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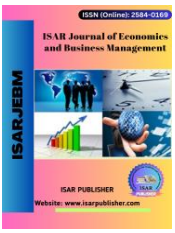

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E-Government and the Anti-Corruption Perception Index Before and During the Pandemic

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Abstract: This study aims to demonstrate the impact of the pandemic on e-government and the Anti-Corruption Perception Index globally. The result of the study, consist of two main point. The first, there were differences in e-government before and during the pandemic, although no such differences were observed in the Anti-Corruption Perception Index. The second, the study also reveals, that the pandemic make the influence of e-government on the Anti-Corruption Perception Index weakened worldwide.

Keywords: Pandemic; E-Government; Corruption.

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1. Introduction

The various aspect of life, both economically and socially, has transformed because of the COVID-19 (Auzan, 2020a, 2020b; Clemente-Suárez et al., 2021; Prawoto et al., 2020; Susilawati et al., 2020). The negative impact also suffered by national economic growth, due the shifts in consumption patterns and lifestyle changes, with a greater focus on health and safety needs. These restrictions on movement and the implementation of strict health protocols have made the economic activity slowed, even in some cases, led to a decline. Nevertheless, the government, must continue its function, as the entity that responsible for driving all sectors of life. This background of the importance of robust information technology to ensure the continuity of public services. As part of bureaucratic reform efforts to enhance efficiency and effectiveness the use of e-government, is expected to play a crucial role in maintaining government services during the pandemic (Ceesay & Bojang, 2020; Grinin et al., 2022; Mat Dawi et al., 2021; Yasir et al., 2020). It is also essential for public officials and citizens to prioritize governance and public finance management that is free from corruption, during the pandemic (Teremetskyi et al., 2021). Public officials have to exercise wisdom and refrain from self-enrichment during that crisis (Abdool Karim, 2020; Alam et al., 2020). However, the pandemic has also heightened the risk of corruption due to reduced public oversight because of restricted access, increased budgets allocated for pandemic response, and the neglect of strong internal controls due to the urgency of funding during a national emergency (Attila, 2020; Novak et al., 2020; Tomaszewska-Michalak & Brzezinski, 2021).

The aims of the study are to examine whether the pandemic has affected to the implementation of e-government and the perception of anti-corruption efforts across countries worldwide. Secondary data utilized in this research, were published by the United Nations Department of Economic and Social Affairs (UNDESA) and Transparency International during and before the pandemic. The study also determines whether there were influenced of the pandemic to e-government quality on the improvement of the Anti-Corruption Perception Index globally.

2. Literature Review

The Role of E-Government during the Pandemic

Electronic government, or commonly referred as e-Government, is utilization of information technology with several key objectives: enhancing the effectiveness and efficiency of public service delivery; facilitating easier access to government services; providing greater access to information; and ensuring greater government accountability to the public (Ceesay & Bojang, 2020). Khalid & Lavilles (2019) give definition about e-Government as the use of technology capable of transforming the relationship between the government and its citizens, businesses, and other entities. Thus, e-Government can be understood as the utlization of information technology in governance that reshapes the relationship between the government and its stakeholders, thereby increasing the effectiveness and efficiency of governance in both administrative and economic aspects.

Given these functions, e-Government has made a significant contribution during the pandemic as a non-pharmaceutical intervention to combat the crisis (Mat Dawi et al., 2021). During the period of physical interaction restrictions, the government was able to provide relevant services to the public, including health and safety information and emergency contacts, through various digital platforms (Ceesay & Bojang, 2020). Additionally, Mat Dawi et al. (2021) note that e-Government played a role in raising awareness

and educating the public on preventive measures during the uncertainty of the pandemic. Consequently, public trust in the government increased. Hence, e-Government has been described by Ceesay & Bojang (2020) as a catalyst in global economic and administrative reforms.

Governance in Efforts to Curb Corruption

Today's governance urgently needed the implementation of what is termed "governance," defined as a collaborative effort to realize effective public sector services, which cannot be achieved by the government alone but requires the involvement of non-government parties. These non-government parties include the public as users of public services, the private sector, and other stakeholders (Wachhaus, 2014). Governance is applied across all aspects of government, including efforts to prevent and combat corruption.

