# Fiscal Decentralization and Corruption:
# The Facts of Regional Autonomy Policies in Indonesia

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## Abstract

Decentralization has posed new problems in Indonesian local governments, including disparities between regions, poor public services, fiscal indiscipline, and corruption cases. Before the implementation of regional autonomy, corruption cases were reported only in a few regions. A year after decentralization started, in 2002, more corruption cases were reported in more regions nationwide. The irony is that such decentralization, initiated to reduce corruption in the government, ended up with more corruption in the regions. This study investigates the relationship between fiscal decentralization—as proxied by capital expenditure and fiscal independence index—and the corruption index. This study also analyzes the macro factors and regional characteristics: inflation, civil servants' salaries, education levels, and the differences in the corruption index at the regional level. The method used in this study is regression analysis by using panel data from longitudinal studies involving 15 cities in Indonesia in 2008, 2010, 2015, and 2017. The finding shows that the relationship of fiscal decentralization—expenditure, inflation rates, civil servants' salaries, and local corruption—are not statistically significant to the corruption index. By contrast, the relationship between the fiscal independence index and educational level are statistically significant. The implementation of fiscal decentralization on expenditure increases corruption risks due to ineffective budget management, individual corrupt tendencies, and weak supervision system. Meanwhile, fair allocation of local income can increase public trust and prosperity and lower corruption risks.

## Introduction

Before the implementation of regional autonomy in 2001, the Government of Indonesia (GoI) practiced a centralized government system. The dependence on the central government resulted in low financial capabilities on the regional level and local communities' inability to regulate their households.

The regional reform and democratization started on January 1, 2001, as the government issued Law No. 22 of 1999 concerning Regional Government and Law No. 25 1999 concerning Regional-Central Financial Balance. The issuance of Law No. 22 of 1999 concerning Regional Government, which was later revised in Law No. 32 of 2004, and updated in Law No. 23 of 2014, marked the start of power and resource distribution from the center to the regions, commonly referred to as decentralization or regional autonomy.

The decentralization paradigm was adopted to improve the relations between the central and regional governments, giving hope and democracy back to the community. Before the decentralization, Indonesia Corruption Watch (2011) recorded eleven corruption cases convicted the Regional House of Representatives (DPRD) members in Madiun between 1999 and 2004. The cases were related to the council's

operational budget, costing the country IDR 1.012 billion. Meanwhile, the former Governor of Riau in the 1998-2004 period was named a suspect in the procurement of fire rescue cars worth IDR 15 billion. Likewise, eight members of the DPRD in Banyumas were reported in the corruption of the Regional Revenue and Spending Budget (APBD) worth IDR 1.098 billion between 1998 and 2004, and the Exxon Balongan oil refinery project, which caused the state to lose IDR 86.6 billion in 1995-1996.

A year after decentralization started, or around 2002, alleged corruption cases in DPRD increased in various regions across Indonesia, such as West Sumatra, South East Sulawesi, West Kalimantan, and Lampung. The number of regional officials alleged and convicted in corruption cases increased every year. Indonesia Corruption Watch (2016) noted that there were 432 cases of corruption across Indonesia in 2004, which was much higher than before decentralization was implemented. In the subsequent years, the number of corruption cases across regions was increasingly worrying. Data from the Science Laboratory, the faculty of economics and business (FEB), Universitas Gadjah Mada (UGM), based on the Supreme Court's (MA) decisions in 2001-2015 show the areas with more than 15 defendants of corruption cases: Kutai Kartanegara, South Aceh, Pontianak, Deli Serdang, Kerinci, Banggai, and Mamasa.

The effort to eradicate corruption has not been successful, as the data from the Anti-Corruption Commission (2018) show increasing numbers of cases at the regional level. Table 1 shows that between 2012 and 2018, 12 governors and 58 mayors or regents were involved in corruption cases. The trend was also increasing year by year. The implementation of regional autonomy in Indonesia has shown how drafting policies and budget management at the regional level has allowed the dominance of power by local elites. This power gives local elites access to resources, allowing them to commit corruption or abuse their authority for their personal agenda (Maguchu, 2018; Smith, 2008)

The debate on fiscal decentralization has been centered around two opposing views. The first group of researchers believes in the positive impact of fiscal decentralization, such as allowing for efficiency and effectiveness of resource management, which subsequently improves regional revenues and the quality of public services and community welfare, as well as empowers communities to participate in the development process (Cheasty & Pichihua, 2015).

