CAPITALISM: ITS VARIETIES AND RELATIONSHIP WITH THE CORRUPTION PERCEPTIONS INDEX

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Abstract. *Given the current economic crisis and increasing competition both for foreign investment and in international markets, we think that this economic analysis is timely and useful as the corruption level is a significant factor in the investment decision-making process. In this article, we investigate whether different types of economic regulation (different types of capitalism) might be fostering corruption. We think that countries with the liberal market economics system might have a lower corruption. We use the theoretical approach of Hall, Soskice (2001) to the varieties of capitalism to analyse countries' competitiveness according to the competitiveness indices of the World Economic Forum (WEF) and the International Institute for Development Management (IMD). We use the Knell and Srholec (2005) methodology to calculate the index of coordination that determines a country's type of capitalism. The index consists of 9 variables which are later divided into 3 groups according to the factor analysis results. For the corruption estimate, we use the Transparency International corruption perceptions index. Regression analysis revealed that coordinated market economies (CME) are more conducive for corruption.*

Key words: *varieties of capitalism, corruption, business regulation, economic policy, taxes*

Introduction

Control of corruption is of great importance for countries worldwide trying to improve their investment environment and increase productivity through higher investments, not least via foreign direct investments. Competition in foreign markets and competition for foreign direct investment (FDI) encourages weighting economic policy decisions and taking into account the cost of excessive regulation. Knowing the relationship between the level of economic coordination and corruption would allow better assessing the trade-offs and hopefully making better-informed decisions.

This article aims to examine the relation between a country's type of capitalism, which is determined by using the Knell, Srholec (2005) methodology, and the corruption perceptions index measured by Transparency International.

If there is a relationship between the indicators we analyze, then different types of capitalism might support corruption differently. As a greater regulation is likely to increase the profitability of corruption and create better conditions for corruption, the

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following hypothesis is raised and verified: "Countries with the liberal market economics system might have a lower corruption."

1. The determinants of corruption

The cost of corruption, i.e. the misuse of public power (by an elected politician or appointed civil servant) for private gain is twofold. First of all, it uses the resources that otherwise could have been invested and therefore put to a more productive use. Second, monopoly rents, import restrictions, and various subsidies to special interest groups generate social costs (Rose-Ackerman, 2007). Although studies, such as Dreher et al. (2011), show that sometimes corruption can encourage development, especially in highly regulated economies, by "greasing the wheels," others find that "the evidence supporting the greasing the wheels hypothesis is very weak and shows that there is no correlation between a new measure of managers' actual experience with corruption and GDP growth." A strong negative correlation between growth in wealth per capita and corruption has been revealed by Aidt (2009). According to the study by Mo (2001), a 1% increase in the corruption level reduces the growth rate by about 0.72%. Growth is reduced mainly due to political instability, which is responsible for more than a half of the effect; the rest of the reduction in growth is due to human capital and the share of private investments. According to Freckleton et al. (2010) corruption has a significant influence on *per capita* GDP in the short run, and lower levels of corruption enhance the positive impact of foreign direct investment on economic growth. Likewise, another study by Egger, Winner (2006) shows that there is a negative relationship between corruption and FDI. A lower FDI limits the productivity growth. According to Bijsterbosch and Kolasa (2010) who investigated the effect of FDI inflows on productivity convergence in Central and Eastern Europe, "FDI inflow plays an important role in accounting for productivity growth."

Thus, corruption in most cases limits economic development by reducing both local and foreign investments and through other channels. Even if there has been a positive effect from "greasing the wheels", it is much smaller than the negative effect. Similarly, the Pierre-Guillaumemeon (2005) study rejected the" greasing the wheels" hypothesis and proved that corruption actually "sanded the wheels" by reducing investments and through other channels.

However, corruption might not only decrease the value of investments, but in some cases it might even deter foreign investors from entering the market at all. Corruption is one of the important factors that, according to Global Competitiveness Report by the World Economic Forum, create obstacles to doing business.

