

**A Study on Relations between E-Government, Trust in Government and  
Corruption : Focusing on OECD Countries**

By

**WOO, Jeyoung**

**THESIS**

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

**MASTER OF PUBLIC POLICY**

**2021**

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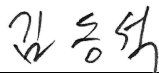
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Committee in charge:

Professor Kim, Dongseok, Supervisor

  
\_\_\_\_\_

Professor Choi, Changyong

  
\_\_\_\_\_

Professor Lee, Taejun

  
\_\_\_\_\_

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## ABSTRACT

Today, many countries are experiencing a decline in trust in government. Should this be accepted as a kind of phenomenon called the “New Normal” accompanied with low rates of the growth and employment? Trust in government is regarded as the driving force in effective governance. If a government is not supported by trust from the people, it will be hard to expect people’s compliance to its policies. It would result in major disruptions in implementing its functions. In response, OECD countries have pursued transparent, accessible, and responsive “open government” and established “e-government” by utilizing ICT as a means to enhance the declining trust in government. The limits of representative democracy pointed out for a long time are being consistently supplemented by ICT. The internet provides a “public sphere” where anybody can participate, and people actively express their opinions on political and social issues. The government is also developing and providing various types of platforms where the people can express their opinions and the government can respond to them with greater insight. The era of “e-democracy” supplementing the limits of representative democracy has come to “e-government” in which the people are simply provided public services conveniently on the online. This study identifies the relationship between the establishment of e-government, trust in government and public integrity. The basic premise of this study is that a country where there is high trust in government would have a high level of integrity. This study proceeds with the focus of the relationship between e-government and integrity which is a key value of public interest. Today, the transnational issue of COVID-19 threatens human security. Fighting against this infectious disease of which the end is unknown is underway all over the world. Even the term “With Corona”, considering COVID-19 as a constant as something to coexist rather than to overcome, has been coined. Government of the Republic of Korea releases information related to the infectious disease, as well as the status and movement path of confirmed cases in real time based on its outstanding e-government infrastructure. Korea’s response to COVID-19 shows that well established e-government and release of related information are effective in managing national disasters. As such, public integrity including transparency is expected to serve as leverage to adapt, overcome, and leap beyond the challenge of the times such as the “New Normal” and “COVID-19”.

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## I. INTRODUCTION

According to the OECD report, today, many countries are experiencing a decline in trust in their government. This topic has been recurrent for several years. Trust in government is regarded as the driving force in the effective governance. Considering the socio-economic costs incurred by noncompliance and resistance from citizens due to distrust in government, the importance of trust in government is too significant. People with low trust in government have a cynical and negative assessment for government activities (Erickson & Tedlin, 2011). A government that is not supported by trust from the people is hard to be expected compliance from the people to its policies. It would result in major disruptions in implementing its functions. Furthermore, it would lead to a vicious circle of poor policy performance and a decline of trust in government, not to mention that it is also a problem that take a considerable amount of time to raise confidence in government (Hetherington, 1998). Korea has also experienced considerable social costs and turmoil several times due to the distrust in government and its policy. It is not just the government but also the private sector that is responsible for governance in the “open government” forwarded by OECD countries. In response, OECD countries have pursued transparent, accessible, and responsive “open government” and established “e-government” by utilizing information and communication technology (hereinafter ICT) as a means to enhance the declining trust in government. In the past, closed public sector was a suitable structure for pervasive corruptions, and corruption is a critical factor for the declining trust in government. There would be no doubt that e-government emphasizing transparency along with the efficiency and openness of public services

should be advanced toward reducing the administration corruptions and enhancing trust in government.

According to OECD's Trust Frame Work, it refers to "responsiveness", "reliability", "integrity", "openness" and "fairness" as key factors for increasing trust in government. In addition, factors such as transparency and accountability will greatly affect trust in government. E-government has been expected to increase the accessibility, transparency and responsiveness of public services, and we are regarding it contributes to meet this expectation in empirically or intuitively. The internet is like an oasis to the people who are anxious for direct democracy and participation. People outspokenly communicate and share each their opinions regarding social issues on the internet. The spread of smartphones promotes people's social participation on the internet by reducing significantly limits of internet connection.

Today, almost every country is run by representative democracy. Although representative democracy is the most realistic political system in existence, its limitations and imperfections have been constantly challenged. Therefore, various institutional mechanisms are added, and socially the people monitor and voice the government via organized civic groups to supplement the democracy. The limits of representative democracy pointed out for a long time are being consistently supplemented by ICT. The internet provides a "public sphere" where anybody can participate, and people actively express their opinions on political and social issues. The government is also developing and providing various types of platforms where the people can express their opinions and the government can respond to them with greater insight. The era of "e-democracy" supplementing the limits of representative democracy has come to "e-government" in which the people are simply provided



public services conveniently online.

This study identifies the relationship between the establishment of e-government, trust in government and public sector corruption. This study considers not only the proposition that public sector integrity leads to high trust in government, but also that a country where there is high trust in government would have a high level of integrity. Consequently, correlation and regression analyses are conducted to identify the relation between Corruption Perception Index (CPI) as a dependent variable, and Confidence in National Government and E-Government Development Index (EGDI) as an independent variable.

Of course, it is not advised to make premature predictions that access to information and opportunity to participation regarding social issues will result in a reduction in corruption and enhance in trust in government. As the saying goes, “can see as much as know”, more information and more active participation require higher levels of ethics in public service, the possibility that CPI and “Confidence in National Government” indicate contrary to expectations could not be excluded. In the same aspect, Orren (1997) argued that trust in government is determined by public expectations for government. Moreover, Deth (2000) argued that the higher the participation rate, the higher distrust towards government as access to information about politics. Dalton (2000) also attributed the decline in trust in government to the accumulation of knowledge about politics as well as the accessibility to more information in voting and elections. Nevertheless, face this study with hope to be more trusted government by the people who are owners of state by identifying the relationship between the development of e-government, citizen participation in public issues utilizing it and public integrity.

## II. LITERATURE REVIEW

### 1. E-Government

#### *Background*

Lenk(1998) cited ① the increased necessity for coping with unpredictable problems in uncertain environment due to the relative weakening of state power, ② the reduction in policy measures and ability to influence social relationships, ③ the increasing costs by state intervention and service delivery, ④ citizens' growing demand and desire to participate in decision-making as the background of the e-government.

In the 1990s, citizens' demands for government innovation grew stronger and stronger. The government had been branded as inefficient, and there had been an increasing demand that the high cost-low efficiency structure of the public sector be innovated. At the same time, as society had diversified, the need to respond to various needs of citizens had grown, and citizens had a growing desire to express their opinions on the social issues surrounding them and participate in the decision-making.

Another feature of the 1990s was the rapid development of ICT. This new technology had been promoted communication by overcoming physical distance, embracing diversity of perspectives and encouraging deliberation (Thompson, 2002). ICT has broken space-time constraints, improved accessibility to large amounts of information to the public. Citizens now are no longer passive information subscribers, but producers who can suggest their opinions and share each other's opinions. A government has been faced with necessity to respond with a new provision type of public services to adapt to rapidly changing society and the environment in which citizens' demands are diversified. In other words, it is starting point of e-government to

reduce unnecessary expenditures and to increase citizens' satisfaction with public services by integrating ICT into government activities to provide public services at low cost-high efficiency (Osborne & Gaebler, 1993).

