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The Mystery of The Correlation Between The Corruption Perception Index and Related Variables in Indonesia

Abstract

This study looks at the long- and short-term relationships between a number of factors that affect the corruption perception index in Indonesia, including poverty, tax income, and government spending. We use the World Bank as a supplementary source for statistics data, namely data from 2000 to 2020. We learn from our estimated findings that the corruption perception index and tax revenue, have long and short-term associations, as well as the corruption perception index in the previous year, which in the short-term tax revenue has a significant positive effect on the corruption perception index. Correspondingly, government spending also significantly positively affects the corruption perception index. It is different from the relationship between poverty and the corruption perception index, which means that poverty does not affect the corruption perception index. This shows that an increase in tax revenues and government spending, in the short term, has an effect on increasing the corruption perception index. Still, in the long term, it has the opposite effect in Indonesia.

Keyword : Corruption perception index, tax revenue, government spending, poverty, indonesia.
JEL Classification : D73, I30, H53.

Background

Corruption is an extraordinary crime. In the plural, corruption has been understood as an abuse of power that has been entrusted to someone to reap personal and group benefits (Lu, Kweh, Nourani, & Lin, 2021). Corruption has eroded trust, weakened democracy, hampered economic development and exacerbated inequality, poverty and environmental crises. An annual survey on corruption is released by the international non-governmental organization Transparency International. The Corruption Perceptions Index refers to the survey findings that are made public each year (Suyatmiko, 2021; Qu, Slagter, Sylwester, & Doiron, 2019).

The CPI score is a description of the situation and condition of corruption at the country or territory level (Elia & Schwindt-Bayer, 2022). Methodologically, the CPI is a composite of a number of indices from various prestigious survey institutions at the global level. There are a minimum of 13 data sources from 12 reliable international organizations. The CPI gathers information from several sources that show how professionals and businesspeople perceive the extent of corruption in the public sector. Where a score of 0 is perceived as a corrupt condition and a score of 100 is a condition that is perceived as clean from corruption. So, the higher the CPI score of a country, the cleaner the perception. On the other hand, the lower the CPI score, the more corrupt the perception is. Despite all the limitations of the survey results and the methodology used, it should be acknowledged that the CPI is a comprehensive and robust study (Domashova & Politova, 2021).

Quantitatively and statistically, aggregate survey-based corruption indicators are the most valid measure of the overall picture of corruption in many countries. However, in each case, initial results using one indicator should be cross-checked with the use of other indicators, as there are some minor differences between how the indicators are structured (Hauk, Oviedo, & Ramos, 2022; Ayodeji, 2020).

Economic growth may be seen as the continual process of transforming a nation's economic circumstances in favor of a better state for a certain amount of time (Widarni, Irawan, Harnani, Rusminingsih, & Alim, 2022). One of the factors that influence economic growth is tax revenue and government spending (Alim, Setiyantono, & Zakiah, 2021). The relationship between corruption and economic growth according to Domashova & Politova (2021) states that corruption will increase economic growth by accelerating the bureaucracy so that problems in the bureaucracy are easier to solve using money than by following the existing bureaucracy. Meanwhile, Gründler & Potrafke (2019) claimed that by impairing the economy's ability to allocate resources efficiently, corruption impedes economic activity. Most economists view corruption as a major obstacle to development.

Corruption has direct consequences for a number of governance and economic factors (Zeeshan, et al., 2022), It ultimately results in poverty and a slowdown in economic progress. Thus, a rise in corruption would immediately deter business investment, lead to market distortions, hinder competition, increase inefficiency, and income inequality, all of which will impede economic growth and raise poverty levels in an area (Malanski & Póvoa, 2021).

Poverty is the lack of equal access to the resources necessary to build a social power base, such as assets (land, housing, equipment, and good health), financial resources (sufficient income and credit), sociopolitical organizations that can be used to advance shared interests, and social networks that can be used to acquire sufficient knowledge and skills as well as useful information (Kouadio & Gakpa, 2022; Putranto & Irawan, 2021). This study looks at the long- and short-term relationships between a number of factors that affect the corruption perception index in Indonesia, including poverty, tax income, and government spending.