There have also been a number of studies looking into the determinants of corruption and the spectrum of the factors affecting the perceived level of the corruption. The neoclassical economic theory suggests that corruption arises from legal powers of the state as public officials are given the right to disrupt otherwise efficient markets. Monopoly

rents and barriers for businesses and citizens are thus created. Overall, different authors name wide-ranging causes of corruption. The level of corruption is affected by the levels of economic freedom, globalization, education, distribution of income, and the average income (Shabbir, Anwar 2007). Others find that even the presence of Protestants in the population is associated with a lower corruption. Also, a long exposure (30 years) to uninterrupted democracy, diffusion of newspapers, and higher wages in the public sector are associated with a lower corruption, while political instability tends to increase the corruption level (Pellegrini, Gerlagh, 2008).

According to Dreher et al. (2005) who investigated the relationship between institutional quality, the shadow economy and corruption in OECD countries, improvement in institutional quality reduces "corruption both directly and indirectly (through its effect on the shadow economy)." Brito-Bigott et al. (2008) found that complex business rules have a positive effect on corruption. In this case, the rules include a number of procedures to start a business, how to enforce a contract, the time it takes to enforce a contract, and the cost to register the property. Overall, the research mentioned in the area shows that it is very likely that the level of coordination might have an effect on corruption as a higher regulation creates more rent and more opportunities for corruption to appear.

2. Empirical assessment of different types of capitalism

When identifying different types of capitalism, we use a methodology similar to that of our previous paper (Girdėnas et al., 2013). However, in order to update the index, some methodological changes had to be made due to data limitations. As before, we assume that each country has its own institutional structure which defines the kind of agent interactions and therefore has a critical impact on the type of capitalism. Secondly, using the Amable (2004) approach, types of capitalism could be detected by examining the coordination index – a variable which defines the levels of market and strategic coordination.

The first phase of our analysis was to determine sample size. It depended on the number of countries that were included in the IMD World Competitiveness Ranking, World Bank "Doing Business", and World Economic Forum competitiveness index calculations. This allowed us to have a sample of 56 countries (N = 56). The sample includes both more and less developed countries according to GDP per capita, and represents different types of capitalism.

The second phase was putting together the data necessary for the calculations. According to Knell, Srholec (2005), 12 variables should be taken to find the coordination index. The Knell data used in Girdėnas et al. (2013) were not all available; therefore, three variables – rigidity of working hours, costs of firing workers, and difficulty of firing workers by World Bank – were changed to hiring and firing practices, the effect of taxation on incentives to work, and redundancy costs by the World Economic Forum. The description of all indicators used can be found in the Appendix.

Before calculations were made, a KMO and Bartlett's test for sphericity had been run in order to find information about the validity of employing the factor analysis for a sample. The results are presented in Table 1.

TABLE 1. **Results of additional statistical tests**[*]

Kaiser-Meyer-Olkin measure of sampling adequacy.		.515
Bartlett's test of sphericity	Approx. Chi-square	178.750
	df	66
	Sig.	.000

* SPSS Output.

The KMO test measures partial correlations among the sample variables. If the data are suitable for analysis, the KMO value should be above 0.5. In this case, we have a slightly higher number which indicates that data are suitable for factor analysis. The second test is Bartlett's test of sphericity. It examines the null hypothesis that the correlation matrix is an identity matrix. The goal of Bartlett's test is to find a value less than the significance level of 0.05; therefore, we claim that a correlation matrix is not equal to the identity matrix, and factor analysis is again indicated as appropriate. Lastly, a factor analysis was run. The results are shown in Table 2.

TABLE 2. **Results of factor analysis: Component Score Coefficient Matrix**[*]

	Component		
	Business regulation	**Social cohesion and profit taxation**	**Labour and equity market**
General government expenditure as percentage of GDP	-.001	.008	-.001
Profit tax (percentage of commercial profits)	.009	.026	.000
Labour tax and contributions (percentage of commercial profits)	-.027	-.033	.001
Value of traded stocks as percentage of GDP	.270	1.042	-.107
Number of procedures needed to register property	.134	.179	.970
Number of procedures needed to start a business	.031	.095	.049
Time needed to resolve insolvency problems	1.047	.152	-.268
GINI index	.021	.025	.000
Cooperation in labour-employer relations, 1–7 (best)	.000	.000	.000
Hiring and firing practices, 1–7 (best)	.000	.000	.000
Effect of taxation on incentives to work, 1–7 (best)	.000	.000	.000
Redundancy costs, weeks of salary	.013	-.003	.013

Extraction method: principal component analysis.
Rotation method: varimax with Kaiser normalization.
Component Scores.[a]

[a] Coefficients are standardized.
* SPSS Output.