### ***Definition and Meaning***

The time when specifically use the term “E-government” can be seen as an National Information Infrastructure (NII) as a focal project with the launch of the Clinton Administration. The National Performance Review (NPR) is Clinton Administration initiative. According to its report, 「Reengineering through Information Technology」, “E-government” is defined as a government that allows citizens to more broadly and more easily access to information and services through an efficient and customer-oriented process. When the Clinton Administration was inaugurated, the key visions for the Information Superhighway project driven mainly by Vice President Al Gore were to improve quality of life, create community interest, strengthen education, promote health, expand leisure, and enhance participatory democracy. The concept of e-government is presented as the process of realization these key visions and its tangible result (Kim, 1999).

OECD defines “E-government” as an effort to change the internal and external relationship of the government using ICT such as internet. Electronic Government Act enacted in 2001 in Korea defines “electronic governments” as a government that efficiently coordinates administrative affairs between administrative agencies and public or conducts administrative affairs for citizens by digitalizing administrative affairs of administrative agencies, etc. using information technology. In addition, its objectives is specified in this act, which are to promote the efficient realization of e-government, improve democracy, transparency, productivity, and satisfaction in administration by providing for fundamental procedures, principles, and other relevant

matters for the electronic processing of administrative affairs.

E-government is to provide public information and public services through digital means(West, 2004) and to strategically use ICT in public administration(Homburg, 2008). E-government not only improves efficiency in the delivery of various public services but also provides citizens with information concerning public affairs and government activities (Thomas & Streib, 2003).

As considered the current administrative environment and above mentioned definition, e-government is defined as an governance model that enables citizens to access public information, public data and public services anytime and anywhere, as well as to enhance citizens' quality of life, satisfaction with public administration and transparency in government activities by providing space for citizens to participate in public affairs and public issues.

**Table 1 Governance Trends in E-government**

<b>Traditional government</b>	<b>E-government</b>
<ul style="list-style-type: none"> <li>• Government oriented</li> <li>- Citizens are objects to manage and control</li> </ul>	<ul style="list-style-type: none"> <li>• Citizen oriented</li> <li>- Citizens are objects to be volunteered and provided services.</li> <li>- Citizens directly take part in public policy as principals of government</li> </ul>
<ul style="list-style-type: none"> <li>• Limited in space-time</li> <li>- Have to visit to public office to be provided public services</li> </ul>	<ul style="list-style-type: none"> <li>• Unlimited in space-time</li> <li>- Don't need to visit to public office to be provided public services</li> </ul>
<ul style="list-style-type: none"> <li>• Unclear for matter of responsibility</li> <li>- Not transparent</li> <li>- Unpredictable</li> <li>- Mutual distrust</li> <li>- Face to face</li> </ul>	<ul style="list-style-type: none"> <li>• Clear for matter of responsibility</li> <li>- Transparent</li> <li>- Predictable</li> <li>- Mutual trust</li> <li>- Contact-free</li> </ul>

\* Reference: Chung, 2007.

## **2. Trust in Government**

### ***Definition***

The definition of trust in government has been variously discussed such as the belief that the government will meet the expectations of the people (Hetherington, 2005), the normative expectation that the government will operate in the direction that the people want (Miller, 1974), the confidence of citizens in the actions of a government to do what is right and perceived fair (Easton, 1965). Trust is created only when citizens perceive the government to be trustworthy, so it is important for public officials to abide by the principles of fairness in policy enforcement (Levi, 1998).

### ***Meaning***

Trust in government is an important factor for both owners and agents. If trust in government is low from perspective of citizens who are the owners of the state, the cost incurred in being provided public serviced will increase (Fukuyama, 1995). Because government cannot be trusted, citizens must verify the authenticity governmental announcement or policy feasibility, and they cannot neglect to monitor government activities. Low trust in government as an agent causes increase in unnecessary government expenditure and transaction costs, while high trust in government will result in relatively little effort and time needed to explain the feasibility of public policy to citizens (Grimes, 2006). This is because being trusted by the people means securing the legitimacy of the government and being delegated authority for the policy enforcement (Evans, 1996). In addition, trust in government leads to the private sector's compliance with government policy and thus contributes to reduce socio-economic costs (Murphy, 2004). Furthermore, if the private sector has high confidence in the public sector, it will facilitate the decision of private sector's economic activities

such as investment and consumption. Thus, it leads to the promotion of economic growth (Algan & Cahuc, 2010). On the other hand, the decline of trust can lead to lower rates of compliance with rules and regulations. Citizens and businesses can also become more risk-averse, leading to the delay of investment, innovation and employment decisions that are essential to regain competitiveness and jumpstart growth (OECD, 2013). In short, trust in government is intangible asset in government operations. When the trust in government is low, government will have difficulty in its functioning.

### ***Determinant***

Generally it is accepted that people's age, gender, income level and education level affect their government confidence level (Hetherington, 1998). There are conflicting results of studies on the relationship between "age or gender" and "trust in government". However, the finding that economic difficulties help dissatisfaction with the government increase, and economic affluence helps trust in government increase is a majority view (Brehm & Rahn, 1997). In the same vein, trust in government tends to increase in the period of economic boom (Hetherington, 1998). In other words, citizens who feel high material satisfaction tend to evaluate the government and policymakers positively.

In addition, if the party they support is in power, they tend to trust the government rather than otherwise. As a result, confidence in the regime is transferred to trust in government (Uslaner, 2002). It can be seen that individual confidence level on the government depends on its party supports or political opinions, and furthermore, if the party they support wins the election and becomes a ruling party, their political efficacy will increase, leading to trust in government (Clarke & Acock, 1989). More

comprehensively, there is an opinion that trust in government is determined by 3P namely policy, performance, and persona (Citrin & Green, 1986). On the other hand, there is also a view that the quality of public services has a greater impact on trust in government than economic condition or policy performance (Miller & Borrelli, 1991).

Also the degree of trust in government is determined by the level of people's expectations, because trust in government can be defined as the belief that the government will meet the people's expectations (Hetherington, 2005). Then, the higher the expectations for the government, the harder for the government activities to meet those expectations. As a result, although the same policy performance is achieved, trust in government will be lower than when expectations are lower. In the same context, a growing number of people's demands will lead to an increase in dissatisfaction for the government with limited manpower and financial resources for responding it. Therefore, trust in government is relative and subjective, depending on the people's expectations for the government. The subjective trait of trust in government as a variable is reflected in the opinion that the emotional appraisal toward the person who represent the government or recently sudden changes are more affective to trust in government than individual education or income (Citrin & Green, 1986).

### **3. Corruption**

#### ***Definition***

The definitions of corruption are discussed in a variety of ways, with TI defining it as "the abuse of entrusted power for private gain" and the OECD considering it as "abuse of public or private office for personal gain. On the other hand, the World Bank limits its definition to the public sector by defining corruption as "the abuse of public office

for private gain”. The corruption dealt with in this study also focuses on corruption in the government sector, so it is defined in this study as "exerting the authority from a public position for private gains”.

### ***Meaning***

Corruptions is still a major issue surrounding any government around the world. Regardless of the level of national development, the corruption issue has been drawing attention as major issue since it is closely related to governance. In addition, each country began to pay attention to corruption issue under the tides of market-opening and globalization. In the current international society with an infinite competition, meeting the global standard by declining corruption and increasing transparency might be the first step for enhancing the external credibility and national competitiveness.