Methodology

We use data from the World Bank as an additional source for statistical data, namely data from 2000 to 2020, the following variables will be analyzed using two different time series models. In this study, corruption is measured using the corruption perception index. Poverty (PO), tax revenue (TR), and government expenditure (GS) are independent variables of this study because they are indicators of how these three variables are related in the long and short term to the corruption perception index as the dependent variable. We use the following econometric model:

$$CPI_t = \beta_0 + \beta_1 CPI_{t-1} + \beta_2 CPI_{t-2} + \beta_3 CPI_{t-3} + \beta_5 PO_t + \beta_6 PO_{t-1} + \beta_7 PO_{t-2} + \beta_8 TR_t + \beta_9 GS_t + \beta_{10} GS_{t-1} + e_t$$

Where the corruption perceptions index is CPI, poverty is PO, tax revenue is TR, and government spending is GS, the error term is e, and time series is t.

Dynamic ARDL was used in the study. According to Pata & Caglar (2021), the ARDL model may be used to analyze, simulate, and forecast when the independent variables encounter a shock. ARDL simulation models may be employed if there is a cointegration relationship between the study variables.

Result and Discussion

Table 1 displays descriptive data based on the study's variables.

Table 1. Descriptive statistics

	CPI	PO	TR	GS
Mean	29.05000	13.64500	11.20680	8.773393
Median	29.00000	12.90000	11.22171	9.013573
Maximum	40.00000	18.40000	13.31062	9.749414
Minimum	19.00000	9.400000	8.652412	6.889059
Std. Dev.	7.214569	3.135279	1.133699	0.768129
Skewness	-0.067779	0.202764	-0.240140	-0.955692
Kurtosis	1.589421	1.517813	2.753272	3.287270
Jarque-Bera	1.673424	1.967778	0.242954	3.113264
Probability	0.433132	0.373854	0.885612	0.210845
Sum	581.0000	272.9000	224.1360	175.4679
Sum Sq. Dev.	988.9500	186.7695	24.42019	11.21043
Observations	20	20	20	20

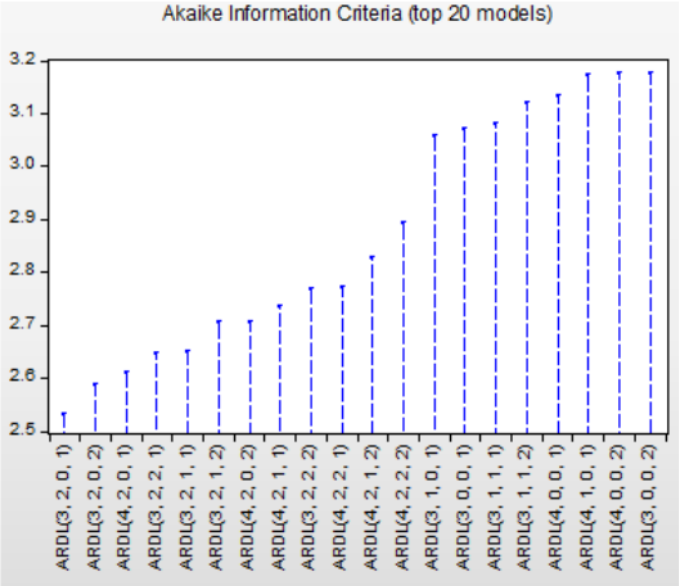
The results of descriptive statistics are expressed in terms of mean, min, max, and Std Dev. CPI Mean 29.05, CPI Min 19, CPI Max 40, CPI Std Dev 7.21. PO Mean 13.64, PO Min 9.4, PO Max 18.40, PO Std Dev 3.13, and so on. A stationary test should be done before utilizing the ARDL model to predict the value. By analyzing the error component, which includes any chance of autocorrelation if the series is not stationary, Augmented Dickey-Fuller (ADF) may determine whether the series is not stationary. The following are the outcomes:

Table 2. Unit Root Test on CPI, PO, TR and GS data

Variable	Unit Root	ADF Test stat.	Signif.	Description
Corruption perceptions index (CPI)	Level	-1.162989	0.6646	
	First Diff	-0.784088	0.7944	
	Second Diff	-4.279217	0.0055	Stationer
Poverty (PO)	Level	-0.927165	0.7564	
	First Diff	-4.053986	0.0067	Stationer
Tax revenue (TR)	Level	0.505250	0.9814	
	First Diff	-4.986566	0.0012	Stationer
Government spending (GS)	Level	-2.804629	0.0763	
	First Diff	-4.872959	0.0013	Stationer

From the table above, it can be concluded that the PO, TR, and GS data are stationary in the first difference data, while the CPI data are stationary in the second difference data. Since all the data are stationary, we can proceed with the ARDL estimation.

