

Anti-Corruption Index of Seoul and New Approach by LISREL

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1. Introduction

Transparency International's Corruption Perception index(CPI) has assumed a central place in debates about corruption. The goal of Corruption Perception index(CPI) is to provide data on extensive perceptions of corruption within countries. This is a means of enhancing understanding of levels of corruption from one country to another[1].

Similarly, Seoul Metropolitan Government has been announcing Anti-Corruption Index(ACI) of its district offices and construction management office from 1999 annually. ACI measures the degree of non-corruption of public employees of offices who are in charge of public services. ACI takes into consideration of two sub-indexes: one is the perception of citizens, who actually applied for permits and approvals, and the other is anti-corruption efforts taken by each administrative unit.

A sub-index has some indicators. And an indicator is composed of some manifested variables those are measured by some questionnaires. Therefore, it is considerable that Seoul ACI is a weighted sum of questionnaires related to degree of non-corruption. At this point, the calculation of weight value is a critical problem in the process of ACI solution.

Delphi method was adapted for gaining the weight values of questionnaires in the case of 1999 Seoul ACI. Delphi method is a means of systematically collecting and progressively refining information provided by a group of selected experts[2]. Delphi method is not of robustness because it is dependent upon the judgment of selected experts.

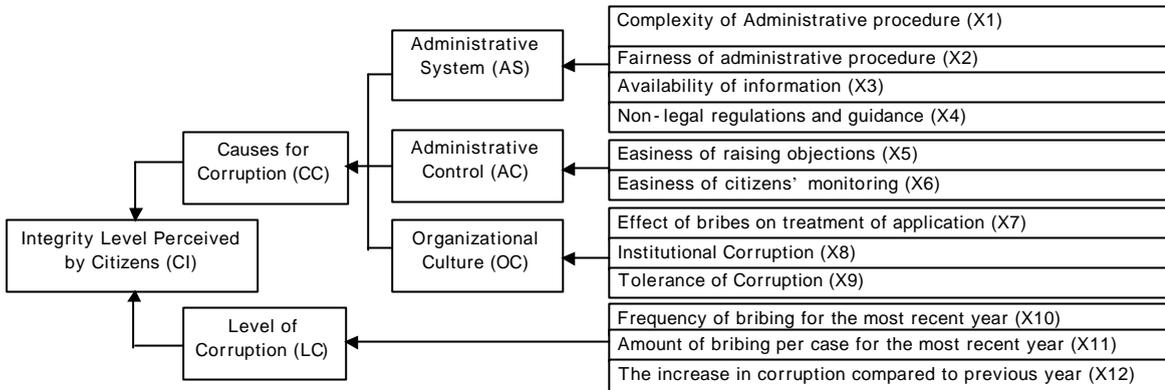
In this work, we propose the "measurement model for \bar{x} " in LISREL for gaining the weight values of questionnaires[3]. The results of this method have the property of robustness because the weight values are derived from the whole respondents.

2. Data description and Structure of Seoul ACI

The 1999 Seoul ACI covers the five areas that are considered the most susceptible to corruption: food-and-entertainment, taxation, housing and building, construction works and fire prevention. We use only food-and-entertainment area data among the whole data set for the empirical study. The analytical data set contains 12 observed variables(questionnaires) and 2,557 cases. We exclude some cases those have missing values for data cleaning. Therefore, we use 2,289 cases of

analytical data set left.

The Seoul ACI is the sum of the weighted values of the “Integrity Level Perceived by Citizens(CI)” and the “Level of Anti-Corruption Efforts(SI)”. We deal with only “Integrity Level Perceived by Citizens” which is taken by questionnaires. The structure of CI as follows;



<Figure 1> Structure of CI

3. Methodology

The “measurement model for x” in LISREL is as follows;

$$X = \Lambda_x \mathbf{x} + \mathbf{d}$$

Here, X is the observed variables, \mathbf{x} is the latent variable and \mathbf{d} is error terms. In this model, we can obtain the estimated path coefficient $\hat{\Lambda}_x$. In order to calculate the related scores, we need the weight value which is obtained from the factor scoring coefficient matrix, $R^{-1}\hat{\Lambda}$, derived from factor scores regression. The standardized factor scores are computed as follows;

$$F = X \circ R^{-1}\hat{\Lambda}$$

here $X \circ$ is standardized data matrix.

Therefore, we can calculate the scores of sub-indicators through the above algorithm, which are elements of calculation of indicators. Finally, we can obtain the weigh value through the iteration procedures.

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