Experiencing the corruption causes distrust of others and society. Also a society is caught in the vicious circle of corruption when corruptions spread in order to protect each one’s interests (Morris, 2006). In the structure each one’s pay-off is determined by whether other’s corruption or not, the vicious circle of corruption continues because although actors participating in the game of corruption act rightly as long as others do not stop corruptive behavior, they cannot help suffering a loss. It means corruptive behavior is a strategic dominance. Several studies have been conducted to seek for “reduction of trust caused by corruption spreading” or “reduction of corruption through trust restoration”. Corruption has the meaning of condition since it is not only a dependent variable but also an independent variable. Corruption is the result of personal or organizational misconduct but the end means governance failure (Yun, 2004).



## *Theories*

There are several representative theories for explaining corruption in public sector.

Firstly, it is “Principal-Agent theory”. The principal-agent model assumes that agents serve to protect the interests of the principal. However, in reality, there is a gap between the interests of the agents and the interests of the principal. So agents, public officials, engage in a corruption transaction to gain their benefit, and harm the public interest (Groenendijk, 1997).

The second one is “Collective action theory”. It regards corruption as a collective problem. Because people rationalize their own behavior based on the perceptions of what others will do in the same situation (Persson, et al., 2013). When people regard corruption as a social norm, everyone starts seeing it simply as the way to get things done. Because people believe that “it doesn’t make sense to be the only honest person in a corruption system” (Marquette and Peiffer, 2015).

Another theory that explains corruption in public sector is the “Game theory”. Economic players face a “prisoner’s dilemma”, which account for a conflict between individual and group rationality (Macrae, 1982). Individuals fear a disadvantage if they refuse to engage in corruption while others do not refuse to do so in the same situation. This psychological factor motivates individual to engage in corruption. If all individuals engage in corruption, they obtain some sort of benefit which, however, is always less than the benefit that each of them would have obtained if they refused to engage in corruption. Consequently, even though they choose the option for maximizing their benefit, total social welfare will be reduced.

## *Causes*

There are a variety of factors illustrating for corruption in existing studies.

There is the findings that the higher economic freedom the less corruption (Chafuen & Guzman, 2000). When opening of the market is expanded and global standards is spread in domestic industry, traditional corruption being parasitic in closed economy will be reduced. Open and free trade lower tariff barrier and reduce the opportunities for corruption (Gatti, 2001). Corruption will lose ground when competitive and open market environment based on freedom and creativity is created.

The probability of corruption occurring is high under political instability (Lederman, et al., 2005). Particularly, lopsided policy and administration can result in corruption (UNODC, 2019).

In addition, the level of the rule of law affects the level of corruption (La Ports, et al., 1999). The probability of corruption occurring might increase where the institutional system is difficult to provide sanctions for public officials engaged in corruption (Triesman, 2000).

Furthermore, Tanzi (1998) argues that public officials' low wages result corruption in public sector. And he further asserts that bureaucracy cannot help but corrupting on its nature because the presence of authorizations and regulations gives a kind of exclusive rights to them.

According to Goel and Nelson (2010) and Rose-Ackerman and Palifka (2016), size of government is a cause of public sector corruption, since the larger the government the more opportunities for rent-seeking by public officials.

## ***Impacts***

Corruption has a bad effect on a society. It undermines democracy and the rule of law, leads to violations of human rights, distorts markets, erodes the quality of life, and allows threats to human security to flourish (UNODC, 2004). Corruption causes inefficiency by worsening the fairness in policy decision and its enforcement. Companies lobby for eliciting the preferred policy or enforcement by their side as a rent-seeking behavior. When government activities are captured by specific individual or group, market competition might be unfair and inequality arises in the distribution of resources. As a result, there is failure to achieve efficiency and equity in the distribution of resources. There is one research suggesting that a worsening in the corruption index of a country by one standard deviation (2.52 points on a scale of 0 to 10) increases the Gini coefficient of income inequality by 11 points (Gupta, et al., 2002). It means that corruption deepens inequality in wealth. Furthermore, a country which corruption prevails worsens its national competitiveness by lowering its external credibility (OECD, 2020).

Corruption also causes economic loss and inefficiency. Hence although specific company's short-term profit might arise through unfair competition, it results in the distortion of resources distribution (Rose-Ackerman & Palifka, 2016), diminishing economic players' investment in the market (Mauro, 1995). Furthermore, corruption causes inefficiency due to the failure to meet a desirable production level in the national economy. Corruption also hinders trust in society, which causes considerable social costs. In a society where corruption is widespread, somebody uninvolved in corruption is prone to suffer a loss relatively. Hence people do commit corruption to avoid loss rather than to gain something and then transaction costs increases since distrust builds up. As a result, an increase in transaction costs causes inflation

(Blackburn & Powell, 2011). And then, unexpected inflation reduces social welfare by raising uncertainty for economic players.

Corruption weakens the respect for law and order. It promotes a social atmosphere overlooking the expedient, manipulation, and evasion, which weakens trust in the rule of law (OECD, 2016). As a result, it blurs the boundary between legality and illegality by undermining the rule of law as a backbone of our society.

#### **4. Relationship among E-government, Trust in Government and, Corruption**

##### ***Relationship E-government and Trust in Government***

The common opinion is that the higher the degree of e-government development and its influence, the higher the trust in government (Moon, 2006). The improvement in efficiency and convenience of public services through e-government increases citizens' satisfaction with public services and enhances trust in government (OECD, 2003). E-government helps improve citizens' public policy understanding and efficacy by expanding the accessibility to information and the ladder of citizen participation to the public issues. Furthermore, it leads confidence in government to enhance by improving government responsiveness to citizens. There is also the research result that just the experience of e-government increases confidence in government (Tolbert & Mossberger, 2006).

On other points, there are research findings that trust in government affects e-government development. Because it is challenging to develop e-government without citizen participation, but trust in government promotes the people to participate in e-government (Warkentin, et al., 2002).

***E-government as an independent variable and Corruption as a dependent variable***

Securing transparency in government is included in the e-government goal (Government & Internet Survey, 2000). Some argue that informatization can provide other corruption opportunities (Heaks, 1998), but informatization is generally regarded as contributing to increasing transparency in government.

E-government allows the people to open the interior of closed bureaucracy to be monitored or controlled by utilizing ICT (Song, 2002). Therefore, it can be expected that informatization contributes to the reduction of corruption as it increases transparency in government in case it improves people's accessibility to public information and the right to know. ICT would be a primary means of monitoring and controlling government activities. In the information age, the people can monitor and control corruption in the public sector by utilizing ICT like the Panopticon where one prison officer can observe several prisoners (Roszak, 1994).

In other words, e-government reduces corruption through control and monitoring as an internal aspect, and promotes relationships with citizens as an external aspect (Shim & Eom, 2008).

***Corruption(an independent variable) and Trust in Government(a dependent variable)***

OECD indicates corruption as the cause of distrust of the government (OECD, 1996:9). The Lima Declaration against Corruption (1997) adopted in the International Anti-Corruption Conference states that corruption erodes the moral fabric of society, undermines democracy, and subverts the rule of law. Corruption not only undermines the legitimacy of government activities but also promotes social distrust. In short, corruption in the public sector inevitably leads to the country's trust crisis. When the culture of corruption spreads and takes root among members of the public sector and its

organizations, social distrust prevails in a vicious cycle between corruption and distrust (Putnam, 1993).

Such a significant problem caused by corruption is the “Confidence Deficit” (OECD, 1996:9). Government has a difficulty enforcing the policy as intended due to additional costs in addition to calculated costs incurred by an increase in confidence deficit. As a result, a loss of social welfare is incurred, which leads to inefficiency at the national level. In other words, payment for corruption is a confidence deficit, resulting in inefficient governance.

