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DO CORRUPTION, FINANCIAL DEEPENING, AND INFLATION DRIVE ECONOMIC GROWTH IN SUMATRA?

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Abstract

This study investigates whether the effect of corruption, financial deepening, and inflation on economic growth exists employing panel regression of 10 provinces on the island of Sumatra over the period 2012-2020. Using the fixed effect model as the best model, the results confirm that between corruption, financial deepening, inflation and economic growth, a simultaneous relationship exists. Moreover, the FEM panel regression estimations indicate that corruption does not significantly affect economic growth, whereas financial deepening and inflation positively affect economic growth. The policy implication is that, for every province in Sumatra Island, boosting financial deepening and inflation can help promote economic growth. The policy effects are related to the prosperity of different regions.

Keywords: *Panel regression, Corruption, Inflation, Financial Deepening, Economic Growth.*

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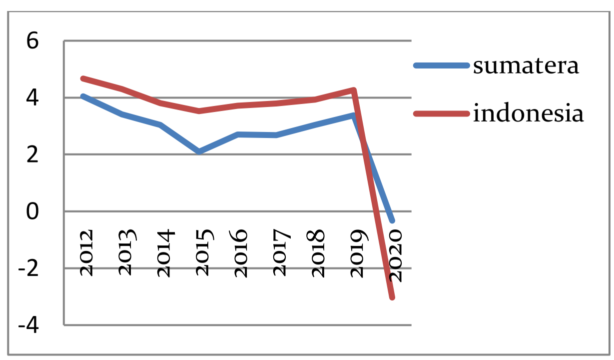
INTRODUCTION

Economic growth means changes in a region's economy in a certain period that changes consistently. The changes were found in social structures, community attitudes and various national institutions. It also expands the production limits in an economy, which appears as an expansion in national income (Oktarida, 2012). Economic growth is one of the indicators of success in a country's economy.

In Indonesia itself, there are regulations governing economic growth contained in article 33 of the 1945 Constitution paragraph 4, namely: The national economy is organized based on economic democracy with the principles of togetherness, efficiency, justice, sustainability, environmental insight, independence, and by maintaining a balance of progress and economic unity of the national economy (1945 Constitution). National development activities involve all local governments through the use of natural resources and human resources owned nationally. Other than that, to increase the role and ability of a region to obtain national development, it is necessary to have independence in local government in helping operational financing, especially in the era of broad autonomy like today.

Sumatra Island is the sixth largest archipelago in the world, located in Indonesia. It has an area of 473,481 km2 with a total population of 57,940,351 people. Sumatra Island is divided into ten provinces, namely North Sumatra, West Sumatra, North Sumatra, South Sumatra, Bangka Belitung Islands, Riau Kepuluan, Aceh, Lampung, Riau and Bengkulu (Kompas.com, (Kompas.com, 2021). In general, the rate of national economic growth is a growth rate that is relatively better than the economic growth rate of the island of Sumatra. However, there are differences in progress between provinces that have been illustrated through a comparison between national and provincial economic growth on the island of Sumatra, listed in Figure 1.



Source: Central Bureau of Statistics (BPS)

Figure 1. Sumatra Gross Regional and National Domestic Product Growth Rate

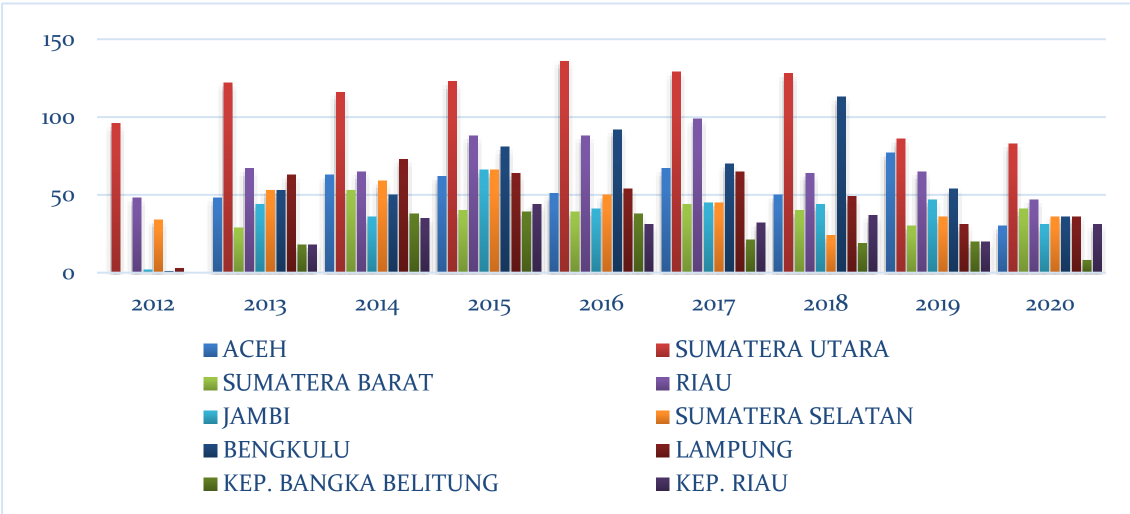
Figure 1 shows fluctuations in the GDP growth rate on the island of Sumatra and National. It can be seen that the difference between the two growth trends is not too different; this happens because the island of Sumatra is the second island after the island of Java, which has an immense contribution nationally. As stated by the head of BPS, Mr. Suhariyanto, the islands of Sumatra and Java still dominate the contributors to economic growth for Indonesia. Statistical figures show that the island of Java contributes to the value of national economic growth of 58.55%. Second is the island of Sumatra, which is 21.49%. Followed by Kalimantan and Sulawesi at 8.04% and 6.55%, respectively and Maluku and Papua at 2.37% (Investor.id, 2020).