Corruption is defined as the misuse of public power for private gain (Treisman, 2000). Under this definition, corruption is not limited to financial embezzlement but can take various forms, all of which are closely linked to causing financial losses to the state. To address corruption, therefore, a single approach is insufficient. Effective governance is required to combat or reduce corruption. As previously mentioned, governance involves multiple components, collaboration, and teamwork.

Indeed, good governance not only improves public service delivery but also reduces corruption (Boateng et al., 2021). Good governance reflects the quality of political institutions, which is negatively correlated with corruption. Simply put, the better the governance, the stronger the political institutions, and the lower the incidence of corruption (Aidt et al., 2008). Adhering to this principle, both the government and the public should strive to establish governance in government and financial operations that are free from corruption, especially during the pandemic (Teremetskyi et al., 2021). Unfortunately, the pandemic has, in fact, fostered corruption due to weakened oversight, the influx of large government budgets, and the rapid expenditure of funds (Attila, 2020; Novak et al., 2020; Tomaszewska-Michalak & Brzezinski, 2021).

3. Methodology

The E-Government Development Index (EGDI) is utilized in this research, to measure the variable of e-government that released by UNDESA. The EGDI consists of three components: Online Service Index (OSI), Telecommunication Infrastructure Index (TII), and Human Capital Index (HCI), which assesses the quality of IT personnel.

$$EGDI = \frac{1}{3}(OSI_{normalized} + TII_{normalized} + HCI_{normalized})$$

While Corruption Perception Index (CPI) is utilized for the Anti-Corruption Index measurement, published by Transparency International.

Table 1: Data and Data Sources

Variable	Data Source	Pre-Pandemic Data	Data During the Pandemic	Number of Countries
EGDI	UNDESA	2019 (published in 2020)	2021 (published in 2022)	172
CPI Index	International Transparency	2019 (published in 2019)	2021 (published in 2021)	172

172 countries out of 195 countries globally, used in this observation. Countries excluded from the observation are those for which complete data for the years 2019 and 2021 were not available from the data sources. The 2019 data selection, is corresponds to the last year before the onset of the pandemic, while the 2021 data pertains to the period during the COVID-19 pandemic, which had not yet been declared over.

4. Result

There are average increased of EDGI from 0.61 to 0.62, reflecting a 1.5% rise, among the 172 countries observed in 2019 and 2021. However, this increase is less pronounced compared to the pre-pandemic period, when the EGDI rose from 0.55 to 0.61, representing a 9.7% increase. There was a notable rise in the number of countries experiencing a decrease in their index, with 66 countries (or 38% of the total) showing a decline, during the pandemic. Table 3, represents a significant increase compared to the pre-pandemic period, where only 18 countries (or 10% of the total) experienced a decline.

Tabel 3 Data Description Result

Description	During (2021)	Before (2019)	% from the Total Number of Countries	Before (2018)	% from the Total Number of Countries
EGDI	0.62	0.61		0.55	
Increase Index		106	62%	154	90%
Decrease Index		66	38%	18	10%
Stable Index		0	0%	0	0%
CPI-Index	43.06	43.00		42.90	
Increase Index		67	39%	63	37%
Decrease Index		63	37%	70	41%
Stable Index		42	24%	39	23%

Using a paired t-test on 172 countries, it is shown that there is a significant difference in EGDI before and during the pandemic. However, there is no significant difference in the CPI Index before and during the pandemic.

Table 4: Paired Difference Test Calculation

Variable	t-statistic	P Value	Criteria (p value ≤ 0,05)
EDGI	2.941	0.004	Significant
CPI Index	0.363	0.717	Not Significant

The subsequent analysis was conducted by comparing the impact of EGDI on the CPI Index before and during the pandemic. The results indicate that, in both years of observation, EGDI continued to have a positive effect on CPI, with a p-value remaining below 5%. However, the data show that the calculated t-value and r-square decreased, indicating that the pandemic indeed had a negative impact on the relationship between EGDI and CPI.