Korea has also experienced socioeconomic costs and social dislocation due to distrust in policies and governance. Therefore, efforts to increase trust in government should be continuous for successful governance or policy enforcement.

***Trust in Government(an independent variable) and Corruption(a dependent variable)***

Uslaner (2004) argues that trust has a greater impact on corruption than the other way around. His research shows that increase in trust is not noticeable in countries where corruption has declined, while corruption has decreased in countries where trust has increased. When distrust prevails throughout society, people’s incentives for corruption or fraud rise to reduce increasing transaction costs by themselves (You & Khagram, 2005). Distrust thus fosters a tolerant or acquiescent attitude toward corruption and, by creating the expectation of corrupt behavior among others, feeds individual participation in corruption (Morris & Klesner, 2010). Thus, corruption occurs a lot in societies with low mutual trust, and its people tend to condone corruption (La Porta, et al., 1997). On the other hand, once the belief that the state will protect their property, safety, democracy, and the rule of law is placed among citizens, it will positively affect eradicating corruption (Rothstein & Stolle, 2003).

### **III. RESEARCH DESIGN**

#### **1. Data Sources**

In this study, baseline data are used such as “Confidence in National Government” from “Government at a Glance 2021” presented by OECD biannually, “E-Government Development Index(EGDI)” from “E-Government Survey 2020” presented by United Nations Department of Economic and Social Affairs(UNDESA) biannually, and “Corruption Perception Index(CPI)” presented by Transparency International(TI) annually.

#### **2. Targets**

This study’s objects are 37 countries joined in OECD in 2021. Because it was necessary to analyze the countries that reached a certain level socioeconomically, internet network is well established, and the rule of law and a freedom of expression are guaranteed under the constitutional law for a significant analysis. So I regarded OECD countries meeting those criteria as an appropriate yardstick. In addition, membership in OECD is the means of limiting the objects since CPI is significant only for countries in which the people have the citizenships and ability to perceive corruption in this study.

Also, the analysis is performed based on data released in 2020 and 2021 to use common up-to-date data without missing the value of variables.

### **3. Variables**

“Confidence in National Government” and “E-Government Development Index” are independent variables. And “Corruption Perception Index” is the dependent variable in this study.

#### ***Confidence in National Government***

The survey titled “Do you have confidence in national government?” is conducted biannually by World Gallup Poll, and it randomly targets 1,000 people of each OECD country. This index is based on a scale from 100 (very high) to 0 (very low). The data used in this study was released on 8<sup>th</sup> July 2021.

#### ***E-Government Development Index (EGDI)***

EGDI presents the state of e-government development of the United Nations member states. EGDI is presented by UNDESA biannually. Along with assessing the website development patterns in a country, EGDI incorporates the access characteristic such as the infrastructure and educational levels, to reflect how a country is using information technologies to promote access and inclusion of its people. EGDI is a composite measure of three critical dimensions of e-government. These are “Online Service Index (OSI)” measuring the government’s ability to provide information with the people, “Telecommunication Infrastructure Index (TII)” measuring ICT infrastructure as a prerequisite for e-government, and “Human Capital Index (HCI)” measuring the people’s education level. EGDI is an index evaluating these collectively. EGDI is based on a scale from 100 (very high) to 0 (very low). The data used in this study was released on 10<sup>th</sup> July 2020.



### ***Corruption Perceptions Index (CPI)***

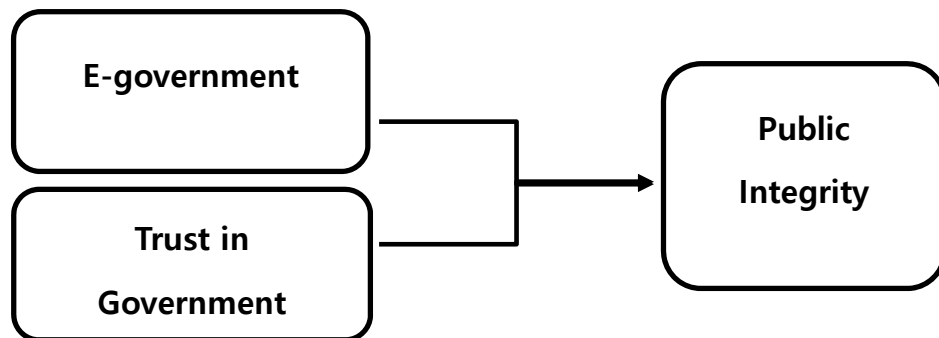
The index measuring the level of corruption perceived in the public sector is published annually by TI. After surveying the level of corruption perceived by people engaged in business, enterprise, finance and investment, this data is evaluated and analyzed by experts. The final result is CPI. This index is based on a scale from 100 (very clean) to 0 (highly corrupt). The data used in this study was released on 28<sup>th</sup> January 2021.

## **4. Study Hypothesis**

This study begins with the hypothesis that a regression model with high explanatory power will be derived along with significant correlation through analysis using “E-Government Development Index” and “Confidence in National Government” as an independent variable and “Corruption Perception Index” as a dependent variable.

According to earlier studies, e-government contributes to public integrity. There is also a mutual circulation relationship between trust in government and public integrity. Much of the recent research on corruption identifies trust as both cause and consequence of corruption (Morris & Klesner, 2010). Nevertheless, Confidence in National Government is placed on the explanatory variable and CPI is placed on the result variable in this study. Because Confidence in National Government fluctuates depending on personal subjective perception, current social atmosphere, and the mass media, while CPI that those questioned is limited to business people is more stable and gradual in its changes. So CPI might be relatively appropriate for the dependent variable in this study.

Figure 1 Model of Hypothesis



## 5. Methods

This study implemented a variety of analysis based on SPSS as statistical package software. At first, if a significant correlation coefficient is indicated after implementing the correlation analysis between “Confidence in National Government” and CPI, identify the relationships between EGDI and CPI in order. Finally, draw a regression model by implementing multi-linear regression for CPI applying independent variables with significant correlation with CPI.

### *Scatterplot*

Identify intuitively the relationship between the independent variable and dependent variables based on dispersion indicated in the scatterplot before conducting the correlation analysis. If a linear distribution is found, implement the correlation analysis.

### *Correlation analysis*

The correlation analysis is implemented between the variables identified the linear relationship intuitively based on scatterplot with using the Pearson’s correlation coefficient which is appropriate in a continuous variable. If a significant probability is greater than 0.05, the correlation coefficient is insignificant.

### *Regression analysis*

Implement the regression analysis for CPI applying independent variables except variables with insignificant correlation to CPI based on correlation analysis. Identify the regression coefficient at the significant level of 0.05, and examine the explanation power based on the value of  $R^2$ .

