and distorts competition (Mauro, 1995). In response, worldwide efforts have been mounted to curb bribery. These include national laws (such as the Foreign Corrupt Practices Act in the U.S.A.), inter-governmental compacts (e.g., OECD Convention on Combatting Bribery), stipulations by international lending organizations such as the World Bank, and adoption of corporate codes of conduct. Civil society organizations have mobilized to publicize and shame aberrant behavior. Investigation and prosecution of firms giving bribes and officials taking bribes have been stepped up.

The subject of bribery is being studied extensively to both understand its causes and to find effective ways to reduce and eliminate it. Bribery is a global phenomenon—no country is immune from it. The World Bank estimated that more than USD 1 trillion in bribes is paid each year out of a world economy of USD 30 trillion—3 percent of the world's economy (Labelle, 2006).

In this paper, bribery is defined as providing pecuniary or non-pecuniary benefits to a public official by businesses to gain a competitive advantage over its rivals. The company is seeking benefits which a public official is in a position to provide – by interpreting a rule favorably in exchange for a bribe or not enforcing a law or policy or providing inside information or advantaging one organization over another. It should be noted that bribery is one form of corruption (which may include money laundering, nepotism, tax evasion, and such).

The focus of this study is to assess the trend in bribe taking in the Indian sub-continent – more specifically the five countries of Bangladesh, India, Nepal, Pakistan, and Sri Lanka. They are home to over 1.8 billion people,

nearly a fourth of humanity with a total GDP of about USD 3.3 trillion, less than five percent of the world GDP of nearly USD 85 trillion in 2020 (World Bank). In that sense, these are relatively low-income countries and hence the imperative to pull their citizens out of poverty. Extant research shows that bribe taking is much more prevalent in low-income countries. The countries in this study, in addition to being part of a defined geographical region, has several commonalities (e.g., cultural dimensions), recent historical experiences (e.g., British colonial rule), economic make up (e.g., mixed market economies), business culture, and rules of governance and administrative framework. Identifying the factors that contribute to the prevalence of high bribe taking in these countries can help policy makers and civil society groups adopt appropriate steps to reduce it and benefit this huge swathe of humanity.

Review of Extant Literature

Bribery has both a demand and supply side to it. In this paper we look at the demand for bribes (solicited and/or received by public officials). We do not examine the supply of bribes (offered by businesses and/or their representatives.)

A large number of studies have been conducted to identify the determinants of bribe giving and bribe taking in international business. Cultural, economic, institutional, social, and firm-specific factors all contribute to the incidence of bribery (e.g., Husted 1999, Lambsdorff 2007, Sanyal 2005). Sanyal and Samanta (2002) found that countries that scored high on masculinity, risk taking, and existence of social hierarchy are more prone to bribe taking.

Countries that are political democracies with free elections, independent judiciary, vibrant civil service organizations, and enforcement of the rule of law also have less bribery. “Full” democracies are less likely to be perceived as taking bribes compared to countries that are “Flawed” democracies. The reasoning is that in such societies, activities such as bribe taking are likely to be exposed and prosecuted and corrupt officials replaced through elections and due process. Assiotis and Sylwester (2015) have found that the rule of law – where all citizens have the same rights and legal decisions are accepted and applied uniformly – tends to be stronger in democratic countries. The citizenry is engaged, there is a free media, the judiciary is unbiased and decisions are enforced. Blums (2017) found that democracy levels in a country are statistically significant predictors of corruption over both the short and long term. Analyzing the the spatial and temporal variation in the sample observations regarding corruption, Donaubaue, Julian; Kannen, Peter; Steglich, Frauke (2018) found that the presence of foreign firms increases bribery among people living nearby, where democracy is not very strong.

In countries with high gender development index, where women play roles at par with men, bribery is lower (e.g., Dollar, Fisman and Gatti 2001, Croson and Gneezy 2009, and Samanta and Sanyal 2016). Countries with high levels of human development tend to have lower levels of bribery. These countries have an educated citizenry, with women more empowered, economic development generally at a higher level, and basic human needs (e.g., healthcare, housing, etc.) addressed. Sanyal and Samanta (2004) found that high levels of human development (measuring education, wealth, and health) and high levels of economic freedom (measuring the extent to which a nation’s economy is open to market forces) in a country are associated with lower levels of bribe taking. Husted (1999), in his study found countries with high incomes and low-income inequality are less likely to have their officials take bribes.