The second group of researchers believes in the negative impact of fiscal decentralization. They argue that it may lead to macroeconomic instability (Ulman & Bujancă, 2014) and fiscal disparities as resources are concentrated in

**Table 1.**
**Recapitulation of Corruption Cases in Indonesia**

| Position | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| Members of the Regional House of Representative | 14 | 8 | 9 | 19 | 23 | 20 | 61 |
| Head of Institution | 1 | 4 | 9 | 3 | 2 | 0 | 0 |
| Ambassador | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commissioner | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Governor | 0 | 2 | 3 | 4 | 1 | 1 | 1 |
| Mayor/Vice Mayor | 4 | 3 | 12 | 4 | 9 | 13 | 13 |
| Judge | 2 | 3 | 2 | 3 | 1 | 3 | 1 |
| Private | 16 | 24 | 16 | 18 | 28 | 28 | 16 |
| Others | 5 | 8 | 8 | 5 | 21 | 13 | 7 |
| Total | 42 | 52 | 59 | 59 | 85 | 78 | 99 |

*Source: Anti-Corruption Commission of Indonesia, 2018*

certain geographical locations (Villalonga, 2018).

Other studies on whether decentralization encourages or reduces corruption show different findings, arguing that the relationship is contextual and varied depending on the time or place (Alfada, 2019; Lin & Zhou, 2021; Suchánek & Králová, 2019; Udeagha & Ngepah, 2022) Therefore, this is an interesting study material to look into. Empirical evidence of the impact of fiscal decentralization on corruption at the district or municipal levels in Indonesia is important for future decentralization policymaking and the establishment of good governance.

The policy instrument for decentralizing regional financial policies following Law No.25/1999 was expected to eradicate corruption in the government. This is because the regional government is closer to the community so that control can be exercised more effectively. However, the implementation resulted in the opposite. Decentralization poses new problems in regional government, such as disparities between regions, poor public services, fiscal indiscipline, and corruption.

This study discusses the decentralization policies in Indonesia and their implementation, especially at the regional government level. This study uses the capital expenditure variable and the Fiscal Independence Index (IKF) as a proxy of fiscal decentralization. IKF indicates a region's ability to finance its government activities and community development, and community participation in tax payments. This study also aims to analyze the effect of macro factors (inflation) and regional characteristics (salary, education, regional differences) on the corruption index.

**Literature Review**

Johnston (2017) identifies three reasons for implementing fiscal decentralization. The first is the limited resources of the central government in public services and development. The demands increase every year in line with the evolving aspirations and needs of the community. With a vast territory to cover and limited resources, the central government's burden will be too heavy.

Second, fiscal decentralization is expected to reduce the region's dependence on the central government. The old paradigm of financial relations between the central and local governments undermines the creativity of local communities. The centralized model does not consider the uniqueness of each region, making the local potential untapped. This model has been practiced for many years, resulting in local government dependence on the central government.

Thirdly, the main sources of income in the region are administered by the provincial government, whose taxes are higher than city subsidies. This affects the urban civil society as the proprietor of the source of income on their view of equitable income. As fiscal decentralization relies on the role of city government, civil society expects to benefit more from the potential resources available in its area (Shon & Cho, 2020).

Democracy is expected to be more consolidated in local governments, where decentralization is practiced due to the closer interactions between the central and regional governments (Zhang, 2019). Chen, Liu, and Lee (2020) demonstrate that fiscal decentralization often results in corruption, as the overall expenditure associated with increasing the budget does not match. Fiscal decentralization impacts the rate of corruption and bribery (Wellalage, Locke, & Samujh, 2019). Past studies have shown the determinants of corruption, which are used as material and comparisons in this study.

In the economic model, corruption affects poverty through economic growth and income, ultimately increasing poverty. This research is supported by Das and Mahalik (2020), arguing that the loss was caused by

income and investment. Corruption causes permanent distortions, benefiting certain groups or individuals more than others. It leads to recession, distorts the market, hinders competition and creativity, and increases inefficiency and business costs, ultimately increasing poverty.

