The eligibility of conventional "corruption perception indices": In search of constructing a more accurate index[1]

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Abstract

This paper aims to investigate the eligibility of corruption perception indices by examining to what extent conventional perception-based indices are related to governance indicators. After summarising various attempts made to define and classify corruption as well as to quantify governance indicators in previous studies, we compare the relationships between governance indicators and perception-based indices and between governance indicators and experience-based indices. The results show that only perception-based indices are strongly correlated with governance indicators, suggesting that perception-based indices merely reflect the quality of governance. We question the reliability of perception-based indices, arguing the importance of newly proposed experience-based indices in order to understand corruption in reality.

1. Introduction

In recent years, corruption has been attracting attention from growing numbers of political scientists and economists. There are numerous studies, both theoretical and empirical, about the causes and effects of corruption. In the 1960s, Leff (1964) and Huntington (1968) argued that corruption could enhance economic development while Myrdal (1968) disagreed with them, claiming that corruption harms economic growth. Because of the lack of reliable data, however, empirical studies of corruption appeared only after the middle of the 1990's. One of the earliest works which provided empirical evidence is by Mauro (1995). He showed evidence that corruption relates to slower economic growth by analysing a cross national data set including subjective indices of corruption. From 1995, Transparency International started to release its Corruption Perception Index (CPI) every year which boosted empirical studies of corruption. Subsequently, from 1996, the World Bank's Worldwide Governance Indicators (WGI) also came to be available. These indices have become de facto standards, and hence, most empirical studies are based on them. However, these are "perception" indices. They are not based on "experienced" corruption. There can be large differences between "the perceptions of people" and "the corrupt behaviours of the real world". Up to now, it has seemed that the debates about the causes and effects of corruption have been rather chaotic; very little solid consensus has been achieved. One of the reasons for this chaos might stem from the inaccuracy of these perception indices. In this paper, we will investigate the eligibility of conventional corruption indices, searching for the possibility of a better index.

2. Definition of corruption

Before we start assessing the accuracy of the indices, the definition of corruption needs discussing. Although in many cases it may not be difficult to recognise corruption when we observe corrupt behaviours, it is not easy to define corruption. In fact, it is often quite difficult to observe corrupt behaviours because of their very nature. The simplest definition of corruption would be "the abuse of public power for private benefit" which was originally

proposed by the World Bank and is generally accepted. As Lambsdorff (2007) summarised, in the narrowest sense "private benefit" means money, but normally it also includes promotion, political power, social status and so forth. In addition, promises for some kinds of future benefits are usually included, while the practise of giving favour to relatives or friends is called nepotism. This is a type of corruption as well. "Public power" is the power exercised by politicians and bureaucrats. These powers relate to a wide range of government activities including judiciary, procurement, regulations, licenses, tax, subsidies, public facilities and so on. In this definition by the World Bank it is limited to public power, but in certain cases the conduct of private citizens could also be deemed to be corruption.

In connection with the definition, there have been many attempts to classify corruption. Tanzi (1998) classified corruption as follows: (1) bureaucratic or political (2) cost-reducing (to the briber) or benefit-enhancing (3) briber-initiated or bribee-initiated (4) coercive or collusive (5) centralised or decentralised (6) predictable or arbitrary (7) involving cash payment or not. These distinctions, such as involving cash payment or not, coercive or collusive and bureaucratic or political would be particularly important when one attempts to measure corruption. For example, if corruption is surveyed by using questionnaires from business people, they are not likely to obtain reliable answers in cases of the their own "collusive" behaviour as opposed to "coercive" behaviour. Another example is that when politicians carry out policies for their own benefits, it is often quite difficult to judge whether it is corruption or not, as Jain (2001) pointed out. As long as it is one of the most important functions of politicians to settle conflicts of interest, in many cases it is quite difficult to tell whether it is corruption or just a kind of pork barrel

politics. This judgement cannot be purely objective which causes theoretical and conceptual challenges. On the other hand, corruption by bureaucrats has fewer theoretical and conceptual problems because their power and responsibilities are limited and far more clearly defined than those of politicians. Of course, however, this does not at all mean that it is easy to measure bureaucrats' corruption in the real world.

