E-Government as an Anti-Corruption Tool: Experience from Indonesia

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ABSTRACT

Objective – Transparency is promoted as one of the most important measures against corruption. E-government provides greater access to information that can subsequently increase transparency, accountability, and be used as an effective anti-corruption tool. The purpose of this study is to examine the relationship between e-government and corruption.

Methodology/Technique – To gain more insight, we also investigate the effect of e-procurement as one of the e-government initiatives for tackling corruption. We use observations from local government (districts and cities) in Indonesia during the period 2012–2015.

Findings – The results show that e-government implementation is associated with lower corruption. E-government reduces corruption by removing discretion, thereby curbing the opportunities for arbitrary action that often result in corruption.

Novelty – Moreover, the results also show that adopting e-procurement increases transparency and accountability through increased competition among bidders and enables real-time access to information, which ultimately reduces corruption in public procurement.

Type of Paper: Empirical

Keywords: Accountability, Corruption, E-Government, E-Procurement, Transparency.

JEL Classification: M10, M48.

1. Introduction

Corruption is an issue that attracts attention worldwide because of the huge losses that it causes. Each year countries globally suffer losses due to corruption of at least $2 trillion (World Economic Forum, 2017).

The actual extent of these losses may be higher since the calculations include only bribes in the case of corruption and exclude other potential economic losses such as the loss of investment and potential income tax revenue achieved by state institutions. Fakir et al. (2017) mentioned that the presence of social disparities...
is another impact of corruption. The social gap threatens poverty alleviation, creating a sense of dissatisfaction in society that can ultimately increase crime rates, with the most dangerous element being the inability of the state to achieve economic development for a better life (United Nations, 2015).

Dzhumashev (2014) mentioned that the way to reduce corruption is to increase economic productivity and improve public governance. Butkiewicz and Yanikkaya (2006) found a negative relationship between corruption and various governance measures. From several good public governance principles, the most frequently discussed principle to deter corruption is transparency. Transparency concerns the availability of reliable, timely, and accessible public economic, social, and political information (Vishwanath and Kaufmann, 1999). Transparency has the particular effect of increasing access and public monitoring, so the level of corruption can be suppressed. The level of transparency can be increased through the use of information and communication technology (ICT) as the world today has largely experienced advances in this field. ICT has been highlighted by academics and policymakers as one of the factors needed to fight corruption in developed as well as developing countries (Pirannejad, 2011). ICT is able to increase network capacity and connectivity between all parties and reduce the cost of obtaining information.

E-government is the realm in which the use of ICT is most popular today. The implementation of e-government is considered as a measure that can be taken to fight corruption with the aim of increasing economic growth (World Bank, 2014). E-government can create transparency and accountability through the dissemination of economic information to the public in both greater quantity and quality. Research related to e-government and corruption has been conducted in various countries. Krishnan et al. (2012) found that e-government can reduce the level of corruption that subsequently produces a better economy while minimizing environmental damage. Andersen (2009), using data from more than 140 countries (not including OECD members) over a 10-year period from 1996 to 2006, found that e-government is influential and useful in reducing corruption. Using cross-country data, Elbahnasawy (2014) also found that e-government and internet usage has a negative relationship with corruption. One example of e-government initiatives is e-procurement. Neupane et al. (2014) proved that e-procurement has the potential to reduce corruption in the procurement of public goods and services. E-procurement can reduce corruption by reducing monopoly power and asymmetric information and increasing transparency and accountability.

The purpose of this study is to examine the relationship between e-government and corruption. It is expected that e-government implementation is associated with lower corruption. Moreover, we also examine the effect of e-procurement on corruption. This study is important because it is considered necessary to look for empirical evidence that e-government is effective against corruption because current research is still theoretical and descriptive (Ojha, Palvia, and Gupta, 2008). Moreover, corruption in developing countries is more widespread and rampant than in their developed counterparts (Svensson, 2005), and Indonesia is an ideal setting for this topic. Similar to other Asia Pacific countries, Indonesia has social gaps due to corruption on the one hand, yet on the other it also boasts a very large number of digital users, thus making it a suitable environment in which to conduct e-government studies. The contribution of the study is to provide evidence on the implementation of e-government at the local government level. Previous studies (Andersen, 2009; Krishnan, et al., 2013; Elbahnasawy, 2014) have used cross-country analysis with less consideration given to the uniqueness of each country. This study uses an e-government index developed by Indonesia’s Ministry of Communication and Informatics based on the following five dimensions: policy, institutional, infrastructure, application, and planning. The study’s results can be used to indicate the local government needs upon which focus needs to be placed in order to hasten a reduction in corruption.