Studies have also shown a strong negative relationship between fiscal decentralization and corruption. Legal instruments are needed in decentralization. The stronger and more central the position of the legal instrument, the stronger the association between corruption and decentralization (Wellalage et al., 2019). Fiscal decentralization and good law enforcement system will reduce the level of corruption. Empirically, research has also found that the relationship may not be that strong. However, more evidence supports the relationship between decentralization and lower corruption (Cheasty & Pichihua, 2015).

Arends (2020) explains that fiscal decentralization can reduce the impact of corruption. Strict supervision of policymakers can result in more responsible fiscal management. Akai and Sakata (2002) introduced an index of financial independence called the autonomy index, measuring the autonomy degree of financial independence in local governments. The higher the financial independence in a region, the higher the share of the population paying taxes. The study has also showed increased public welfare , so corruption was expected to decline.

**Methods**

This study uses quantitative analysis from the Ministry of Finance of Indonesia, Statistics Indonesia (BPS), International Transparency, and Regional Employees Board (BKD). The samples in the longitudinal studies were from 15 cities in Indonesia: Banjarmasin, Manado, Palembang, Pekanbaru, Semarang, Medan, Makassar, Batam, Surabaya, Pontianak, Balikpapan, Yogyakarta, Gorontalo, Kupang, and Padang. The research periods are 2008,

2010, 2015, and 2017. The main operational variables in this model are the corruption index, fiscal independence index, and capital expenditure. The control variables are inflation, salary, education, and regional differences.

The model's functions are based on several studies on fiscal decentralization and corruption and the basic model that refers to Arikan (2004), Oto-Peralías, Romero-Ávila, and Usabiaga (2013), and Lakshmi, Saha, and Bhattarai (2021), as follows:

$$Corr_{it} = \beta 0 + \beta 1\ BM_{it} + \beta 2\ IKF_{it} + \beta 3\ Educ_{it} + \beta 4\ Sal_{it} + \beta 5\ Inf_{it} + \beta 6\ D1 + e_{it....(1)}$$

$Corr_{it}$ = Corruption Perception Index (0 means very corrupt, and 10 means very clean)

$BM_{it}$ = Capital Spending, tangible fixed assets purchase

$IKF_{it}$ = Fiscal Independence Index (regional Income/total expenditure)

$Sal_{it}$ = Salary of a civil servant (total of employee spending/number of employees)

$Educ_{it}$ = Educational level, the average length of school in formal education

$Inf_{it}$ = Inflation rate, price increase gradually

$D1$ = Dummy variable (1 = capital, 0 non-capital)

The operational variables in this study can be explained in more detail as follows:

a. The measurement of the level of corruption (Corr) is used by the Indonesian Corruption Perception Index (CPI), which was first initiated in 2004 by Transparency International Indonesia (TII). The CPI describes the condition of corruption that occurs in municipal governments in Indonesia. This index ranges from 0-10, with 0 being very corrupt and 10 being very clean.

b. The Fiscal Independence Index (IKF) is the level of regional independence in financing the APBD expenditures. This ratio is obtained by dividing PAD (local income)

by total expenditure. The greater the fiscal ratio the regions receive, the smaller the l dependence on the central government and the better the fiscal decentralization.

c. Based on the Government Decree No. 58 of 2005, later elaborated in Permendagri No. 13 of 2006, capital expenditure (cap exp) are expenses related to the purchase and acquisition or development of tangible assets with a value in use greater than one year for government activities, such as the procurement of land, equipment and machinery, buildings and structures, roads, irrigation, and other assets and networks. The amount of capital expenditure here is the value given in the regional budget document (APBD implementation).

d. Inflation (Inf) is the Consumer Price Index (CPI) change. Inflation in this study uses the base year 2010, calculated annually (year on year/y-o-y), namely the difference between the CPI in one period and the CPI in the same period the previous year. Inflation is when prices increase continuously.

e. A dummy variable (D1) is used to measure the differences in the location of corrupt regions: 1 = provincial capital, 0 = non-provincial capital

f. The level of education (Educ) in this study is approximated by the average time at school, defined as the number of years of study of the population aged 15 and over in formal education

g. Employee Salary Level (Sal) is measured by total employee expenditure on the number of government employees in each region. The data used in this study is the percentage change in the salaries of civil servants.

Based on the explanations above, the hypotheses were formulated as follows:

Hypothesis 1: There is a negative relationship between capital expenditure and corruption index.