3. Governance and institutions

Institutions and governance are also very important concepts when we discuss corruption. It is not straightforward to define these words either. These two words are defined in various ways and sometimes used interchangeably. Therefore we hereafter use these words interchangeably. The World Bank defined them in the World Development Report (2002) as "rules, enforcement mechanisms, and organizations." This definition is broad and vague. It is not practical to measure the quality of governance based on this definition. It is not easy to make sharp distinctions between institutions and their consequences. Definitions such as "Good institutions are such that they lead to better economic welfare," are almost tautological. The World Bank's Kaufmann, who constructed the Worldwide Governance Indicators, defined governance as "...the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them" (Kaufmann *et al.* 1999). Although this definition is much more concrete than definitions such as "rules, enforcement mechanism, and organizations", it is still by no means easy to measure and evaluate

quantitatively. The Worldwide Governance Indicators (hereafter WGI) is widely used by scholars. The WGI has six categories; "Voice and Accountability", "Political Stability and Absence of Violence', "Government Effectiveness", "Regulatory Quality", "Rule of Law' and "Control of Corruption". Each category is calculated by aggregating various surveys from experts and civilians.

Furthermore, institutions can be classified into two categories; formal and informal. Formal institutions have a legal basis. Hence, they are also called "de jure" institutions. They include voting systems, the degree of independence of a judiciary system, a parliamentary or presidential system and so forth. These formal institutions are legislated. Therefore, they are quite easy to observe and handy for quantitative analyses. By contrast, informal institutions are not so straightforward to observe quantitatively. Informal institutions are the unwritten rules of society. They include codes of conduct, norms of behaviour and so on. In other words, informal institutions are the way that formal institutions are run in the real world.

4. Perception-based indices and experience-based indices

Both the Transparency International's Corruption Perception Index (hereafter CPI) and the World Bank's Control of Corruption (hereafter CC), which is one of the components of the WGI, are widely used in empirical studies (e.g. Tanzi and Davoodi 2001). Corrupt activities are, by their very nature, illegal. Apparently it is not a kind of activity about which you can obtain statistics from government sources. It is almost impossible to grasp the prevalence of corrupt activities accurately and objectively. We can observe them only when they become issues and are covered by media or come to trials. These publicised cases may be just the tip of iceberg. Goel and Nelson (1998), Fisman and Gatti (2002) and Glaeser and Saks (2006) employed these data as substitutes for indicators of actual levels of corruption. However, as Kaufmann (2007) pointed out, it is impossible to judge the prevalence of corruption by aggregating these cases. These aggregated numbers are affected by a number of factors which include the quality and independence of the police and judicial system, the quality and independence of the media and so forth. The CPI is a subjective index; it is constructed by combining various surveys of mainly country specialists' perceptions. The CC is also a composite index of perceived corruption levels, but includes wider information such as surveys of business people's and ordinary citizens' perceptions. The CPI is one source of data to calculate the CC. As corrupt activities are not directly observable, Transparency International and the World Bank estimate the levels of corruption by aggregating the surveys of people's perceptions. In their attempts to increase accuracy, they combined many survey results. By combining many survey results, they devised the indices for cross-country and time series comparisons. However, despite these apparently thoughtful ways of devising indices, their reliability has been questioned (e.g. Knack 2006). The survey data measure the perceptions of people, not the actual corrupt activities. Such perceptions can easily be biased by culture, the level of social inequality and so on. Still, these indices have been widely used for quantitative analyses, because there seemed to be no other alternatives.