Picture 1. Optimum Lag Test



Optimal lag testing is performed to determine which lag is appropriate for use in the next test; as shown in the picture above, 3,2,0,1 lag is the most recommended.

Tabel 3. ARDL bounds test

Stat. Test	Value	Signif.	I(0)	I(1)
F-stat.	4.977874	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Asympotic : n=1000

Based on Table 4, the results of the Limit test of the ARDL model, the value of the F-statistic model of 4.977874 is more than the upper limit value at the 5 percent level and even greater than the upper limit value at the 2.5 and 1 percent level. This shows that the four variables studied in this study, namely the perception index of corruption, poverty, tax revenue, and government spending are cointegrated across time, or the four variables move in the same direction.

Tabel 4. ARDL analysis results

Variable	Coef.	Std. Error	t-Stat.	Prob.*
CPI(-1)	0.739169	0.404790	1.826054	0.1106

CPI(-2)	-0.546324	0.403259	-1.354771	0.2176
CPI(-3)	1.037659	0.369899	2.805249	0.0263
PO	0.827738	0.520086	1.591539	0.1555
PO(-1)	-1.595950	0.610303	-2.615012	0.0347
PO(-2)	1.282010	0.558580	2.295122	0.0554
TR	1.429596	0.572903	2.495354	0.0413
GS	-0.075668	0.950749	-0.079588	0.9388
GS(-1)	2.695044	1.198443	2.248787	0.0593
C	-50.43334	24.13587	-2.089560	0.0750
R-squared	0.990101	Adjusted R-squared		0.977374

The R-squared and R-squared values of the adjusted ARDL models varied between 0.99 and 0.97. The R-squared value of 0.99 implies that each of the independent variables in the ARDL model, namely poverty, tax revenue, and government spending, can explain 99 percent of the variation in the dependent variable of the perception index of corruption. This shows that the research model is very good to be researched.

Judging from the ARDL estimation results, the CPI variable (-1) has a coefficient value of 0.73 which indicates that the CPI factor in the previous three years is a factor that affects the current CPI. For example, when the CPI rate in the previous three years increased by 1% it would explain this year's CPI increase of 73 percent today. This is also in line with the relationship between CPI and the CPI variable in the previous three years which was significantly positive. Likewise, the relationship between CPI and PO(-1) with a probability of 0.0347, and the CPI variable with TR with a probability of 0.0413 means that there is a significant positive correlation between variables. This shows that when the corruption perception index in the last three years increases, it will give a positive sentiment towards the increase in the corruption perception index this year, this also happens with other variables such as government spending, where when there is an increase, it will give negative sentiment to the corruption perception index.

Table 5. analysis results in the long term and short term

Variable	Coeff.	Std. Error	t-Stat.	Prob.
C	-50.43334	24.13587	-2.089560	0.0750
CPI(-1)*	0.230503	0.250264	0.921039	0.3877
PO(-1)	0.513798	0.660302	0.778126	0.4620
TR**	1.429596	0.572903	2.495354	0.0413
GS(-1)	2.619376	1.282212	2.042857	0.0804
D(CPI(-1))	-0.491335	0.388240	-1.265543	0.2462
D(CPI(-2))	-1.037659	0.369899	-2.805249	0.0263
D(PO)	0.827738	0.520086	1.591539	0.1555
D(PO(-1))	-1.282010	0.558580	-2.295122	0.0554
D(GS)	-0.075668	0.950749	-0.079588	0.9388

From the table above, the relationship between the CPI and TR variables is significantly positive, as well as the relationship with the CPI variable (-2) which is significantly negative, meaning that in Indonesia in the short term the corruption perception index is directly proportional to tax revenue, but the corruption perception index is inversely with the CPI of the previous two years. The variables CPI

and GS(-1) also have a significant positive relationship in the short term, this indicates that the increase in tax revenues and government spending has a positive impact on the corruption perception index.

Conclusion

We find that the estimated factors, such as the corruption perception index and tax revenue, have long and short-term associations, as well as the corruption perception index in the previous year, which in the short-term tax revenue has a significant positive effect on the corruption perception index. Correspondingly, government spending also significantly positively affects the corruption perception index. It is different from the relationship between poverty and the corruption perception index, which means that poverty does not affect the corruption perception index. This shows that an increase in tax revenues and government spending, in the short term, has an effect on increasing the corruption perception index. Still, in the long term, it has the opposite effect in Indonesia.

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