## IV. EMPIRICAL ANALYSIS

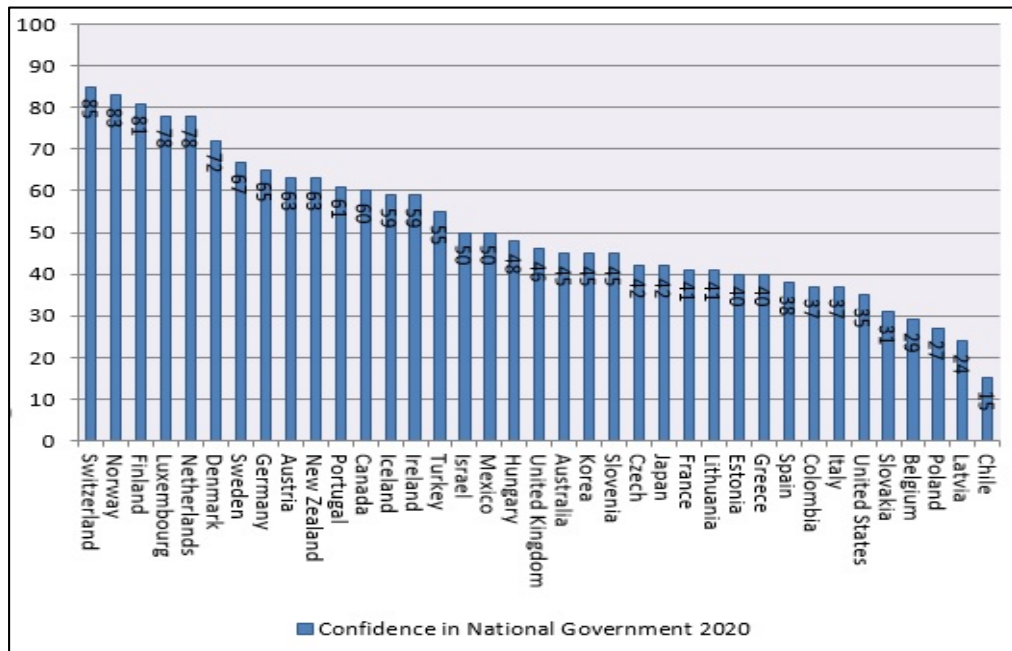
### 1. Descriptive Statistics

Table 2 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Confidence in National Government 2020	37	15	85	50.73	17.553
E-Government Development Index 2020	37	71.64	97.58	86.2132	6.64353
Corruption Perception Index 2020	37	31	88	66.92	15.051
Valid N	37				

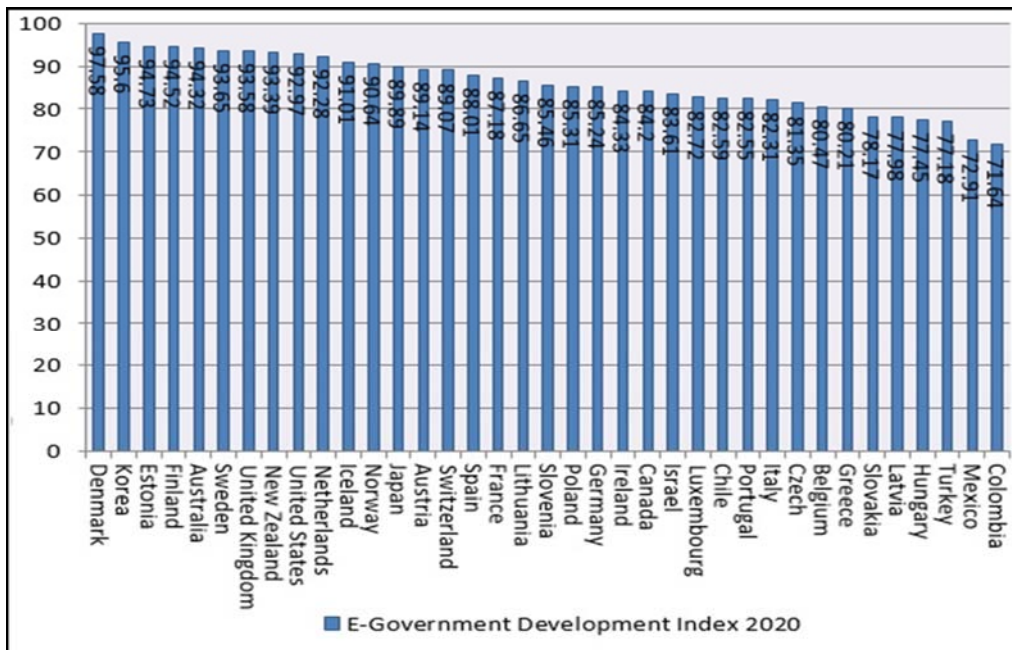
There are 3 variables, and 37 countries joined in OECD. It does not have missing values.

Figure 2 Confidence in National Government 2020 among OECD countries



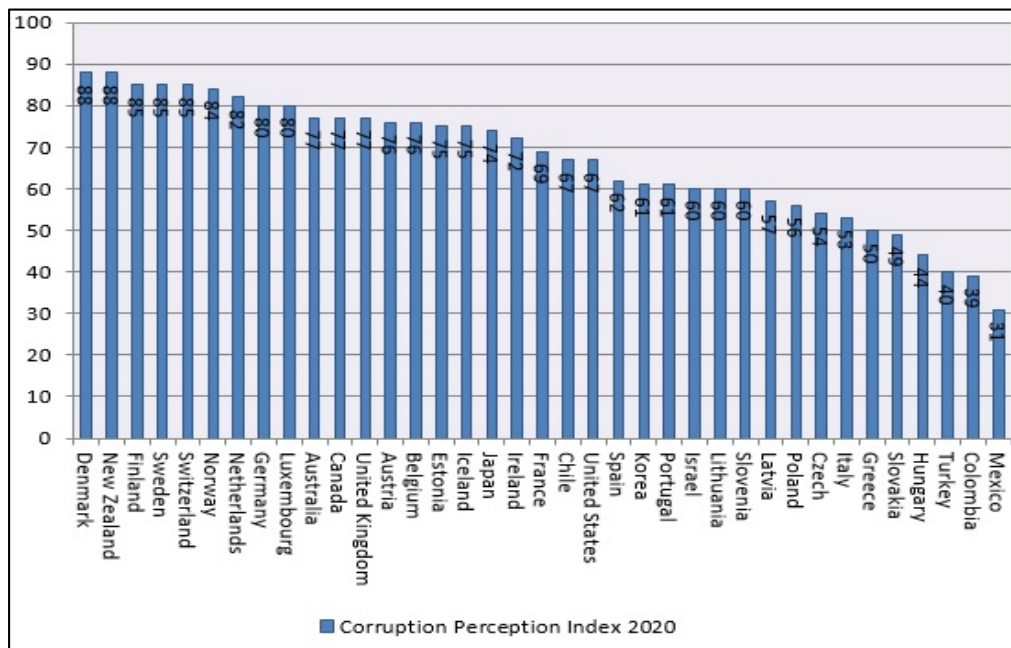
Among OECD countries, Switzerland is the highest and Chile is the lowest in “Confidence in National Government” at 85 and 15.

Figure 3 E-Government Development Index 2020 among OECD countries



Also Denmark is the highest in EGDI at 97.58, and Colombia is lowest in EGDI at 71.64.