Four factors were identified in our factor analysis. However, 3 out of 12 variables' factor loadings were equal to zero. Therefore, we formed 3 groups instead of 4. According to Knell and Srholec (2005), all groups should have the same number of variables; therefore, for each group, three variables were assigned. Some of the variables had scores with a negative value; this indicates a reverse dependence among the variables.

All indices have the same calculation methodology: the index is the final sum of variables, multiplied by the factor loading score as in formula (1). Next, the index for each country was normalized using formula (2).

The general index calculation formula is:

$$I_t = V_1 * F_1 + V_2 * F_2 + V_3 * F_3,$$

where I_t is an unnormalized index for country "t", V_1, V_2 and V_3 represent different variables, F_1, F_2 and F_3 are the factor loadings for variables.

Then, the index for a country "t" I_t was normalized using the formula (2):

$$I_{tn} = \frac{(I_t - I_m)}{(std)}, \tag{2}$$

here I_{tn} denotes the normalized index value for country "t", I_m is the mean of an unnormalized index, and (std) stands for the standard deviation of the sample. The difference $(I_t - I_m)$ is not squared, because it results in a negative value of the index.

The first group – social cohesion – refers to the variables that indicate the way social cohesion is maintained in the country and how much capital is taxed. The group contains three variables: the size of government spending as the percentage of GDP, the Gini index, and the profit tax. The a higher score means higher public spending, taxes and higher inequality as measured by the Gini index. This means that the economy is more coordinated (Knell, Srholec 2005). The index of social cohesion is shown in Fig. 1.

From Fig. 1 one can see that countries with a higher GDP tend to have a more liberal coordination mechanism than those with a lower GDP. In this case, only three variables were used to compose the index of social cohesion; Fig. 1 illustrates the main tendencies. In terms of social cohesion, the USA is a more coordinated economy than Norway. This might seem counterintuitive at first, but, according to the World Bank, profit taxation is slightly higher in the USA than in Norway. Moreover, the USA more is coordinated than Norway in this case, because the Gini coefficient is much higher in the USA as compared to that in Norway. This means that income distribution is much more unequal in the USA.