The agency theory can be defined as a contractual relationship between a principal and an agent (Jensen and Meckling, 1976). Principals and agents have their own personal interests, which are highly dependent on tastes, perspectives, and information. The agency problem in the public sector occurs between government as the principal and bureaucrats as the agents. Bureaucrats have the potential to take advantage of either their own or others’ positions by exploiting their understanding of the administrative business processes of government better than the principal, while the existence of information asymmetry enables them to deviate
from the function expected by the principal (UNDP, 2008). Lio et al. (2011) mentioned that it is easy for corruption to arise as long as bureaucrats continue to be information monopolists and work with no requirement to be accountable for their performance. Therefore, transparency needs to be improved so that information asymmetry between principals, clients, and agents can be reduced, and potential deviations and corruption are prevented.

Corruption is the misuse of public power, position, or authority for personal gain (UNDP, 2008). In addition, corruption can also be seen in the act of various people or private parties who, driven by a wish to speed up the government’s slow bureaucracy, give money to certain bureaucrats as an illegal form of compensation (Kaufman, 1999). Corruption can also be described as a monopoly on public information combined with the discretion to exploit and process information arbitrarily without accountability and oversight (Klitgaard, 1988). In terms of its impacts, corruption can undermine economic growth (Huang, 2016), increase inflation (Ben Ali & Sassi, 2016), impede the potential for cross-border trade (Ali & Mdhillat, 2015), and act as a ‘curse’ on natural resources (Ben Ali & Sassi, 2016). It is referred to as a curse due to the abundant resources that are not able to be utilized for the prosperity of society as a whole and instead are used only as a tool to enrich selected parties. It can therefore be said that corruption is the main cause of the delayed pace of economic development of a country (Andersen, 2009).

Studies have been conducted on ways to fight corruption. One such study by Shim and Eom (2009) defined the three pillars of corruption eradication as comprising administrative improvements, law enforcement, and social capital. The first pillar, improved administration, focuses on improved bureaucratic quality by protecting public organizations from political influence. Setting standards of professionalism and supervision is a tool that can prevent workers or bureaucrats from seeking personal gain. The second pillar of law enforcement is important because corruption still has the potential to evade control measures that have been put in place. Law enforcement has a role to play as a reward and a deterrent to corrupt perpetrators. The third pillar is social capital, whereby society is expected to become a factor in the eradication of corruption. A society that at least takes a role to not engage in bribery or any form of corruption is able to immediately expose any arbitrary policies and unreasonably created procedures.

E-government has been defined as the use of ICT, particularly the internet, as a tool to achieve better government (OECD, 2003). E-government becomes a tool of interaction between government and society, and between society and the business world, to operate more effectively at the same time as improving governance. Bhatnagar (2003) explains that e-government offers a partial solution to the multifaceted problem of corruption. It reduces discretion, thereby curbing opportunities for arbitrary action. It increases the chances of exposure by maintaining detailed data on transactions, thereby making it possible to track and link the corrupt with their wrongful acts. By making rules simpler and more transparent, e-government emboldens citizens and businesses to question unreasonable procedures and their arbitrary application. Hiller (2001) proposed an e-government model consisting of five stages: emerging, enhanced, interactive, transactional, and fully integrated web presence, yet the stages of e-government development do not necessarily follow each other neatly in a chronological or linear order. In developing countries that have a much faster learning curve, it is possible for the requirements of all the stages to be enacted almost simultaneously.

Development of Hypotheses

The presence of e-government and the use of the internet can be the right choice to fight corruption (Elbahnasawy, 2014). E-government can serve to open access to public information and there is even scope for the public to play an active role, such as disclosing the existence of corruption (whistle-blowing). Mistry (2012) states that e-government is useful for combating corruption, both for developing and developed countries. However, e-government tends to be more beneficial in developing countries than in their developed counterparts as it improves transparency and accountability, two things that have always been the
main disadvantages of developing countries. Based on the above explanation, the first hypothesis of this study is:

H1: The implementation of e-government has a negative effect on corruption

E-procurement is one form of e-government implementation. The positive impacts of e-procurement include the user’s perceived benefits for procurement, particularly in the process of action implementation, decreased asymmetric information, and increased transparency and accountability (Al-Hussaini et al., 2014). Kim et al. (2009) also found that the implementation of e-procurement in South Korea had the effect of reducing corruption during the period 1999–2006. Neupane et al. (2014) mentioned that the implementation of public e-procurement can become an effective anti-corruption tool. E-procurement has numerous potential benefits including standardizing and monitoring procurement, increasing transparency, reducing personal discretion in purchasing decisions, enhancing fair competition among bidders, avoiding human interference, and maximizing value for money. Based on the above explanation, the second hypothesis of this study is:

H2: The implementation of e-procurement has a negative effect on corruption

METHOD

We use local government in Indonesia (districts and cities) as the unit of analysis. Purposive sampling is used to select the sample. The sampling criteria are local governments that have complete data for the years 2012–2015. The data sources used are obtained from the Supreme Audit Agency, the Ministry of Internal Affairs, the Corruption Eradication Commission, and the Central Statistical Bureau. The main model used to test Hypothesis 1 is as follows:

\[
\text{CORR}_i = \alpha_0 + \alpha_1 \text{EGI}_i + \alpha_2 \text{TOTREV}_i + \alpha_3 \text{TOTSP}_i + \alpha_4 \text{GINI}_i + \alpha_5 \text{HDI}_i + \epsilon_i
\]  

(1)

To test Hypothesis 2, we use model 2 as follows:

\[
\text{CORR}_i = \alpha_0 + \alpha_1 \text{EPROC}_i + \alpha_2 \text{TOTREV}_i + \alpha_3 \text{TOTSP}_i + \alpha_4 \text{GINI}_i + \alpha_5 \text{HDI}_i + \epsilon_i
\]  

(2)

Where CORR\(_i\) is corruption for local government \(i\); EGI\(_i\) is the e-government index for local government \(i\); EPROC\(_i\) is the e-procurement for local government \(i\); TOTREV\(_i\) is (log) revenue for local government \(i\); TOTSP is the total spending for local government \(i\); GINI\(_it\) is the Gini ratio for local government \(i\); and HDI\(_it\) is the human development index for local government \(i\).

We estimate the model using multiple linear regression analysis. Corruption is measured by the number of public complaints of corruption. Azhar and Setyaningrum (2015) mentioned that there is a high correlation between public complaints and corruption cases that proceed to court. E-government is measured using the e-government index. The e-government index was developed by the Ministry of Communication and Informatics, Republic of Indonesia. The e-government index is measured based on five dimensions: policy, institutional, infrastructure, application, and planning. E-procurement is measured using a dummy variable 1 (if local governments implement e-government), and 0 otherwise. The e-procurement data are taken from local government performance reports compiled by the Ministry of Internal Affairs.

RESULTS

Descriptive Statistics

Based on the sampling criteria, the total sample size used in the analysis was 127 observations from the period 2012–2015. There was a sample reduction due to incomplete data from measuring the e-government
index. Descriptive statistics can be seen in Table 1. The average number of corruption cases is 7, with the average e-government index being 2.11, which is categorized as poor implementation. The percentage of local governments that implement e-procurement in Indonesia is 89%. Jaya (2013) mentioned that Indonesia is moving from stage 2 (enhanced presence) to stage 3 (interactive presence) in implementing e-government.

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>OBS</th>
<th>MEAN</th>
<th>STDEV</th>
<th>MAX</th>
<th>MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORR</td>
<td>127</td>
<td>6.79</td>
<td>9.51</td>
<td>79.00</td>
<td>0.00</td>
</tr>
<tr>
<td>EGI</td>
<td>127</td>
<td>2.11</td>
<td>0.62</td>
<td>3.63</td>
<td>1.03</td>
</tr>
<tr>
<td>TOTREV</td>
<td>127</td>
<td>12.13</td>
<td>0.27</td>
<td>12.82</td>
<td>11.59</td>
</tr>
<tr>
<td>TOTEXP</td>
<td>127</td>
<td>12.12</td>
<td>0.28</td>
<td>12.86</td>
<td>11.59</td>
</tr>
<tr>
<td>GINI</td>
<td>127</td>
<td>0.33</td>
<td>0.05</td>
<td>0.48</td>
<td>0.24</td>
</tr>
<tr>
<td>HDI</td>
<td>127</td>
<td>69.98</td>
<td>5.42</td>
<td>83.25</td>
<td>56.45</td>
</tr>
</tbody>
</table>