Capital expenditure budgeting is frequently linked to corruption. Every stage of budgeting is prone to corruption since it often involves rent-seeking, and capital expenditure is the element often used as a means of corruption (Arikan, 2004)

Hypothesis 2: There is a negative relationship between fiscal independence index and corruption index.

Regional governments received a small amount of balancing funds from the central government. A region is considered independent if it can fund its expenditures using its local income. A high ratio of tax participation means that the community contributes to local taxes substantially, which suggests an increased level of welfare and low corruption (Oto-Peralías et al., 2013).

Hypothesis 3: There is a negative relationship between inflation and corruption index.

The increased price of goods and monitoring costs for investment due to inflation increase the risk of corruption (Arikan, 2004; Lakshmi et al., 2021).

Hypothesis 4: There is a relationship between regions and corruption index

Corruption is a problem in the provincial capital. Rapid development and modernization have created new sources of money and power, and government expansion has the potential to intensify corruption (Nam, 2018; Oto-Peralías et al., 2013).

Hypothesis 5: There is a positive relationship between education and corruption index.

A well-informed society can criticize government policies. The role of civil society is expected to have broad control over the executive and legislative (Arikan, 2004; Pradhan, 2012).

Hypothesis 6: There is a positive relationship between salary and corruption index.

The three most critical determinants of corruption are opportunity, salary, and policy, with low salary levels increasing the risk of corruption (Foltz & Opoku-Agyemang, 2015)

**Data Analysis**

This study uses panel data for regression analysis and classical assumption tests. Panel data are selected for three reasons. First, panel data control heterogeneity of cross-section units, such as individuals, states, firms, and countries, over time. The estimation considers all cross-section units as heterogeneous to avoid bias. Second, panel data give more informative data, variability, degree of freedom, and efficiency, as well as less collinearity among the variables (Baltagi, 2008). Third, panel data consist of several datasets and observations more than time series or cross-section data. As such, coefficient variations can be more efficient, and value coefficients can be more stable (Hsiao, 2022). The stages of research estimation are as follows:

a. Determining the Estimation Technique

The following are estimation techniques used to regress the data panel.
1. The Chow Test is used to determine whether the general or the fixed effect model is the most appropriate. The hypothesis is H0: Common Effect Model (CEM) and Ha: Fixed Effect Model (FEM).
2. The Hausman Test is used to determine whether the fixed effect or the random effect model is the most appropriate. The hypothesis is H0: Random Effect Model (REM) and Ha: FEM.
3. Lagrange Multiplier (LM) Test is used to determine whether the random or general effect model is the most appropriate. The hypothesis is H0: CEM and Ha: REM.

b. Classical Assumption Tests

The classical assumption tests are conducted to determine whether the conditions in the OLS linear regression model are met. Classical assumptions must be met for a model to be a valid estimator (Greene, 2000). The tests are as follows.
1. The multicollinearity test aims to prove the differences between independent variables.
2. The heteroscedasticity test aims to examine an error or remnant considered not to have constant variation.
3. The autocorrelation test considers whether the linear regression model has a confounding error in period t and the previous period (t-1).

c. Estimated Results

The t-test (partial) was used to estimate the effect of an independent variable in explaining the variation in the dependent variable individually. Meanwhile, the F test is used to correct the simultaneous variables of the supported variables or improve the model's accuracy. The coefficient of determination is indicated by the independent variable and the replaced variable.

d. Robustness Test

The robustness test aims to analyze the size needed for small changes, such as the variations deliberately bolted in the parameters of the analysis. It can also see consistency, strengthen the research results, and provide a testing indication in the basic model (Dong, Zhang, & Song, 2019). This model uses an additional variable, GDP per capita, to control the model. A high level of corruption will reduce the gross domestic product (GDP) per capita in developing countries (Fisman & Gatti, 2002).

**Results**

Yogyakarta had the lowest corruption level in 2008, as indicated by the Corruption

Perception Index (CPI) score 6.43. The survey in 2010 also showed that the city was the 'cleanest,' with a CPI score of 5.8. Meanwhile, Kupang was the most corrupt city in Indonesia. The result obtained in 2015 still placed Yogyakarta as the city with the lowest level of corruption, with a CPI score of 5.81. However, the result of the 2017 survey showed that Pontianak replaced Yogyakarta as the city with the lowest level of corruption.