A country with a high degree of economic freedom means less government interference in the functioning of its economy which in turn means a smaller level of discretionary power in the hands of government officials. Demand for bribes in such countries from government officials are likely to be less.

Akcaay (2006) reports that corrupt countries have low levels of human development and the more corrupt a country is, the lower is its human development. Comparing corruption with the human development index (HDI), the Economist (2011) reported that when the bribe taking index is between approximately 2.0 and 4.0 (on a scale of 1 to 10) there appears to be little relationship with the HDI but as the bribe taking index rises above 4.0, a stronger connection with HDI can be discerned.

An International Monetary Fund report by Tanzi and Davoodi (1997), based on a cross-country regression analysis for 1980 to 1997, found that for one standard deviation point increase in corruption resulted in a reduction of income for the poor by 7.8% a year. Among the reasons noted for the negative impact of corruption on income inequality are lower economic growth, a biased tax system, and lower levels and effectiveness of public spending (Gupta, Davoodi and Alonso-Terme, 2002).

Studies also show that an increase in corruption increases the Gini coefficient of income inequality in contexts as diverse as Africa (Gyimah-Brempong, 2001) and the US (Dincer and Gunalp 2008). This is explained by the fact that the likely beneficiaries from corruption are well-connected, and often have higher incomes, which undermines the capacity of the government to ensure a more equitable distribution of resources.

Based on this review, we analyzed the relevance of the following factors in explaining the trend of bribe giving in the countries that are the focus here:

- Economic Determinants—degree of economic freedom, degree of economic inequality, per capita income
- Political Determinants—the nature of the political system
- Social Determinants—level of human development

Given the generally similar culture of these five countries, we did not include any cultural variable in the analysis.

Data

This study uses reported data for its analysis and findings.

The measure of bribery used is the Corruption Perception Index (CPI) produced annually for individual countries since 1995 by Transparency International, a non-governmental organization based in Berlin, Germany. The index measures perception of bribery in a country on a scale of 0 to 100 where 0 is most corrupt and 100 is least corrupt. While no country achieves a score of 100, the dispersion of the score is very large. The five South Asian countries score low. For example, in 2019, the two countries with the highest score of 87 were New Zealand and Denmark. That same year, Bangladesh had a score of 26 (ranked 146 out of 180 countries), India's score was 42 (rank 80), Nepal scored 34 (rank 113), Pakistan score of 32 ranked it 120, and Sri Lanka with a score of 38 was placed 93 on the table (Transparency.org).

The index is constructed on responses to standardized surveys by business people and country experts and data drawn from 13 sources (e.g., the World Bank, the World Economic Forum, etc.) (Transparency.org). The CPI has been used extensively as a proxy to measure bribery (e.g., Husted 1999, Luo, 2006). Given the clandestine nature of this act, perception, rather than any actual precise measure is the best indication available of its prevalence. Given how the index is calculated and because it has yielded consistent results over 30 years, this measure is considered valid and reliable (Lambsdorff, 2009). Transparency International has been credited for putting the issue of bribery on the agenda of national and global policymakers and raising awareness about this subject (Andersson and Heywood 2009). CPI data for a 10-year period (2010-19) for the five countries are used as the dependent variable in the statistical analysis in this study. For prior years, we did not have complete data for all economic variables across countries and in economics literature 10 year time period is considered as long run in economic analysis.

For the independent variables, the Economic Freedom Index (EFI) has been used to measure the degree of openness of a country to business, trade and investment. This annual index, produced by Heritage Foundation, a think tank based in Washington, U.S.A., and the Wall Street Journal, covers 12 economic freedoms around four pillars – rule of law, government size, regulatory efficiency, and open markets. A score ranging from 0 to 100 is calculated for each country with 100 meaning maximum economic freedom. The Heritage Foundation describes an economically free society as one where individuals are free to work, produce, consume and invest in any way they please and where governments allow labor, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond what is necessary to protect and maintain liberty itself (Heritage.org/index). Based on their scores, countries are grouped as Free, Mostly Free, Moderately Free, Mostly Unfree, and Repressed. All the five countries in this study are considered Mostly Unfree. The annual scores of these countries are used in the analysis here to measure their economic openness. It is expected that a higher EFI will translate into a higher CPI (i.e., lower perception of bribery).