Hypothesis Testing

The hypothesis testing can be seen in Table 2. The results show that there is a negative association between e-government and corruption (H1 supported). This result is in line with Andersen (2009), who found that the use of e-government led to a reduction in corruption over the decade 1996–2006 in non-OECD countries. Elbahnasawy (2014) also concluded that e-government is a powerful tool in reducing corruption through telecommunication and the quality of online services. The additional test using the e-government index component reveals that the application and planning dimension has a negative association with corruption. The application dimension is related to the availability and utilization of online services that directly support e-government services. The increasing use of online applications (services) and the decrease in direct interaction between bureaucrats and the community is a preventive measure against corruption because it can minimize physical interaction. The planning dimension is related to the sustainability of e-government utilization in the future.

Table 2. Hypothesis Testing

<table>
<thead>
<tr>
<th>Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORRi = α0 + α1EGII + α2TOTREVi + α3TOTSPi + α4GINII + α5HDIi + ei</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Exp Sign</th>
<th>Coeff</th>
<th>P&gt;\text{t}</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS</td>
<td>-190.006</td>
<td>0.000</td>
<td>***</td>
</tr>
<tr>
<td>EGI</td>
<td>H1: (-)</td>
<td>-1.387</td>
<td>0.090</td>
</tr>
<tr>
<td>TOTREV</td>
<td>+/-</td>
<td>-57.057</td>
<td>0.048</td>
</tr>
<tr>
<td>TOTEXP</td>
<td>+/-</td>
<td>72.345</td>
<td>0.022</td>
</tr>
<tr>
<td>GINI</td>
<td>+/-</td>
<td>-3.239</td>
<td>0.410</td>
</tr>
</tbody>
</table>
The results for H2 show that there is a negative association between e-procurement and corruption. This result is in line with those by Knězácková and Linhartová (2013), Asorwoe (2014), Andersen (2009), and Kim et al. (2009). The e-procurement system creates open government and ease of access to procurement information, thereby increasing the level of competition among bidders in government procurement. Other benefits of e-procurement over manual procurement are reduced other-party interventions, the encouragement of open and fair competition, and accelerated procurement completion, all of which combine to reduce the chances of corruption.

3.1 Tables

All tables should be numbered with Arabic numerals. Every table should have a caption. Headings should be placed above tables, font size 11, left justified. Tables must be embedded into the text and not supplied separately. Table format: font size must be 11, line spacing must be exactly 11 pt. Spacing must be 0 pt. Before; 6 pt. After and it must centered

DISCUSSION AND CONCLUSION

The purpose of this study was to examine the relationship between e-government and corruption. To gain more insight, we also investigated the effect of e-procurement as one of the e-government initiatives to tackle corruption. The results show that e-government implementation is associated with lower corruption. E-government reduces corruption in several ways. It serves to remove discretion, thereby curbing the opportunities for arbitrary action that often result in corruption. The impact of e-government tends to be more beneficial in developing countries than in developed countries because e-government improves transparency and accountability, two things that have always been the main disadvantages of developing countries. Indonesia is now pursuing stage 3 (interactive presence) as it will be implementing information systems in almost all areas of public services. Almost all local governments in Indonesia are implementing e-procurement, with the results revealing that there is a negative relationship between e-procurement and corruption. The adoption of e-procurement technology can increase transparency and accountability, provide real-time access to information, and increase competition among bidders, which ultimately reduces corruption in public procurement.
Indonesia and other developing countries can formulate strategies for e-government to reduce corruption. The main finding of this study shows that e-government has a negative effect on corruption. Each country needs to maintain the development of its level of e-government in a positive direction. For Indonesia, we are moving from stage 2 (enhanced presence) to stage 3 (interactive presence) and are continuing to move forward in line with an e-government roadmap developed by the Ministry of Informatics. The short-term E-Government Development Plan (2016–2019) focuses on structuring and building IT governance infrastructure and communications infrastructure, providing online public services, and strengthening collaboration between central and regional ministries. The focus over the medium term (2020–2024) is on the digitization of public services, with the aim of improving the digital literacy community in order to achieve an equal distribution of the number and types of e-government services to achieve public satisfaction and trust. The long-term aim (2025–2030) is for targeted e-government to become part of everyday life in all aspects of government life, society, and business.

References


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