The average corruption indexes of the provincial capitals tend to be lower than areas outside the provincial capitals. This suggests that corruption is concentrated in the provincial capitals and the efforts made by the regional governments remained ineffective. Efforts to eradicate corruption need to be maximized, and public accountability need to be improved.

**Determining the Estimation Technique**

The first stage of the testing is to use the Chow test to choose whether the suitable estimation technique is the common or the fixed effect model,

The results of the FEM regression analysis in Table 3 show that the p-value of the fixed effect is 0,0006 (Prob> F) <0,05, Therefore, H0 is

**Table 3.**
**The Result of REM (the Chow test)**

| Variable | Corruption | Exp |
|---|---|---|
| | (1) | |
| Cap Exp | - 0.246 | *sign 5% |
| | (0.400) | **sign 10% |
| IKF | 2.8232** | |
| | (0.069) | |
| Inf | 0.014 | |
| | (0.812) | |
| Educ | 1.303* | |
| | (0.009) | |
| Salary | - 0.182** | |
| | (0.095) | |
| Prob>F | 0.000 | |

rejected and Ha is not rejected, In other words, based on the Chow test result, the suitable model for estimating panel data is the fixed effect model instead of the common effect model, After conducting the Chow test, the next step is determining the most appropriate model, whether the random or the fixed effect model,

Based on the Hausman test results, the p-value is (Prob> Chi²)> 0,05, so H0 is not rejected and Ha is rejected, It can be concluded that the suitable model used in estimating panel

**Table 2.**
**Corruption Perception Index (15 cities in Indonesia)**

| City | Year | | | | Average |
|---|---|---|---|---|---|
| | 2008 | 2010 | 2015 | 2017 | |
| Banjarmasin | 5.110 | 5.210 | 6.810 | 5.500 | 5.650 |
| Manado | 5. 350 | 5.520 | 5.520 | 6.200 | 5.640 |
| Palembang | 3.870 | 4.730 | 5.670 | 4.700 | 4.740 |
| Pekanbaru | 3.550 | 3.610 | 4.210 | 6.500 | 4.460 |
| Semarang | 4.580 | 5.000 | 6.000 | 5.800 | 5.340 |
| Medan | 3.840 | 4.170 | 5.730 | 4.600 | 4.580 |
| Makassar | 4.730 | 3.970 | 4.820 | 5.400 | 4.730 |
| Padang | 4.620 | 5.070 | 5.000 | 5.100 | 4.940 |
| Surabaya | 4.260 | 3.940 | 6.500 | 6.100 | 5.200 |
| Pontianak | 3.810 | 4.520 | 5.820 | 6.600 | 5.180 |
| Yogyakarta | 6.430 | 5.810 | 5.950 | 6.000 | 6.040 |
| Gorontalo | 4.830 | 5.690 | 5.750 | 5.000 | 5.310 |
| Kupang | 2.970 | 4.890 | 5.080 | 4.500 | 4.360 |
| Batam | 4.440 | 4.730 | 4.580 | 4.600 | 4.580 |
| Balikpapan | 4.860 | 5.580 | 5.460 | 6.400 | 5.570 |

*Average of Capital (5.085) and non-Capital (5.091)*
*Source: International Transparency, modified (2017)*

**Table 4.**
**The Hausman Test Result**

| chi2 (5) = (b-B) [(V_b – V_B) ˆ (-1)] (b-B) |
| --- |
| chi2 (5) = (b-B) ' [(V_b – V_B) ˆ (-1)] (b-B) |
| Prob > chi2 = 0,642 |
| (V_b – V_B is not positive definite |

data is the REM model, not the FEM model, The third stage of the final model testing was the Lagrange Multiplier (LM) to determine whether the most appropriate to be used in estimating panel data was the random or common effect model,

**Table 5.**
**LM Result**

| | Var | sd = sqrt (Var |
| --- | --- | --- |
| Corr | 4,441 | 2,107 |
| E | 0,353 | 0,594 |
| U | 6,202 | 2,490 |
| Test: Var(u) = 0 | | |
| | chibar2 (01) = 73,620 | |
| | Prob > chibar2 = 0,000 | |

Based on the Hausman test results, the p-value is (Prob> Chi²)> 0,05, so H0 is not rejected and Ha is rejected, Thus, it can be concluded that the suitable model used in estimating panel data is the random effect model,