Recently, however, some other types of survey results have been becoming available. These new surveys are not based on "perceptions" but on actual "experiences". Hence these survey results might be good alternatives to the perception-based indices (e.g. Treisman 2007). These new data include the World Bank's Enterprise

Table 1 : List of questions about bribery in ES

Percentage of firms expected to give gifts or an informal payment to public officials "to get things done"
Percentage of firms expected to give gifts or an informal payment to get an operating license
Percentage of firms expected to give gifts or an informal payment to get an import license
Percentage of firms expected to give gifts or an informal payment to get a construction permit
Percentage of firms expected to give gifts or an informal payment to get an electrical connection
Percentage of firms expected to give gifts or an informal payment to get a water connection.
Percentage of firms expected to give gifts or an informal payment in meetings with tax officials
Percentage of firms expected to give gifts or an informal payment to secure government contract

Table 2 : List of questions about bribery in GCB

% of users of services reporting they paid a bribe to receive attention in the past 12 months
Services included: Education, judiciary, medical services, police, registry & permit services, utilities, tax revenue and customs

Survey (hereafter ES) and Transparency International's Global Corruption Barometers (hereafter GCB). The former is a survey of business people, whilst the latter is a survey of ordinary citizens. The ES is a survey of not just corruption but of the general business environment. Some of the questions relate to corruption. They ask whether the firm expects to give gifts or informal payments to government officials under certain situations. The answers to these questions are summarised and open to the public (see Table 1).

On the other hand, the GCB is a survey of individuals. They ask whether they paid bribes to receive certain services during the last twelve months. The results are also summarised and open to the public. The ES's questions are suppositional, about whether they would give bribes or not under certain situations, while the GCB's questions are about real experiences. Nevertheless, both the ES and GCB are fundamentally different from the CPI and CC which are based on surveys of people's perceptions. Both the ES and GCB are indicators constructed by summarising the results of research into experiences in certain situations. As substitutes for indicators of actual levels of corruption, these experience-based indices might be more suitable than perception-based indices. In the following section, we will discuss this point by analysing the correlation between these indices and the relationship between governance indicators and corruption indices (see Table 2).

5. Analysis

We begin with the definition of the governance index. The World Bank's WGI is the most frequently used index as an indicator of governance. This index has six subcategories. One of them is Control of Corruption (hereafter CC). In order to measure the quality of governance, the World Bank uses the CC as one of the indicators. However, this is debatable. Undoubtedly the quality of governance and the prevalence of corruption would correlate. Nevertheless, these two phenomena are not the same things. The quality of governance would affect the level of corruption. In other words, the level of the CC is a consequence of the quality of the governance. The exact mechanism of how governance affects the level of corruption is unknown. The correlation between the quality of governance and the level of corruption needs to be investigated. We cannot just use the WGI as an indicator of governance, because it includes the CC as a component. Other subcategories of the WGI are Voice and Accountability (hereafter VA), Political Stability and Absence of Violence (PV), Government Effectiveness (GE), Regulatory Quality (RQ) and Rule of Law (RL). Therefore, we define the indicator of general quality of governance (hereafter INS) as;

$$INS = \frac{VA + PV + GE + RQ + RL}{5}$$

Figure 1 shows the scatter plots of INS, VA, PV, GE, RQ, and RL. Apparently these indices strongly correlate with each other. Figure 2 shows scatter plots of INS, CC, CPI, ES, GCB and the natural logarithm of GDP per capita. It is quite obvious from Figure 2 that the CC and CPI have a strong correlation. It is also quite apparent that these two indices neatly correlate with the INS. On the other hand, the ES and GCB have interrelation with the CC and CPI, but the relations are not linear. Both the ES and GCB are the summarised results of

questionnaires about the experiences of bribery. When nobody paid bribes, the score is zero. When everybody paid, it is 100. Hereafter, in order to make comparison easier, we multiplied ES and GCB scores by -1. Therefore, when everybody paid bribes, the score appears as -100 in this paper. Figure 2 shows interrelations between ES or GCB and CC or CPI. They have kinks at around -15 of ES or GCB scores. In the range of ES or GCB scores more than -15, the CC and CPI change very sensitively in proportion to the ES or GCB change. However, in the range of less than -15, the relations are insensitive (see Figs. 1 & 2).