Figure 4 Corruption Perception Index 2020 among OECD countries



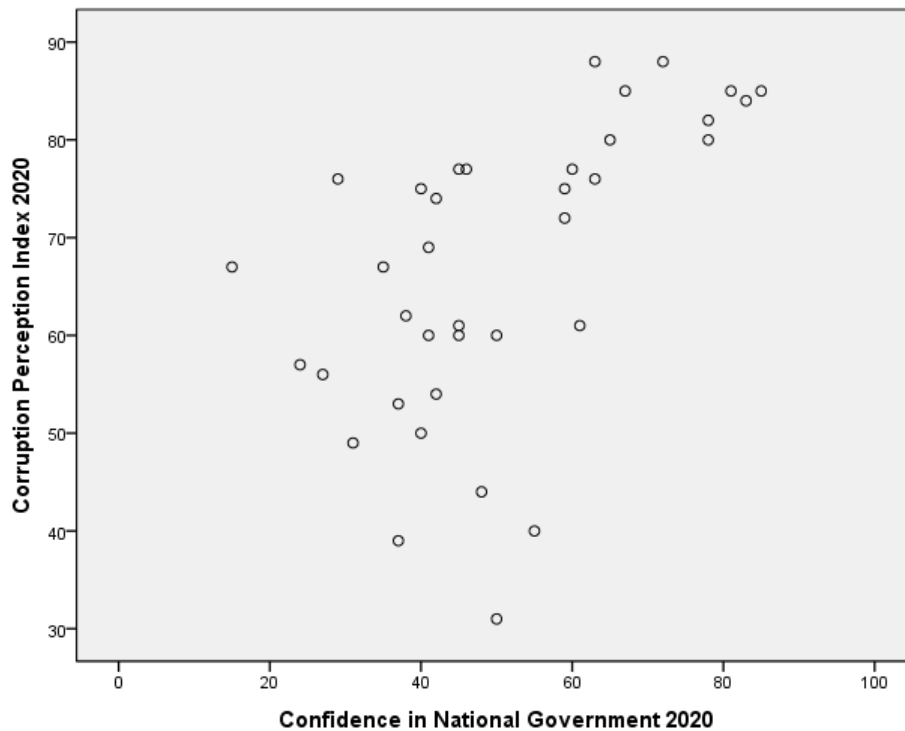
Denmark and New Zealand are the highest, and Mexico is the lowest in CPI at 88 and 31.

## 2. Correlations between Variables

### *Between Confidence in National Government and CPI*

This study is based on the assumption “There is a positive linear correlation between Confidence in National Government and CPI”. Only when the correlation between these both variables is identified, is there a practical benefit of identifying the correlations between other variables and CPI. Before a correlation analysis, draw scatterplot to identify a linear relationship between both variables intuitively.

**Figure 5 Confidence in National Government-CPI scatterplot**



As above scatterplot (**Figure 5**) indicated, it seems to be linear relationship between Confidence in National Government and CPI. As a result of correlation analysis between both variables, following table is formulated.

**Table 3 Confidence in National Government-CPI correlation analysis**

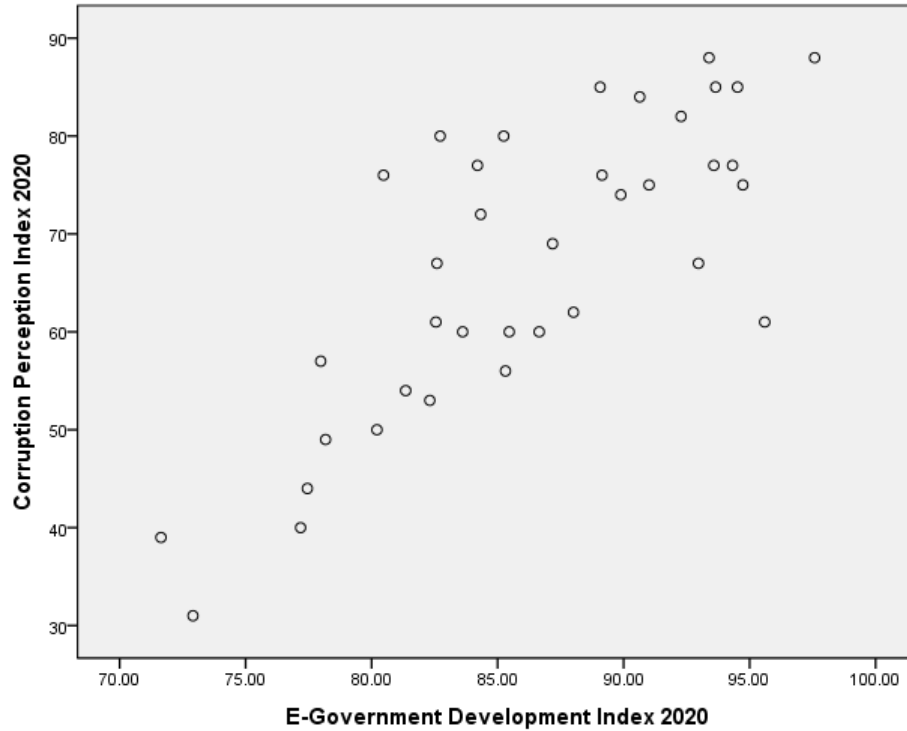
		CPI 2020
Confidence in National Government 2020	Pearson Correlation	.566*
	Sig. (2-tailed)	.000
	N	37

\* Correlation is significant at the 0.01 level (2-tailed).

As indicated above **Table 3**, both variables have coefficient of 0.566 within the significant level of 0.05. So there is a linear correlation. Identify the correlation between other independent variables and CPI under the assumption that high Confidence in National Government leads to high CPI.

*Correlation between EGDI and CPI*

**Figure 6** EGDI-CPI scatter plot



As above scatterplot (**Figure 6**) indicated, it seems to be linear relationship between EGDI and CPI. As a result of correlation analysis between both variables, following table is formulated.

**Table 4** EGDI-CPI correlation analysis

		CPI 2020
E-Government Development Index 2020	Pearson Correlation	.787*
	Sig. (2-tailed)	.000
	N	37

\* Correlation is significant at the 0.01 level (2-tailed).

As **Table 4** indicated, both variables have high correlations with a correlation efficient of 0.787 within the significant level of 0.05.

### 3. Multi Linear Regression Analysis for CPI

The independent variables consist of Confidence in National Government and EGDI with significant correlation to CPI based on preceding correlation analysis. And then the regression analysis regarded above both variables as an independent variable for CPI is implemented. As a result, the following **Table 5** is formulated.

**Table 5 Multi Linear Regression analysis for CPI I**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
I	.837	.700	.683	8.479

Independent Variable in 2020	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-77.001	18.674		-4.123	.000
Confidence in National Government	.264	.087	.308	3.029	.005
E-Government Development Index	1.514	.231	.668	6.567	.000

\* Dependent Variable: Corruption Perception Index 2020

$$\widehat{CPI} = -77.001 + 0.264 \text{ conf} + 1.514 \text{ EGDI}$$

As indicated in the regression analysis (**Table 5**), both independent variables are statistically significant within the significant level of 0.05. This regression model (**Model I**) is with R<sup>2</sup> 70.0% explanation power.

According to this result, Confidence in National Government and EGDI are showing a high level of positive correlation with CPI. Well-established e-government provides people with opportunity to participate in suggesting policy and resolving social issues by themselves as well as being provided information. If a government is more open, it contributes to enhancing public sector transparency. As a result, trust in government will be enhanced. And we expect that if trust in government is formulated in a high



position, public sector transparency also may also increase. Above analysis could identify variables correlated with the CPI, but it cannot be assured that causality.

Nevertheless, we can consider the possibility of causality with solid correlation and empirical inferences. This study supposes causal relationship from subjective data. Both abstract and limited independent variables inevitably entails the endogeneity.

Additional regression analysis is conducted to complement the endogeneity like this by using economic freedom and political stability which are identified correlation or causality with corruption through earlier studies as an independent variable. For this, “Index of Economic Freedom” released by The Heritage Foundation is used as a variable representing for economic freedom. And, the other variable is representing for political stability from “Worldwide Governance Indicators” released by World Bank. All indicators are recent version having released since 2020.