The second group of factors is labour and equity market. This group consists of three variables which reflect the redundancy costs, labour taxes, and the value of stock traded. The index of factor market coordination is shown in Fig. 2. Here, again, we see that countries with a higher GDP tend to have more liberal policies, and vice versa.
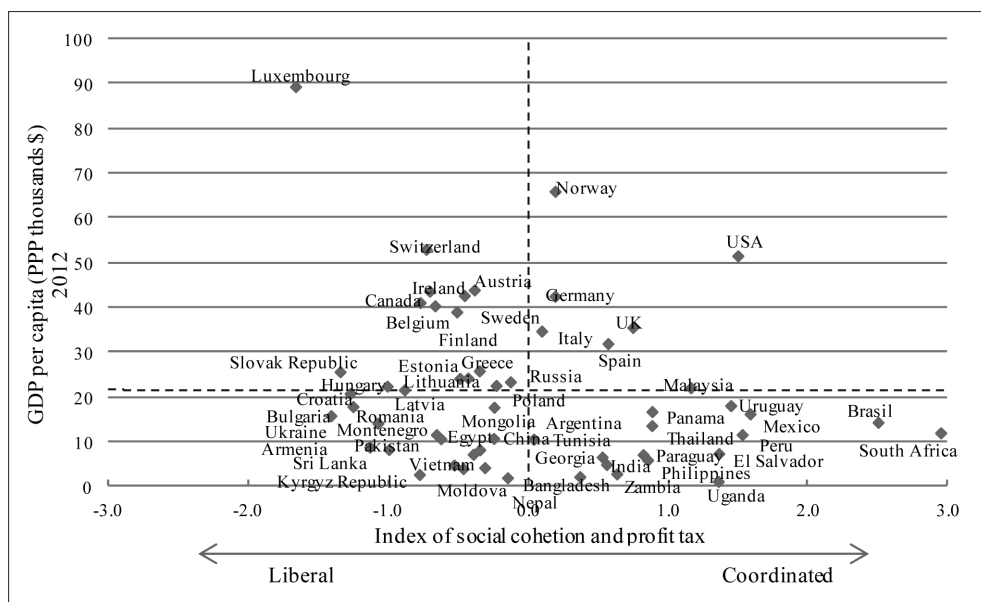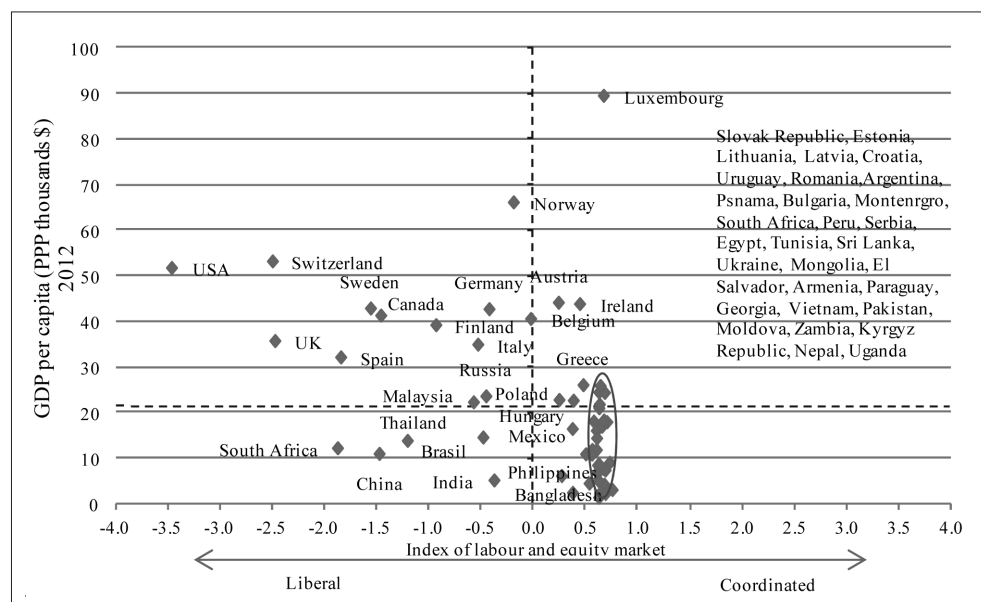
FIG. 1. **Index of social cohesion and profit tax**

FIG. 2. **Labour and equity market**

The business regulation group includes three variables: the time needed to resolve insolvency and the number of procedures required to start a business and to register property.
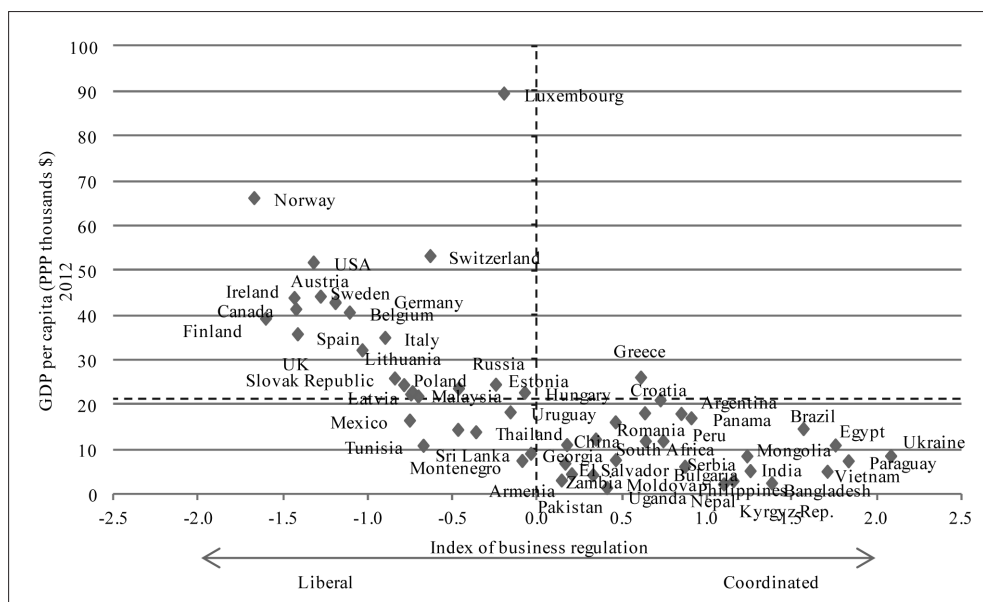
FIG. 3. **The index of business regulation**

Figure 3 shows that more developed countries tend to maintain less strict business regulation laws than do countries with a lower GDP per capita. Scandinavian countries also can be seen in the upper left corner of the graph. The Baltic countries have rather liberal regulation rules as well.