The ES and GCB are both survey results of actual corrupt behaviour; one is from business people and the other from ordinary citizens. They are complementary to each other. Therefore, we define composite index (hereafter COR) as,

$$COR = \frac{ES + GCB}{2}$$

Figure 3 shows the interrelation between this COR and CPI and also COR and CC. Just as before, these charts have kinks at around -15 of COR score. Table 3 reports the ordinary least-squares regression of COR on CC and CPI. In this analysis, countries are categorised into two groups; corrupt countries (COR<-15) and clean countries (COR>-15). In both CPI and CC cases, coefficients are about ten times higher in clean countries (significance at 0.01 levels in all coefficients). In other words, in the clean country group, CPI and CC are very sensitive to the level of COR, while in the corrupt country group, CPI and CC are not responsive to the COR levels. This could mean that CPI and CC cannot accurately capture the prevalence of actual corruption in corrupt countries. These regression results reinforced Treisman (2007)'s claim that CPI and CC are not accurate indicator of the prevalence of actual corrupt behaviours (see Figs. 3 & 4, Table 3).
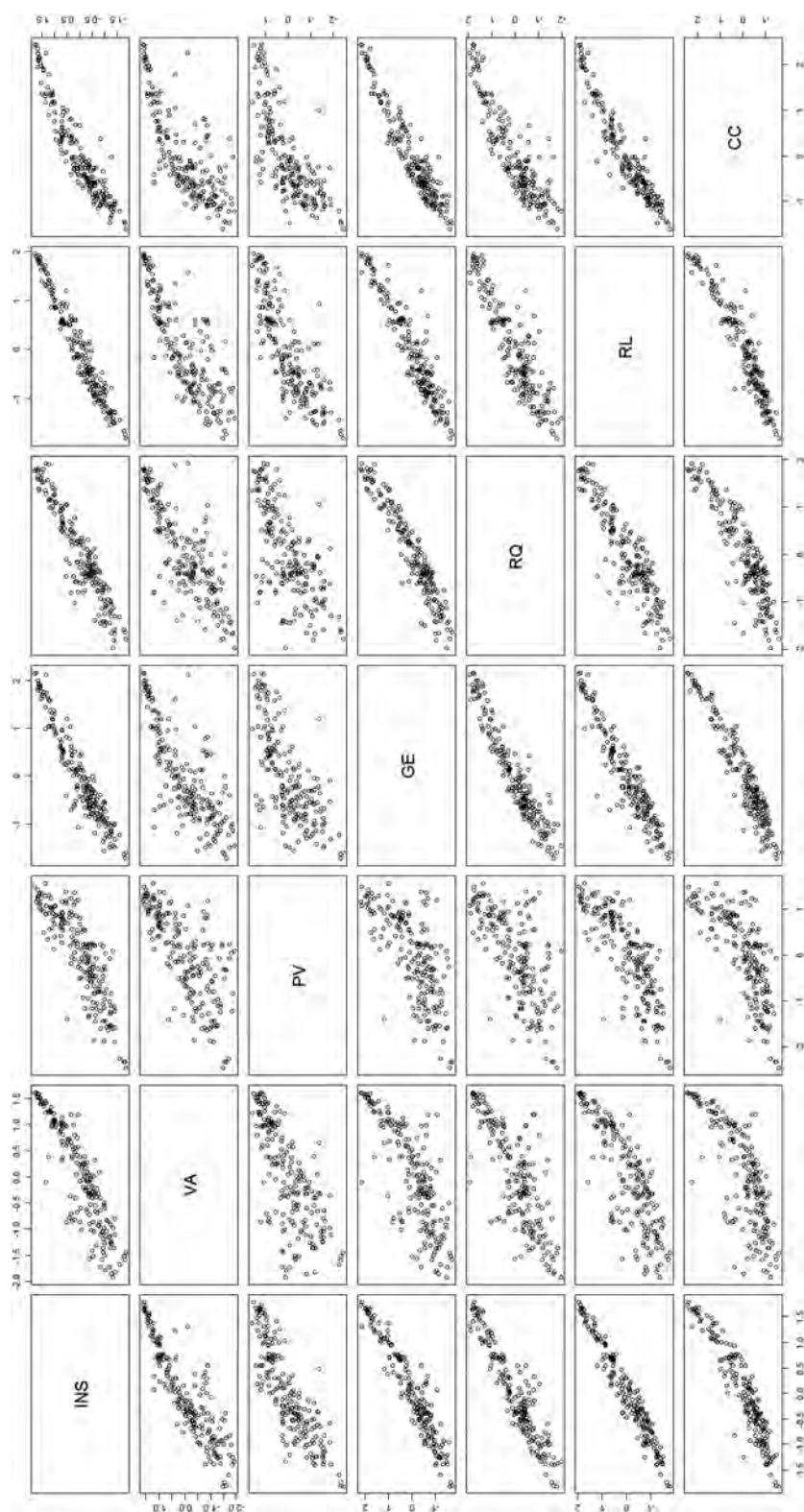
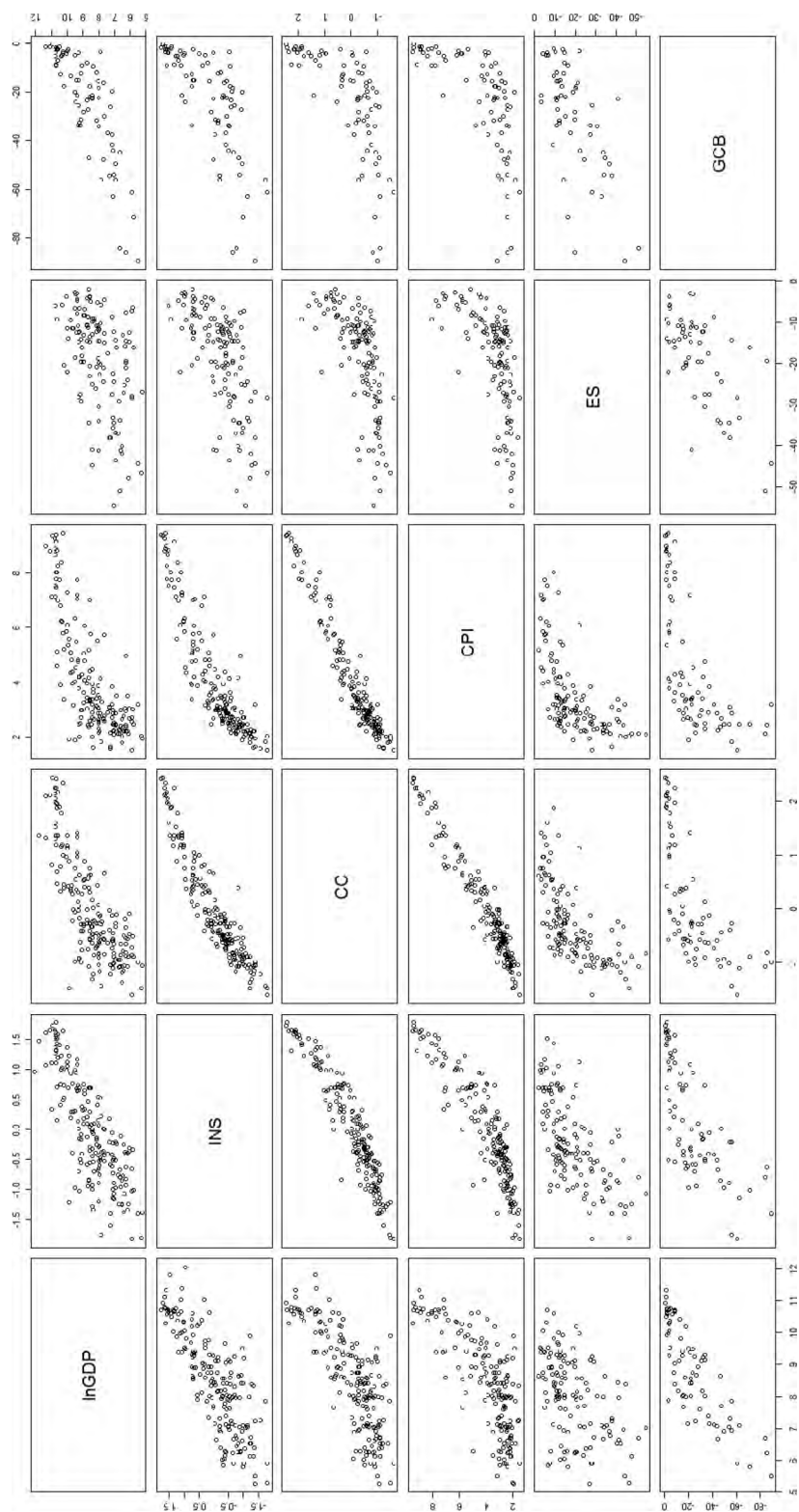Figure 1 : Scatter plots of governance indicators