The measure used for income inequality within a country is its Gini coefficient. It can range from 0 to 1, with 0 representing complete equality and 1 complete inequality. The Gini coefficient is based on the comparison of cumulative proportion of the populations against cumulative proportions of income they receive. South Africa with a coefficient of 0.63 has the world's highest level of income inequality in 2020. The comparative figure for Bangladesh is 0.324, India

0.357, Nepal 0.328, Pakistan 0.335 and Sri Lanka 0.398 (Worldpopulationreview.com). The relationship between income inequality and bribery for these countries are unclear.

Per capita income, in U.S. dollars, in purchasing power parity terms, is obtained from the World Bank for each of the years for the countries in this study. This is a key measure of the well-being of the people of a country. Increases in per capita income will be expected to be reflected in a higher score on the CPI (i.e., lower perception of bribery).

The political system in a country is measured by a score – Democracy Index – compiled by the London-based Economist Intelligence Unit that measures the state of democracy in 167 countries. First produced in 2006, it has been updated annually since 2010. The index is based on 60 indicators grouped into five different categories measuring electoral process and pluralism, civil liberties, functioning of government, political participation, and political culture (EIU.com). The indices are then averaged to find the Democracy Index, rounded to two decimal points. Score ranges from 1.00 to 10.00. Based on the score countries are classified as one of four types of political societies: full democracies, flawed democracies, hybrid regimes, and authoritarian regimes. Countries with a score of 8 to 10 are full democracies, 6 to 8 are flawed, 4-6 are hybrid regimes, and 1 to 4 are authoritarian regimes. The Democracy Index is widely cited in the media and has been used in academic studies as an indicator of the degree of democratic practices in a country. A higher score on this Index is expected to lead to a higher CPI (i.e., lower perception of bribery).

The level of human development in a country is measured by the Human Development Index (HDI). It is a composite statistic of life expectancy at birth, educational attainment, and economic well-being of the population of a country. It is used to rank countries on a scale of 0 to 1.00. A country scores higher HDI when the lifespan, education, and *per capita* GDP are higher. In recent years, the reports are published annually. The HDI started as Human Development Reports in 1990 and is published by the United Nations Development Programme (Hdr.UNDP.org). It is hypothesized that countries with improving human development indices will show a higher score on the CPI (i.e., lower perception of bribery).

Given the differential size of the population among the countries in this study, with India alone accounting for 1.35 billion, this variable was included, the data obtained from the World Bank.

Methodology

Two sets of statistical analysis were performed on the data. They are:

(a) A Trend Analysis based on Time Series Method: The CPI for each of the five countries for the 10-year period was subjected to a trend analysis to determine if the scores have changed significantly – having either risen or declined.

(b) A multivariate panel regression to determine which of the six independent variables have had a significant impact on the trend of bribe-giving.

The panel regression model is set up as follows:

$$CPI_{i,t} = \alpha_0 + \beta_1 HDI_{i,t} + \gamma' X_{i,t} + \lambda_t + \theta_i + \varepsilon_{i,t} \quad (1)$$

where $CPI_{i,t}$ is the level of Corruption Perception Index for country i in year t ; $HDI_{i,t}$ is the Human Development Index for country i in year t ; $X_{i,t}$ is the vector of other control variables as listed above, β and γ are the parameters to be estimated; α_0 is the portion of intercept that is common to all countries and years; λ_t denotes the year-specific effect common to all countries; θ_i is the source-country fixed effects, exhibiting country wise heterogeneity; $\varepsilon_{i,t}$ is normal error terms with mean zero and variance $\sigma^2\varepsilon$; i stands for the country ($i = 1, \dots, N$); and t stands for the year ($t = 1, \dots, T$).