**The Model Assumption Test**

Violations of assumptions need to be tested to ensure the model is consistent and efficient, Unlike the FEM model, the REM model is free from heteroscedasticity and autocorrelation,

so it only needs a multicollinearity test, The REM model uses GLS estimation to overcome heteroscedasticity and produces an unbiased estimator, It transforms the regression model linearly so that it can satisfy the OLS assumption (Greene, 2000; Hsiao, 2022), As shown in Table 6, the correlation coefficient is <0,85, so the model is free of multicollinearity,

**Estimated Result**

In order to see the significance value of the dependent variable, some control variables are added, The estimation results shown in Table 7 conclude that the result estimation between capital expenditures and corruption is insignificant,

**Robustness Test**

In this study, the robustness test is conducted by adding control variables to check the consistency of the model (Baltagi, 2008; Kotera et al,, 2012), The variable added to the basic model is GDP per capita (Fisman and Gatti, 2002), Table 8 shows the GLS-REM result and robustness tests,

Table 8 shows that the basic model is relatively robust, This study analyzes the causal of fiscal decentralization on corruption, The results of the regression analysis in Table 8 show that the p-value (Prob> F) is 0.003 <0.05 (significance level), so H0 is rejected and Ha is not rejected, Thus, it can be concluded that all independent and control variables simultaneously have a significant relationship with the dependent variable, Table 8 also shows

**Table 6.**
**Multicollinearity Test**

| | Corr | Cap Exp | IKF | Inf | Educ | Sal | D1 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Corr | 1 | | | | | | |
| Cap Exp | 0,118 | 1 | | | | | |
| IKF | 0,140 | 0,627 | 1 | | | | |
| Inf | -0,112 | -0,114 | -0,041 | 1 | | | |
| Educ | 0,167 | 0,307 | 0,386 | -0,075 | 1 | | |
| Sal | 0,023 | 0,0989 | 0,057 | 0,191 | 0,207 | 1 | |
| D1 | 0,180 | -0,301 | 0,062 | 0,152 | -0,184 | -0,202 | 1 |

**Table 7.**
**REM Summary**

| Independent Var | Dependent | | | | | Std, Dev Mean |
|---|---|---|---|---|---|---|
| | Corr | Corr | Corr | Corr | Corr | |
| | (1) | (2) | (3) | (4) | (5) | |
| **Cap, Exp** | -0,121 | -0,003 | -0,034 | -0,142 | -0,108 | 2,107 |
| | (0,622) | (0,991) | (0,899) | (0,603) | (0,697) | 5,869 |
| **IKF** | 2,989* | 3,674* | 3,162* | 3,183* | 3,069* | 0,102 |
| | (0,044) | (0,002) | (0,034) | (0,029) | (0,039) | 0,162 |
| **Inf** | | -0,064 | -0,054 | -0,023 | -0,026 | 0,810 |
| | | (0,237) | (0,257) | (0,666) | (0,629) | 12,430 |
| **Educ** | 0,658* | | 0,499** | 0,649* | 0,629* | 1,624 |
| | (0,021) | | (0,077) | (0,039) | (0,041) | 9,687 |
| **Salary** | -0,123 | -0,023 | | -0,109 | -0,101 | 1,074 |
| | (0,152) | (0,802) | | (0,264) | (0,304) | 3,111 |
| **D1** | 1,465 | 1,080 | 1,5088 | | 1,482 | 0,324 |
| | (0,398) | (0,531) | (0,392) | | (0,409) | 0,866 |
| **Cons** | -0,375 | 4,999 | 0,093 | 1,364 | -0,109 | |
| **Adj R2 = 0,228** | | | | | | |
| **Prob>chi2** | 0,002 | 0,001 | 0,003 | 0,001 | 0,003 | |