Figure 2 : Scatter plots of GDP per capita, governance indicators and corruption indices
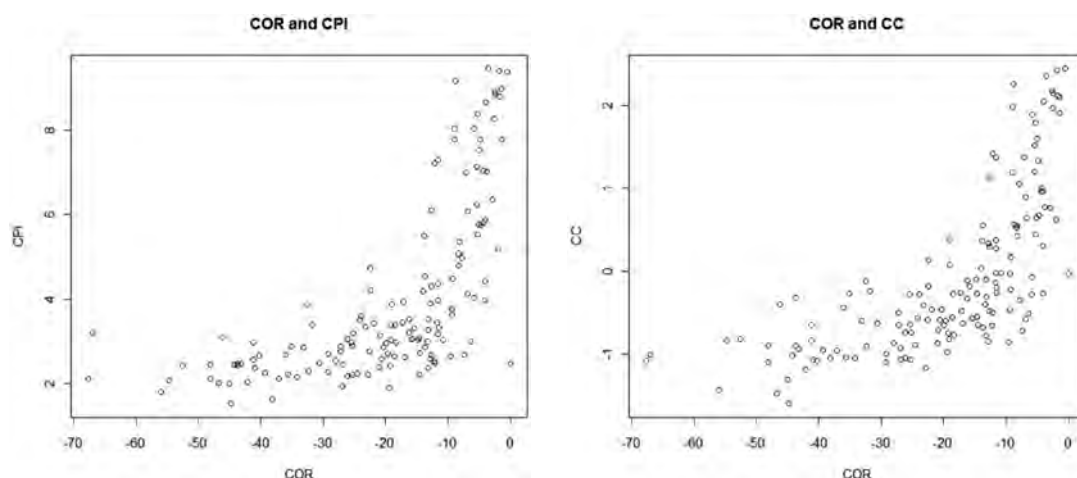
Figure 3 and 4 : Scatter plots of COR,CPI and CC

Table 3 : Regression of COR on CPI and CC

	(1) CPI	(2) CPI	(3) CC	(4) CC
Constant	8.4668 ***	3.4658 ***	1.8210 ***	−0.2117 **
COR > -15	0.3743 ***		0.1518 ***	
COR < -15		0.0235 ***		0.0162 ***
Obsevations	71	75	77	75
R-squared	0.5090	0.5493	0.4229	0.2729

***significance at 1% level, ** significance at 5% level

While it seems CPI and CC cannot capture the levels of corruption accurately, they have strong correlations with INS which is quite apparent from Figure 2. INS can be deemed to be a general indicator of the quality of governance, because it is an averaged score of WGI's components excluding CC. CPI and CC are perception indices. It seems the perceptions are strongly biased by the general quality of governance. Thereby, CPI and CC are also biased as a result.