Table 5: Calculation of the Impact of EGDI on CPI Before and During the Pandemic

Result	Before (2019)	During (2021)
R square	0.779	0.740
t- statistics	24.478	21.995
p-value	0.000	0.000
coeffisien b1	116.550	114.323

Using a moderated regression analysis (MRA) approach, with the pandemic included as a moderating variable (the year before the pandemic is assigned a score of "1" and the year during the pandemic is assigned a score of "2"), the analysis yields the following results:

Tabel 5: Moderated Regression with the Pandemic as the Moderating Variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	34.981	1.534		22.802	.000		
	PANDEMI	-22.927	.871	-.610	-26.316	.000	.486	2.058
	EGDI	13.413	1.998	.157	6.712	.000	.479	2.089
	EGDI*PANDEMI	.530	.015	1.033	35.756	.000	.313	3.196
a. Dependent Variable: CPI								

The data analysis results indicate that the interaction between the pandemic and EGDI has a significant impact on the CPI. To determine whether the pandemic weakens or strengthens the impact of EGDI on CPI, we can illustrate this by assuming an EGDI value of 0.9. Before the pandemic, the CPI Index score would be calculated as 34.98 + 13.41(0.9) - 22.92(2) + 0.53(0.9*2) = 2.153. In the absence of the pandemic, the CPI Index score would be 34.98 + 13.41(0.9) - 22.92(1) + 0.53(0.9*1) = 24.603. Thus, we can conclude that the pandemic weakens the influence of EGDI on the CPI Index.

5. Discussion

This study demonstrates the impact of the pandemic on e-government worldwide. The pandemic has compelled governments to optimize methods that allow for maintaining health protocols through the use of available information technology (Abdou, 2021; Mat Dawi et al., 2021). The use of e-government is part of the government's efforts to maintain the efficiency and effectiveness of governance in increasingly challenging economic conditions (Abdool Karim, 2020; Alam et al., 2020; Ceesay & Bojang, 2020). However, this study reveals an increase in the number of countries experiencing a decline in their e-government index compared to previous years. Economic pressures, shifting budget priorities to address the pandemic, and the severity of the pandemic may have contributed to the decline in the e-government index in 66 countries, including the USA, the UK, Australia, and India.

Furthermore, the findings indicate no significant difference in the perception of anti-corruption between the pre-pandemic and pandemic periods. In social theory, collective human tragedy is expected to suppress negative behavior and enhance social commitment (Achmad, 2022; Mishra & Rath, 2020). This increased social commitment should reduce self-serving behaviors, such as corruption. However, fraudulent behavior is often triggered by situational opportunities, and the pandemic situation can increase the potential for corruption due to weakened oversight (Novak et al., 2020; Tomaszewska-Michalak & Brzezinski, 2021), the substantial funding allocated for pandemic response, and the need for rapid emergency spending that overlooks strong internal

controls (Attila, 2020; Kirya, 2020; Teremetskyi et al., 2021). During the pandemic, the forces of nationalism and increased opportunities for corruption are equally strong, resulting in no significant difference in the Corruption Perception Index.

The link between the level of e-government implementation and the perception of anti-corruption remains consistent during the pandemic. However, moderated regression analysis shows that the pandemic has weakened the impact of e-government on corruption. The pandemic has undermined the economic capacity of countries and shifted budget priorities (Abdool Karim, 2020; Alam et al., 2020; Attila, 2020), increased the risk of corruption due to weakened oversight (Attila, 2020; Kirya, 2020; Tomaszewska-Michalak & Brzezinski, 2021), and led to greater variation in voluntary funding from donors and the public, often lacking strong internal controls (Mishra & Rath, 2020; Teremetskyi et al., 2021; Villa et al., 2020). Even with high levels of e-government, its role in reducing corruption may not be as strong as before the pandemic due to the urgency of the situation or the motivation of society and donors to help voluntarily, often disregarding established financial procedures.

6. Conclusion and Research Limitations

This study confirms that the pandemic has impacted the implementation of e-government in various countries around the world. However, there is no significant difference in the Corruption Perception Index before and after the pandemic. The study also demonstrates that the pandemic has weakened the influence of e-government on the Corruption Perception Index. The implication is that governments and societies should strengthen an anti-corruption mindset in all situations by enhancing e-government applications and involving the public in monitoring the use of government and donor funds for pandemic response.

This study has limitations, as not all countries in the world were included in the observation due to data constraints (172 out of 195 countries). Additionally, the study did not examine each regional zone or the severity of the pandemic's impact, such as the infection rates, mortality rates, and spending levels on COVID-19 response as proxies for the presence of the pandemic. Future research should aim to connect these variables to further strengthen the analysis of the pandemic's impact on e-government implementation and anti-corruption efforts.

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