The four indices above were summed up to the final index of coordination which we use as an indicator to determine a country's type of capitalism. The results can be seen in Fig. 4.

In Fig. 4, the coordination index reveals that more developed countries tend to have a more liberal coordination of their economies. The majority of post-communist countries (except Armenia) either have a higher GDP and more liberal policies or a lower GDP and more coordinated policies.

3. Empirical assessment of relationship between different types of capitalism and the corruption perceptions index

Data on the overall index of coordination are going to be used to find the relationship between the corruption perceptions index the : the lower values of the corruption perceptions index mean more corruption, and vise versa. In this paper, two opposite types of capitalism (Hall, Soskice, 2001) were distinguished. Liberal market economies (LME) are countries with a coordination index (negative values), and coordinated market economies (CRE) show positive values.
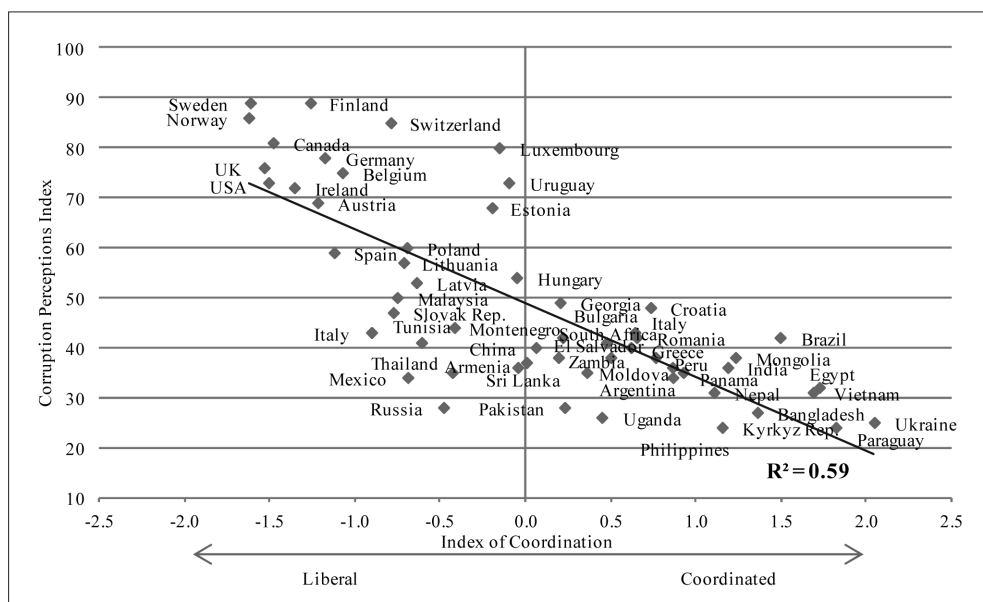
FIG. 4. **Overall index of coordination**

TABLE 3. **Linear regression analysis between the Transparency International corruption perception index and the overall coordination index**

Model (Coefficients (Dependent Variable: CPI)	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
(Constant)	48.837	1.651		29.580	.000
I (normalized)	-14.763	1.666	-.770	-8.863	.000
ANOVA (dependent variable: CPI Predictors: (Constant), I (normalized)	Sum of Squares	df	Mean square	F	Sig.
Regression	11990.822	1	11990.822	78.555	.000
Residual	8242.732	54	152.643		
Total	20233.554	55			
Model summary Predictors: (Constant), I (normalized). Dependent variable: CPI	R	R square	Adjusted R square	Std. error of the estimate	Durbin–Watson
	.770	.593	.585	12.355	1.840