**Figure 7 IEF-CPI scatterplot**

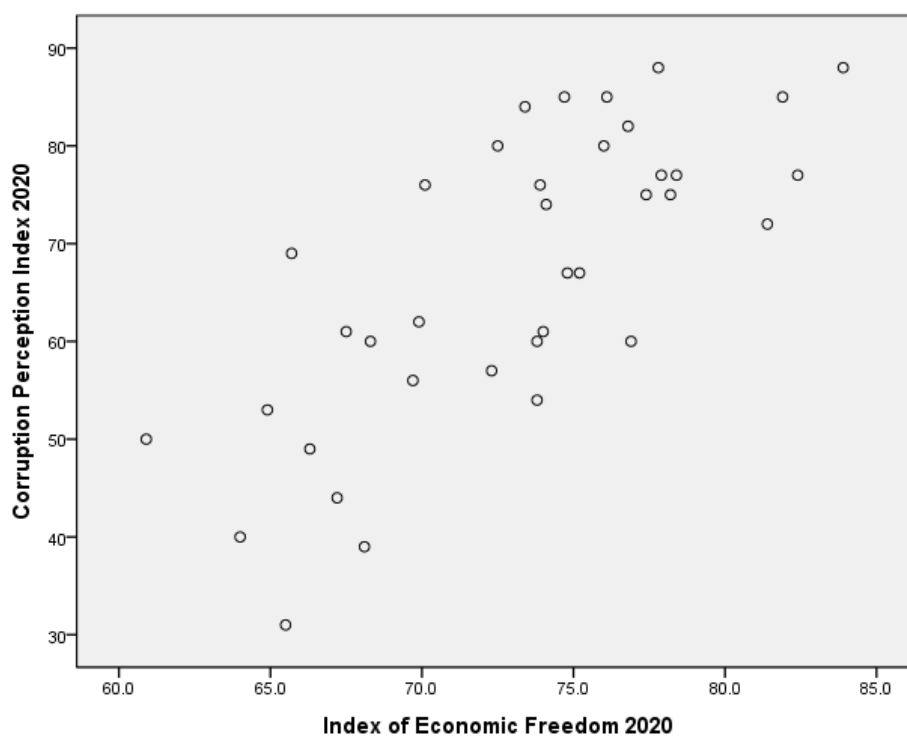
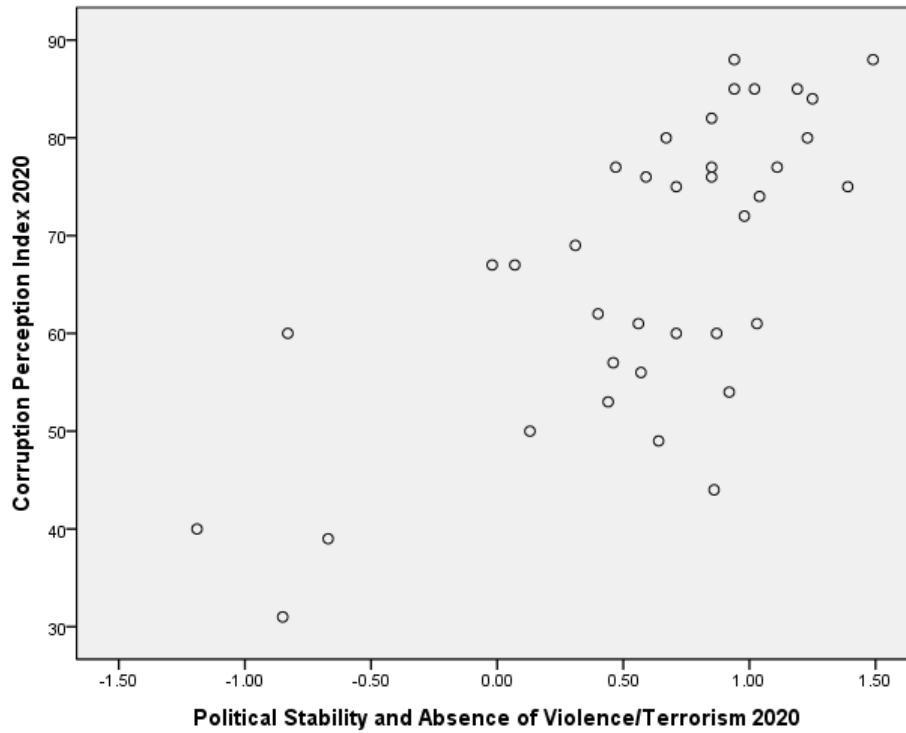


Figure 8 Political Stability-CPI scatterplot



Above scatterplots (Figure 7, 8) show that there are correlations economic freedom and political stability with corruption.

Table 6 Multi Linear Regression analysis for CPI II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
II	.896	.803	.778	7.094

Independent Variable in 2020	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-75.835	20.310		-3.734	.001
Confidence in National Government	.173	.077	.202	2.259	.031
E-Government Development Index	.911	.247	.402	3.690	.001
Index of Economic Freedom	.709	.297	.264	2.384	.023
Political Stability from Worldwide Governance Indicators	6.022	2.400	.252	2.509	.017

\* Dependent Variable: Corruption Perception Index 2020

Above regression analysis regarded Confidence in National Government, EGDI, IEF, and Political Stability as an independent variable for CPI is implemented. As a result, above table (**Table 6**) is formulated. It shows that all 4 independent variables is statistically significant within the significant level of 0.05. This regression model (**Model II**) is with  $R^2$  80.3% explanation power.

In case of a constant value, there is no significant difference between **Model I** and **Model II**. Furthermore, in case of standardized coefficients, EGDI's one is the largest in both models. Therefore, it is that E-government has a considerable impact on corruption. In short, well-established e-government promoting citizens' accessibility to public administration is expected to contribute to a reduction in corruption.

It is also that social capital including trust is presumed to be effective in corruption control since trust in government seems to play no small part in corruption.

It can be seen that e-government has a greater impact on corruption than trust in government in light of the significance level and standardized coefficients in **Model I** and **Model II**. Given social capital including trust is not formed in a short time, well-established e-government seems more effective and efficient in anti-corruption than trust in government.

Efforts in various fields of society are needed to reduce corruption in a country. Transparency, openness, and accessibility to citizens in terms of public administration are closely related to corruption like a correlation or causal relationship between economic freedom in terms of economy, political stability in terms of politics and corruption. Thus, e-government is illuminated as an innovative instrument and effective means for promoting them.

But e-government is not a sufficient condition to ensure public integrity. E-government is not confined in integrity as one of public value but necessary condition to governance in current public administration environment surrounded by not only traditional information asymmetry between government and citizens but also the information age and particularly the age of “Untact” resulted from COVID-19.

In other words, this study begins with the hypothesis that a regression model with high explanatory power will be derived along with significant correlation through analysis using “E-Government Development Index” and “Confidence in National Government” as an independent variable and “Corruption Perception Index” as a dependent variable. The regression analysis regarded “E-Government Development Index” and “Confidence in National Government” as an independent variable for CPI is implemented. As a result, the regression model (**Model I**) with  $R^2$  70.0% explanation power within the significant level of 0.05 is derived. But regarding hastily this high correlation as causal relationship is followed by anxiety concerning reverse causality. Because both subjective and limited independent variables inevitably entails the endogeneity.

In order to complement this problem, one more analysis is implemented. As a result of analysis which is using “Confidence in National Government” and “E-Government Development Index” as an independent variable with Economic freedom, and political stability which are identified correlation or causality with corruption through earlier studies, its regression model (**Model II**) has strong explanation power,  $R^2$  80.3% within the significant level of 0.05. Therefore, it can be more sure that there is causality between trust in government, and e-government and corruption through **Model I** and **Model II**.