Results

The trend analysis (Figure 1) shows that in the ten-year period being reviewed, the CPI scores have improved for India, Nepal and Pakistan but not so for Bangladesh and Sri Lanka. Note that the CPI scores for all these countries are starting from a low base. This graphical display is corroborated further by estimating a simple deterministic time trend model over the sample time period, 2010-2019.

$$CPI_{i,t} = \alpha_0 + \alpha_1 t, \quad i = 1, \dots, 5$$

The coefficient of the time variable (measuring the trend over time) is statistically significant for India, Nepal and Pakistan, whereas for Bangladesh it is not different from zero and for Sri Lanka, it is only significant at the 10% level. See Table 1.

To identify the variables that significantly influence the CPI scores across these countries over this time period, initially a stepwise regression technique was employed to sort out the important variables. The HDI is the most important variable for India, Pakistan and Sri Lanka while Democracy was important for Nepal and also for Sri Lanka. No variable was found to be significantly important for Bangladesh. See Table 2.

Looking at the actual human development index for each of these five countries, Sri Lanka's is noticeably higher than the others. Improvement of the HDI over this period has been significant for Bangladesh and India. However, for Bangladesh, HDI is not an important variable that influences its CPI score.

To substantiate the statistical findings about the importance of the HDI variable, we conducted two more regression analyses: a panel regression of these five countries and the Bayesian regression analysis with informative prior. Panel estimation results are reported in Table 3. It shows that HDI is the most important socio-economic variable affecting the CPI across all the countries. None of the other variables play any important role to influence the CPI scores for these countries in the presence of HDI. The overall model is significant with an F value of 11.40 ($p < 0.001$). Variables with the name of the countries captures approximately the heterogeneous effect of each country on the CPI. It is evident from this table that each country has its own country specific effect and it is statistically significant.

It was deemed that a Bayesian regression method would be more robust method than a traditional classical regression method. As we know, in Bayesian analysis, parameters are treated as random variables, not constant (as in the classical analysis) and the posterior distribution of the parameters are used to measure the relationship between dependent and independent variables in the regression model. The posterior distribution of the parameters depends on prior distribution and the likelihood function from the sample. In small sample cases, posterior distribution is less likely to be affected by the likelihood function, thus possibly leading to an estimate different from the ones obtained from the classical estimation (i.e., in this case the mean of the posterior distribution will likely be different from the estimated parameters in the classical case). In large sample cases, however, likelihood function dominates, so not much difference may exist between Bayes estimation and classical estimation. As we have only ten years observation for five countries, it seems that a Bayesian estimation will be more informative than traditional classical estimation here. (It should be noted here that, for Bayes' estimation method using SAS 14.2 computational techniques, we have simulated 5,000 times using bootstrapping procedure to generate 25,000 observations for each country, thus producing a robust estimation of the posterior distribution of the parameters). The results are presented in Table 4 where results of the posterior distribution summaries about the parameters are reported.

The results show that HDI has the highest positive value and the percentile distribution do not incorporate zero. Diagnostic checks of the parameters show that the HDI variable does not contain zero in the distribution, implying its positive effect on CPI across countries. The results show that none of the independent variables are statistically significant, except for the HDI scores.

Discussion

A key and welcoming finding of this study is that for three (India, Nepal, and Pakistan) of the five countries, measurable improvements are taking place in their CPI scores, even though overall, the problem of bribery is still perceived to be huge. The second key finding is that improvements in education and health of the population, as measured by the HDI, consistent with other studies, are contributing significantly to the reduction of bribe giving. Improvements in democratic practices are seen as contributors to rising CPI scores for Nepal and Sri Lanka. No one variable stood out as a determining factor for Bangladesh, whose CPI score has not significantly improved in this time period.

An important takeaway is that despite some improvements, these countries remain highly bribe-prone. However, at least for three countries, the trend is in the right direction. In terms of public policy, the second takeaway is that more and sustained investment and enabling support structures in education, health care, and empowering women are needed on a sustained basis in these countries to reduce bribe taking. (It is worth noting again that countries with very high CPI scores (that is those seen to have very low levels of bribe taking) invariably have high HDI scores). In the presence of human development activities and programs, the other variables are dwarfed. National and local governments and civil society advocacy groups can look at this finding to push for emphasizing support for and growth in social well-being, education, health, and civil rights. Despite this being a geographically focused examination, these findings can find relevance in other similarly situated countries or regions in the world, such as Central America, Southeast Asia, and Southern or Western Africa.