However, there is one problem. It is debatable whether we can deem the extent of 10 percentage points difference of actual corrupt behaviours in the same way in both "clean countries" and "corrupt countries". The difference between countries where nobody pays bribes and countries where 10% of people pay bribes can be deemed much bigger than the difference between countries where 70% of people pay bribes and countries where 80% of people pay bribes. By using the logarithm of COR (lnCOR), this can be adjusted. Here we repeat the same analyses with lnCOR. From Figure 5, there are no obvious kinks in the relation between lnCOR and CPI/CC in comparison to the relation between COR and CPI/CC. However, the variance is very large in the clean country group. Table 4 shows the ordinary least-squares regression of lnCOR on CC and CPI. In this analysis, the interrelations between lnCOR and CPI/CC are completely different between the clean country group and the corrupt country group. Again, the results of this analysis suggest CC and CPI cannot capture the levels of corruption accurately (see Figs. 5-7, Table 4).
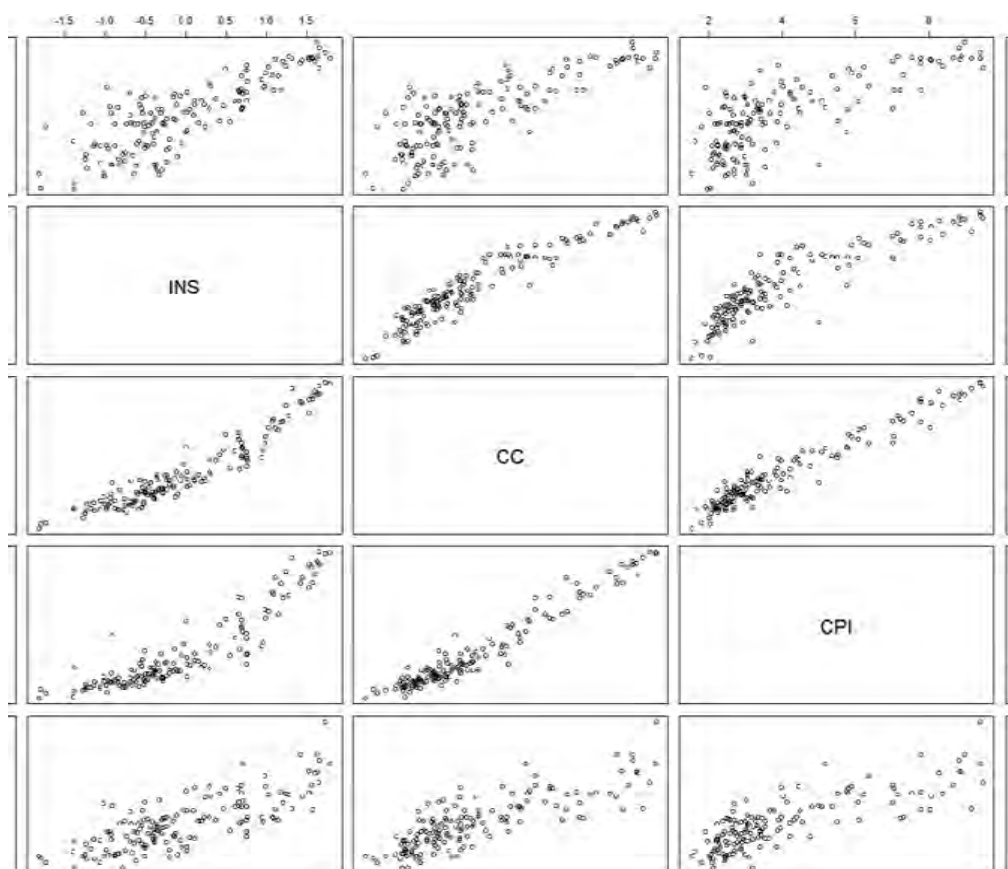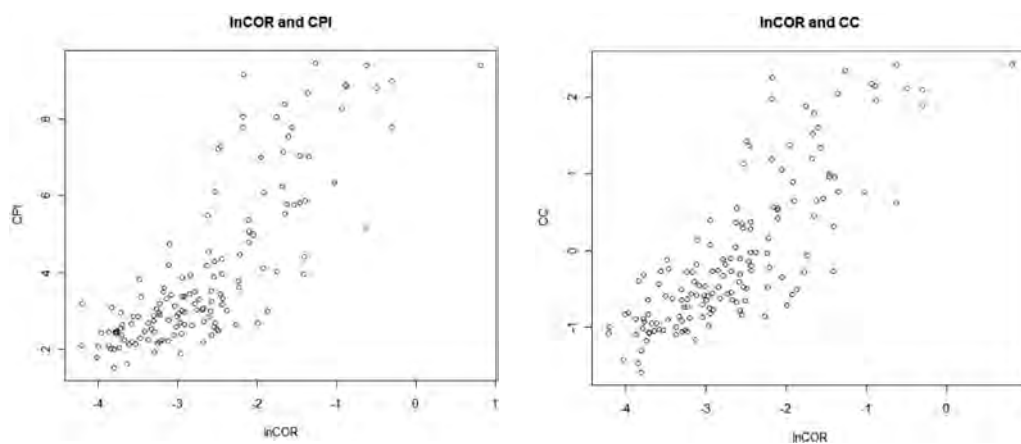