The regression analysis showed a strong negative relationship between economic coordination and corruption. Excessive rules, regulations and high taxes most likely create more monopoly rents, make corruption more profitable, and therefore encourage it. Nevertheless, there are some exceptions. For example, on the one hand, Luxembourg is less liberal as compared to other developed countries due to its complicated business regulation, but it has a rather low level of corruption. On the other hand, Russia is more

FIG. 5. **Index of coordination versus CPI linear regression**

liberal than Luxembourg, but it scores poorly in terms of corruption perception. This means that the level of coordination is only one of the determinants of corruption. Also, it is possible that one kind of regulation is more supportive for corruption than the other. This might be an interesting subject for further research. However, overall, the countries that choose to coordinate their economies risk creating good conditions for corruption. This worsens the investment climate and has other consequences: the inefficient use of resources, social costs (which cause deadweight loss), and a limited economic development. Therefore, economic policy makers should bear in mind these costs of regulating economies.

Conclusions

The empirical analysis demonstrates that higher corruption levels may diminish the economic growth through lower foreign and local investments as well as other channels. As a result, the productivity growth is limited. In addition, an inefficient allocation of resources causes a lower potential growth. This means that countries which decide to choose coordinated models of economic policy at risk of creating good conditions for corruption which has a negative effect on their economies.

The further research could identify the effect of different kinds of regulation (taxes versus business regulation, etc.) on corruption.

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APPENDIX. **Explanation of the variables used**

	Variable	Source	Year	Description
1	Size of government spending as percentage of GDP	The World Bank database	2008–2012	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defence and security, but excludes government military expenditures that are part of government capital formation.
2	Size of Gini Index	The World Bank database, http://www.quandl.com/demography/gini-index-by-country	2008–2013	The Gini index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.
3	Labour tax and contributions (percentage of commercial profits)	The World bank database	2013	Labour tax and contributions ARE the amount of taxes and mandatory contributions on labour paid by the business.
4	Redundancy costs, weeks of salary	The World Bank/International Finance Corporation, Doing Business Report	2012	This variable estimated the costs of advance notice requirements, severance payments, and penalties due when terminating a redundant worker, expressed in weekly wages.
5	Value of traded stocks as the percentage of GDP	The World Bank (The Doing Business Project)	2009	Stocks traded refers to the total value of shares traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.
7	Rate of corporate income tax	The World Bank database	2009	The highest marginal tax rate (corporate rate) is the highest rate shown on the schedule of tax rates applied to the taxable income of corporations.
8	Rate of personal income tax	The World Bank database	2009	The highest marginal tax rate (individual rate) is the highest rate shown on the schedule of tax rates applied to the taxable income of individuals.
9	Time needed to resolve insolvency problems	The World Bank (The Doing Business Project)	2009	Time (in years) to resolve insolvency problems captures the amount of time needed to complete the procedures estimated by the insolvency lawyers.
10	Number of procedures needed to register property	The World Bank (The Doing Business Project)	2009	The number of procedures needed to transfer the property rights from buyer to seller. All procedures that are legally or in practice required for registering property are recorded, even if they may be avoided in exceptional cases. It is assumed that the buyer follows the fastest legal option available and used by the majority of property owners.

	Variable	Source	Year	Description
11	The number of procedures needed to start a business	The World Bank (The Doing Business Project)	2009	The number of procedures that are officially required for an entrepreneur to start an industrial or commercial business including all necessary verifications and permits from authorized institutions.
13	GDP per capita at Purchasing Power Parity (PPP) in current US dollars	The International Monetary Fund	2009	GDP per person employed is gross domestic product (GDP) divided by total employment in the economy. Purchasing power parity (PPP) GDP is GDP converted to 1990 constant international dollars using PPP rates. An international dollar has the same purchasing power over GDP that a U.S. dollar has in the United States.
14	The Corruption Perceptions Index (CPI)	Transparency International	2013	The Corruption Perceptions Index ranks countries and territories based on how corrupt their public sector is perceived to be. A country or territory's score indicates the perceived level of public sector corruption on a scale of 0 - 100, where 0 means that a country is perceived as highly corrupt and 100 means it is perceived as very clean. A country's rank indicates its position relative to the other countries and territories included in the index. The Year 2013 index includes 177 countries and territories.