*Note: the number in the bracket is a p-value,  *sign at 5% dan **sign at 10%*

**Table 8.**
*Robustness Test*
**Dependent: Corr**

| Variable | Robustness Checking | GLS-REM | *Exp* |
|---|---|---|---|
| | Coefficient | Coefficient | |
| Cap,Exp | -0.191 | -0.109 | *sign at |
| | (0.559) | (0.697) | 5%, |
| IKF | 2.931** | 3.069* | **sign at |
| | (0.091) | (0.039) | 10% and |
| Inf | -0.019 | -0.0266 | Bracket |
| | (0.724) | (0.629) | number is |
| Educ | 0.632* | 0.629* | p-value |
| | (0.044) | (0.041) | |
| Salary | -0.114 | -0.101 | |
| | (0.326) | (0.304) | |
| D1(Capital) | 1.487 | 1.482 | |
| | (0.159) | (0.409) | |
| GDP per capita | 0.003 | | |
| | (0.556) | | |
| Cons | 0.765 | -0.110 | |
| Adj,R-Squared | 0.353 | 0.288 | |
| Prob>chi2 | 0.001 | 0.0039 | |

the determination coefficient value of 0.228, This means that 28.8% of the variation can be explained by the independent variables in the model, while the remaining 77.2% is by other variables outside the model,

## Discussion
### Relationship between Capital Expenditures and Corruption

Table 8 shows that there is no significant relationship between the capital expenditure variable (cap,exp) and the corruption index (Corr), with a p-value (P> | t |) of 0.697>0.05, The insignificant results align with Boikos's (2016) and Ghosh and Gregoriou's (2008) research, stating that a region's low and high capital expenditures are not significant in reducing corruption, Corruption in capital expenditure tends to be attributable to qualitative aspects, i,e,, individual behavior and the supervision system, Another study by Wu, Li, Nie, and Chen (2017) examines the relationship between regional expenditure and corruption in terms of systems and individual behavior, They conclude that differing outcomes were due to other factors beyond capital expenditure figures in the budgeting (APBD),

Jimenez, Puche-Regaliza, Jiménez-Eguizábal, and Alon (2017) emphasize that four individual characteristics driving corruption are greed or the desire to enrich themselves, lack of moral strength, consumptive lifestyle,

and social pressure, Satisfying these urges require more than adequate income, which can motivate a person to perform a corrupt action, Behaviorists also believe that the environment can encourage corrupt actions, which include an individual's social aspects,

In implementing fiscal decentralization, some of the problems commonly observed are the inefficiency in spending management, On average, about 70% of the budget is spent on operations, The share of employee spending is 36%, while goods and services, particularly official travel, accounts for nearly 13.4% of the total spending, Then, spending on office services reaches 17.5%, The remaining 30% is for the public (Financial Audit Board, 2019), To conclude, many local governments have not focused on establishing priority programs, resulting in poor program quality,

Ratnawati (2012) studied the Committee for Monitoring the Implementation of Regional Autonomy (KPPOD) from 2007 to 2010 and concluded that the regional government's infrastructure expenditure budget continued to increase by around 11-13%, However, during this period, BPS data showed increased infrastructure damage, such as roads, indicating a weak budget monitoring system, In 2007, roads with severe damage reached 24.9% and increased to 44.4% in 2010, The study also found collusive and manipulative behaviors that led to poor infrastructure development, In some infrastructure projects, the largest portion of the budget went to business travel expenditure, compared to capital expenditure, During the implementation, unsound practices were also found, such as a request to reduce the materials used, which lowered the quality of the roads,

**Relationship between Fiscal Independence and Corruption**

The regression results show that fiscal independence increases the corruption index, The relationship between the fiscal independence index variable (IKF) and corruption (Corr) is significant with a p-value (P> | t |) of 0.039 <0.05, The estimated coefficient of the fiscal independence index (IKF) against the corruption index (Corr) is 3.069 and is positive, This result means if the fiscal independence index (IKF) increases by 1%, the corruption index will increase by 3.069, *cateris paribus*,

This is in line with the Strategic Recommendations of the Regional Autonomy Implementation and Monitoring Committee (2016), stating that increased fiscal independence will increase the quality of public services, There is an improvement in bureaucratic reform related to the rampant regional corruption,

Financial Audit Board Report (2019) showed a wide gap in inter-regional fiscal independence, with most local governments having yet to achieve independence, Fiscal independence gaps also occur at the city or regency level in Indonesia, Badung (Bali) and Deiyai (Papua) have an index of 0.8347 and 0.0031, respectively, It means that Badung can finance 83.47%, and Deiyai can only finance 0.31% of the regional spending from local income (PAD), When the response (spending) of the region is greater on transfer funds than local income, the flypaper effect happens, The high local income of the regions should contribute to prosperity, so the local government must manage and supervise funds effectively to reduce the risk of corruption (Batzilis, 2019),