Figure 5：Scatter plots of GDP per capita, governance indicatore and lnCOR

Figures 6 and 7：Scatter plots of COR,CPI and CC

Table 4 : Regression of lnCOR on CPI and CC

	(1) CPI	(2) CPI	(3) CC	(4) CC
Constant	9.5336 ***	5.4577 ***	2.3415 ***	1.1107 ***
lnCOR > -2.7	2.1668 ***		0.9187 ***	
lnCOR < -2.7		0.8098 ***		0.5427 ***
Obsevations	71	75	77	75
R-squared	0.4940	0.2494	0.4473	0.2927

***significance at 1% level, ** significance at 5% level

As discussed above, although the perception indices, such as CPI and CC interrelate with actual levels of the prevalence of corruption in some way, most certainly they are not accurate indicators of actual levels of the prevalence of corruption. They are quite probably biased by the general quality of governance. The prevalence of corruption is a consequence of bad governance. When we need to analyse the relationship and mechanism between the prevalence of corruption and the quality of governance, corruption indices biased by the quality of governance are of little use.

On the other hand, COR is not a perception index. It is based on actual corrupt behaviours. Yet COR has its own weak points, as Treisman (2007) pointed out. Lambsdorff (2007) classified corruption into several categories. Among these categories, both ES and GCB cannot capture embezzlement. Corruption without bribes cannot be captured by these surveys. The survey results may also be lower than the actual behaviours. The informants are likely to underreport the corrupt behaviour, because bribery is illegal. The wording in the questionnaire is carefully chosen in order to avoid this underreporting.

In spite of these shortcomings, these indices, such as ES and GCB, appear to much more reliably indicate actual levels of the prevalence of corruption than the perception-based indices which are strongly biased by the general quality of governance.

6. Concluding remarks

In this paper, we have firstly summarised various attempts made to define and classify corruption in previous studies, highlighting the difficulties in quantitatively analysing corruption in practice. Secondly, we have pointed out problems involved in the quantification of governance indicators, which often end up being similar to corruption perception indices. Thirdly, we have compared conventional perception-based indices with newly proposed experience-based indices, arguing that the latter are more reliable indices. Fourthly, we have conducted two preliminary analyses; one examines the relationship between governance indicators and perception-based indices and the other investigates the relationship between governance indicators and experience-based indices. The results have revealed that only perception-based indices are strongly correlated with governance indicators when both clean and corrupt countries are included in the analyses, suggesting that perception-based indices merely reflect the quality of governance indicators.

Alleviating poverty is an acute issue in today's international community. Huge amounts of aid money are flowing from richer countries to poor countries. Aid donors regard corruption as a big obstacle to aid plans. The need for better understanding of how governance affects corruption and how corruption affects economic growth are pressing.

Nonetheless, there seem to be great problems in measuring corruption. As shown in this paper, conventional perception-based indices are strongly biased. New indices based on actual experiences appear to be more reliable and more accurately reflect reality. Analysing the relationship between these new indices and the quality of governance and economic growth are the next topics which need to be investigated.

Note

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