## V. CONCLUDING REMARKS

This study began with a critical mind about the decline in trust in government that many countries are experiencing. According to the opinion that citizens undergoing economic difficulty tend to regard it as a result of governmental failure and incompetence (McAllister, 1999), the recent low trust in government can be seen as a universal trend in the low interest rate-low growth of the global economy. If so, should we accept it as a kind of phenomenon called the “New Normal” accompanied with low rate of growth and employment? In response to this phenomenon, which has been experienced for years, each country’s government has been putting in a great deal of effort to develop various policy measures to enhance trust in government. Trust in government is regarded as the driving force in effective governance. The deficit of confidence in government and support is severe damage to government’s legitimacy. If trust in government is low, it will be challenging to bring citizen’s conformity in enforcing governmental policies. Therefore, trust in government is an intangible asset to government activities.

Corruption is frequently mentioned as a key factor affecting trust in government. Corruption is a social ill that threatens human security such as undermining democracy and the rule of law, violating human rights, distorting markets, and lowering the quality of life. Government or bureaucrats wield authority and resources commissioned by the people who are owners of the country just like as private property, and distrust of government is expanded. Desires to monitor and evaluate the public sector are reflected online where is above limitations of space and time. Thus, this study focuses on transparency as a key public value.

Corruption results in social distrust by not only undermining the legitimacy of government activities but also incurring social costs. Corruption in the public sector

inevitably leads to the country's trust crisis. On the other hand, distrust prevails throughout society, people's incentives for corruption increase in order to reduce transaction costs by themselves. The lack of trust in society or government leads to distrust that other people will commit corruption. So committing corruption is strategic dominance. As a result, the atmosphere of a tolerant or acquiescent attitude toward corruption could be widespread. When the culture of corruption spreads and takes root among members of the public sector and its organizations, the vicious cycle between corruption and distrust is going to last. Thus, distrust can be seen as a cause as well as an effect of corruption. Likewise, relationship between trust in government and corruption can be defined as a mutual circulation.

Nevertheless, confidence in government has not been set as dependent variable but as independent variable due to doubts about its stability as an indicator to be applied in this study. Trust in government is heavily influenced by the country's political and social environment at the time of a survey. The increase of "Confidence in National Government" in Korea issued in 2017 and 2018 is 12%p (24% to 36%), and the rate of increase is as much as 50%. This result is reflected the expectations of the people for inauguration of the new administration<sup>1</sup>. So it is a highly subjective figure. On the contrary, CPI looks relatively objective and scientific, because the degree of fluctuation in CPI is gradual and stable and its indicators based on a survey of designated groups.

E-government can be defined as an governance model that enables citizens to access public information, public data and public services anytime and anywhere, enhance citizens' quality of life, satisfaction with public administration and transparency in government activities by providing space for citizens to participate in public affairs and public issues. If government is more open, it contributes to enhance integrity and public sector transparency. The improvement in efficiency and convenience of public

services through e-government increases citizens' satisfaction with public services and leads to enhance trust in government. Well established e-government provides people with the opportunity to participate in suggesting policy and resolving social issues by themselves as well as being provided information. E-government reduces corruption through control and monitoring as an internal aspect, and promotes relationships with citizens as an external aspect.

Active online participation may be a factor in declining confidence in government by increasing demands and expectations to government. Because while citizen participation contributes to public sector transparency, it is also highly likely that trust in government falls as the expectation is high when they are not met. As the saying goes, "can see as much as know", citizens' access to more information and active participation could rather be opportunities to perceive corruption.

According to this study, Confidence in National Government and EGDI are showing a high level of positive correlation with CPI. But it cannot be assured that there is causality. Nevertheless, we can consider about the possibility of causality with strong correlations and empirical inferences.

The term "New Normal" represents the characteristics of the global economy since the global financial crisis of 2008. As low growth, low production, high unemployment, low prices, low interest rates, and low consumption continue in the global economy, different standards and orders are being formed.

Labor and capital, traditional factors of production in the national economy, have an intrinsic characteristic which is the law of diminishing marginal productivity. So governments have been making an effort to improve total factor productivity such as technical progress, intensification of education and training, and system reform. The aforementioned corruption in the public sector would certainly play a negative role in

total factor productivity, causing government failure, distorting the market economy, and paralyzing the rule of law. In other words, public integrity would play a positive role in total factor productivity.

Today, the transnational issue of COVID-19 threatens human security. Fighting against this infectious disease of which the end is unknown is underway all over the world. Even the term “With Corona”, considering COVID-19 as a constant as something to coexist rather than to overcome, has been coined. Government of the Republic of Korea releases the information related to the infectious disease, the status and movement path of confirmed cases in real-time based on its outstanding e-government infrastructure. Thus, citizens can act as not passive agents but active principals in response to the infectious disease by easily approaching the information related to COVID-19 in real-time. In short, Korea’s response to COVID-19 shows that well-established e-government and release of related information are effective in managing national disasters. As such, public integrity including transparency is expected to serve as leverage to adapt, overcome, and leap beyond the challenge of the times such as the “New Normal” and “COVID-19”.

What is not enough to complete this study is that it is limited to OECD countries. There may be less discrimination because OECD countries are positioned at the highest level at the indicators used in this study. Therefore, it is expected that the results of the research among many countries where the figures of indicators are distributed evenly from 0 to 100 will be more significant. However, it was nearly impossible to obtain data on trust in government other than OECD countries under the limited time.

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<sup>i</sup> World Gallup Poll, OECD and KDI (Lim, Wonhyuk · Wang, Shun), 2018



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## APPENDIX

Country	Confidence in National Government 2020	E-Government Development Index 2020	Index of Economic Freedom 2020	Political Stability and Absence of Violence/Terrorism 2020	Corruption Perception Index 2020
Australia	45	94.32	82.4	0.85	77
Austria	63	89.14	73.9	0.85	76
Belgium	29	80.47	70.1	0.59	76
Canada	60	84.2	77.9	1.11	77
Chile	15	82.59	75.2	0.07	67
Colombia	37	71.64	68.1	-0.67	39
Czech	42	81.35	73.8	0.92	54
Denmark	72	97.58	77.8	0.94	88
Estonia	40	94.73	78.2	0.71	75
Finland	81	94.52	76.1	0.94	85
France	41	87.18	65.7	0.31	69
Germany	65	85.24	72.5	0.67	80
Greece	40	80.21	60.9	0.13	50
Hungary	48	77.45	67.2	0.86	44
Iceland	59	91.01	77.4	1.39	75
Ireland	59	84.33	81.4	0.98	72
Israel	50	83.61	73.8	-0.83	60
Italy	37	82.31	64.9	0.44	53
Japan	42	89.89	74.1	1.04	74
Korea	45	95.6	74	0.56	61
Latvia	24	77.98	72.3	0.46	57
Lithuania	41	86.65	76.9	0.87	60
Luxembourg	78	82.72	76	1.23	80
Mexico	50	72.91	65.5	-0.85	31
Netherlands	78	92.28	76.8	0.85	82

New Zealand	63	93.39	83.9	1.49	88
Norway	83	90.64	73.4	1.25	84
Poland	27	85.31	69.7	0.57	56
Portugal	61	82.55	67.5	1.03	61
Slovakia	31	78.17	66.3	0.64	49
Slovenia	45	85.46	68.3	0.71	60
Spain	38	88.01	69.9	0.4	62
Sweden	67	93.65	74.7	1.02	85
Switzerland	85	89.07	81.9	1.19	85
Turkey	55	77.18	64	-1.19	40
United Kingdom	46	93.58	78.4	0.47	77
United States	35	92.97	74.8	-0.02	67