The impact of fiscal decentralization on regional financial independence and growth is positive because it follows the needs of the local communities (Liu, Ding, & He, 2019), Community welfare is characterized by high community incomes—the higher the local income in the region, the lower the corrupt actions will be, However, there is low mutual trust between the people and the stakeholders, The people assume that policymakers tend to enrich themselves and their families, and the stakeholders' responses tend to confirm

people's beliefs with corrupt actions (Jimenez et al,, 2017),

### Relationship between Inflation and Corruption

Based on panel regression estimates in this study with a p-value (P> | t |) of 0.629> 0.05, it was found that inflation had not significantly relationship with corruption, Wu et al, (2017) explain that corruption involves social deviations, not just individual behaviors, An individual's corrupt behavior depends on several conditions, not only including economic factors such as inflation but other triggers such as social, political, cultural, and legal aspects,

Although empirical evidence has shown that inflation can widen income gaps, triggering corruption (Sassi & Gasmi, 2017), factors outside the economy are also significant determinants of corruption, In other words, inflation is not the only determinant of rising corruption, Conversely, deflation does not necessarily reduce corruption,

### Relationship between Education and Corruption

There is a significant effect of the education level variable (Educ) on corruption (Corr) with p-value (P> | t |) of 0.041 <0.05, The estimated coefficient of education level (Educ) on the index of corruption (Corr) is 0.629 and positive, It suggests that if the education level (Educ) increases by 1, the corruption index will increase by 0.62, *cateris paribus*,

The empirical test in this study shows that education level has a positive and significant relationship with the increase in the corruption index, Higher levels of education in the community allow for better public control regarding policymaking, which can reduce corruption, This result aligns with Pradhan (2012), who examined the relevance of education and corruption levels in Nepal, The study found a positive correlation, suggesting that public participation in controlling the

administration of government is needed to reduce corruption, Massive corruption can be prevented by strengthening the religious and character values of each individual through institutional education programs (Herzfeld, 2015; Yagboyaju, 2017),

### Relationship between Salary and Corruption

The regression estimation in this study found that salary levels did not affect the corruption index with a p-value (P> | t |) of 0.304> 0.05, This result is in line with the research by Foltz and Opoku-Agyemang (2015) in Ghana, which states that there is no relationship of employee salary levels to the corruption index, The high number of corruption cases among high-ranking officials may not be influenced by the salary levels, However, this also means that high salaries among government employees may not eliminate corruption, Therefore, an effective supervision system is needed to enable corruption detection so that preventive actions can be taken, One tentative explanation for the high rate of corruption in the regions is the 'shortcut' to obtaining power (Liu et al,, 2019),

### Relationship between Capital of the Province and Corruption

Based on panel regression estimates in this study, the dummy variables had not relationship significantly with corruption with a p-value (P> | t |) of 1.482 >0.05, The result can be interpreted that corruption is not only centered in the provincial capitals but also outside the center of the capital's administration, The rapid growth and modernization of each region create new sources of wealth and power and expand the government, which may increase the risk of corruption (Denly & Gautam, 2021; Nam, 2018)

### Conclusion

Fiscal decentralization reflected in capital expenditure has no relationship with the corruption index, This result is

predictable because other factors than the capital expenditure figures in the APBD (Regional Revenue and Spending Budget) may affect corruption, such as the supervisory system and individual corrupt tendencies, Fiscal decentralization in terms of fiscal independence has increased the corruption index, Increasing the contribution of PAD (local income) for natural resource management and involving the community is necessary to reduce community disparities, hence corrupt actions,

Fiscal decentralization's macro factor and regional characteristics, such as civil servant salaries and inflation rates, do not affect the corruption index, Meanwhile, the level of education has a positive association on the corruption index, Corruption is not only centered in the provincial capitals but also outside the centers of administration, The expenditure budgeting has a risk of corruption due to ineffective budget management, individual behavior, and the supervision system, Meanwhile, public trust and welfare can lower the risk of corruption if local income is distributed fairly to the public, The lack of institutions to eradicate corruption in the regions may have caused corruption cases to go undetected, Corruption is very contrary to Islamic economic and all religion values so it is necessary to instil religious values, fair distribution and avoid conflicts of interest, Finally, it should be noted that this research has limitations, The data is of a short period and does not chronologically align, Future research can use probit and logit analysis to identify the risk of corruption in the previous period and after the implementation of fiscal decentralization in Indonesia.

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