This study covers only a 10-year period. There is opportunity for scholars to expand the time frame for analysis which might offer new perspectives and take note of key endogenous and exogenous events that might have affected these countries.

Similarly, additional variables can be included in the study, such as a specific gender development index, separate from the more holistic human development index.

Studies have suggested that societies with high levels of gender development experience less corruption. We did not include specific cultural variables in this study though other studies have shown that issues such as masculinity, risk taking, collectivism, long-term orientation, and existence of hierarchy could be relevant factors. Because of the broad cultural similarities among the countries in this study, we did not include them. However, a variable that may be relevant for these countries in South Asia is the diversity of its population – in terms of religion, language, and ethnicity – to ascertain its effect. The measure used for bribery here is the Corruption Perception Index. Additional measures have been developed to calculate this act. As a validation exercise or to enhance the nature of the data about corrupt conduct, researchers may want to include them in their analysis. Finally, future studies can explain the supply side of bribes; that is, which firms from which countries are sustaining the demand for bribes.

Conclusion

In this geographically focused study of bribe-taking in five South Asian countries over a 10-year period, we find that efforts to curb this problem is making progress, though slowly. Countries such as India, Nepal, and Pakistan have improved significantly. Bangladesh, already at the bottom, has not made any significant progress, neither has Sri Lanka. We also find that the single most determining factor with respect to combating bribery is human development. Wherever there has been progress in this regard in these countries, with respect to education, health care, and civil rights, it has a positive impact. Sustained and enhanced investment in this sector would make a marked difference. While there are limits to generalizing finding from a specific region of the world with its obvious peculiarities, the conclusions should be of value to policy makers and civil society groups. Reducing corrupt practices remains a key imperative to ensuring economic progress in these much-impovertised nations. To that end, this study offers useful insights and a path forward.

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Appendix

Figure 1

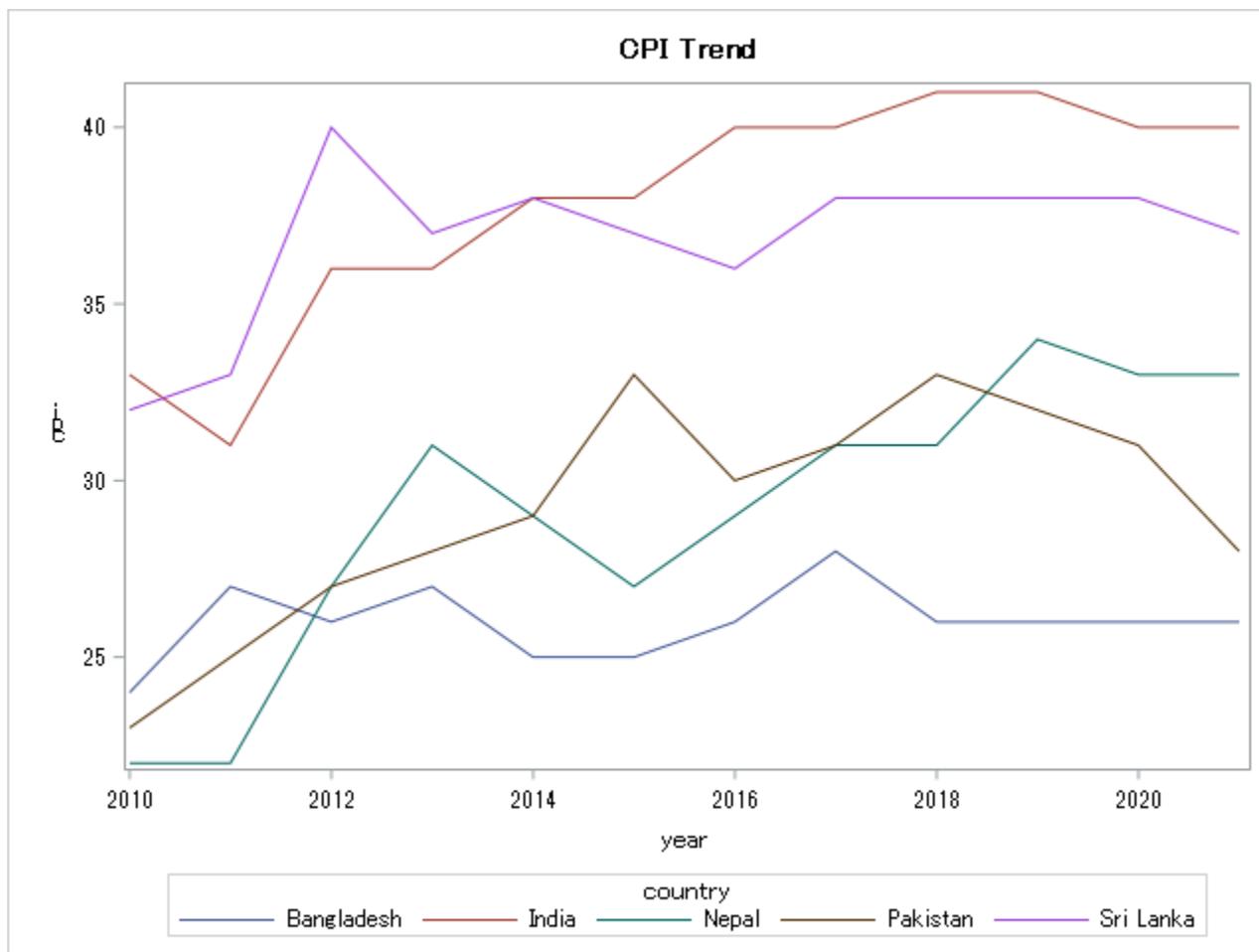


Table 1 TrendLineRegression

Country	Constant	TimeTrend	StandardError	T-statistic	P-value
Bangladesh	25.59	0.062	0.08	0.70	0.49
India	23.21	0.79	0.14	5.82	<0.001*
Nepal	-0.45	0.968	0.17	5.74	0.00*
Pakistan	3.60	0.601	0.197	3.04	0.012**
SriLanka	19.68	0.31	0.17	1.85	0.09**

*significantatthe0.01level; **significantatthe0.1level

Table 2 Stepwise Regression: Most important Variable(s)

Country	Variables	R-square	F-statistic
Bangladesh	No variables met the 0.15 significance level for entry into the model	-	-
India	HDI	0.89	87.9 (p value 0.0001)
Nepal	PCI, Population	0.81	19.41 (p value 0.0005)
Pakistan	HDI,EFI	0.77	15.72(p value 0.0012)
SriLanka	PCI	0.388	6.36(pvalue0.0303)

Table 3 Panel Analysis of the Corruption Perception Index

Variable	Estimate	Standard Error	t-value	P-value
Bangladesh	45.28	18.05	2.51	0.02*
India	9.44	3.0	3.15	0.00*
Nepal	16.27	3.34	4.87	<0.001*
Pakistan	15.04	3.68	4.09	0.00*
SriLanka	16.77	4.15	4.04	0.00*
Democracy	0.44	1.11	0.39	0.70
Economic Freedom	0.01	0.24	0.03	0.98
Inequality	-0.00	0.01	-0.13	0.89

PerCapitaIncome	0.00	0.00	0.99	0.33
Population	-0.00	0.00	-0.36	0.72
HDI	60.80	15.06	4.04	0.00*

*significantatthe0.05level

Table 4 Bayesian Analysis – Summary Results*

Parameter	Number	Mean	Standard Deviation	Percentiles		
				25	50	75
Intercept	25000	40.44	12.33	32.09	40.49	48.66
Democracy	25000	0.09	0.62	-0.33	0.08	0.5
Economic Freedom	25000	-0.06	0.19	-0.18	-0.06	0.07
HDI	25000	21.12	8.92	15.22	21.02	27.01
Inequality	25000	0.00	0.01	-0.00	0.00	0.00
Per Capita Income	25000	0.00	0.00	0.00	0.00	0.00
Population	25000	0.00	0.00	0.00	0.00	0.00
Dispersion	25000	9.99	2.34	8.31	9.64	11.27

*Estimates are given up to two decimal points

Bayesian Analysis