All existing regions must want economic growth in their areas. It is done to maintain or improve the community's welfare. However, in its application, strategies for increasing economic growth do not always work as expected. Some obstacles affect the hampering of economic growth.

Corruption is one of the factors that affect economic growth. Lately, the impact of corruption on economic growth has become a hot topic that is often discussed, so various theoretical and empirical debates are pretty active on this matter (Lutfi et al., 2020a).

The impact of corruption cases will differ in form, extent and effect, although the final impact will cause suffering to the community (Kuncoro, 2009). The differences caused by corruption between developed and developing countries will be different, as in developing countries, it will have an impact on economic growth that slows or even decreases so that it can lead to increasing poverty and political instability in the country. In contrast, in developed countries, it will only affect its politics. This difference will also occur in the opportunity and number of corruption in a developing or developed country.

In anticipating and overcoming corruption problems, the Indonesian government has also established the KPK (Corruption Eradication Commission) to respond to the increasing Corruption in Indonesia. One is the application of a *National Single Identity* or a single national identity. Proof that a country has succeeded in eradicating the problem of corruption is that its people already have a single national identity because through the integration of data in the entity, all information from individuals will be connected so that it is easily known and, most importantly cannot be manipulated (lee, 2016). As stated by ICW Indonesia through Kompas (Kompas.com, 2020), there were 169 corruption cases only during the first semester of 2021, with 372 suspects and losses reaching 18.1 trillion, most of which occurred on the island of Sumatra.

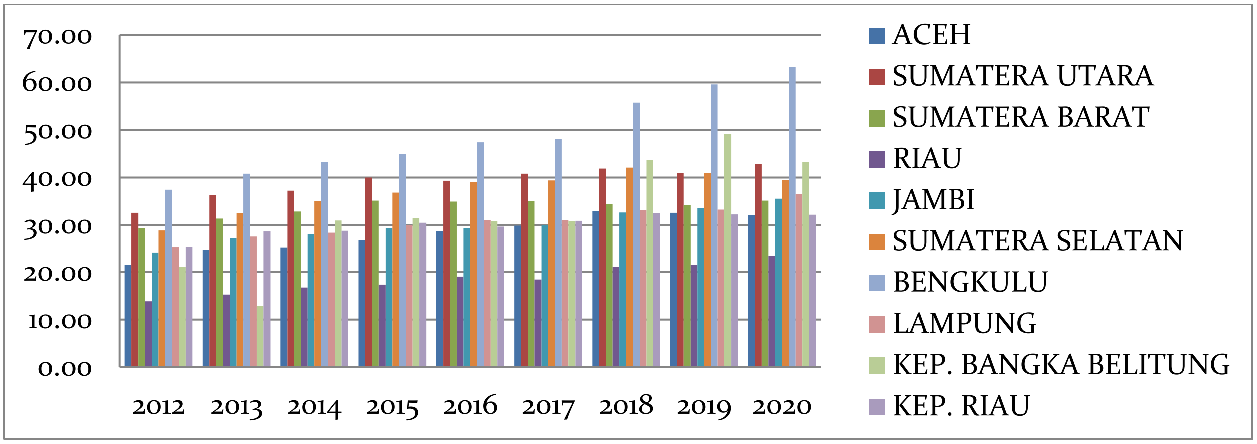


Source: District Court Case Tracing Information System

Figure 2. Number of Corruption Cases per Province in Sumatra 2012-2020

Figure 2 shows the number of corruption crimes determined by the High District Court in 10 provinces on the island of Sumatra from 2012 to 2020. It can be seen that the highest number of corruption cases occurred in 2015, with 673 corruption cases.

Meanwhile, economic growth is related to the financial sector, which can function as an intermediary function. In its development, the financial industry in a country found the situation of the financial sector that experienced *deepening (Financial deepening*) and the financial sector that experienced shallow finance (Maxwell j. Fry, 1995). The existence of the financial sector becomes one of the essential roles in encouraging the increase of economic growth in each country. A financial sector that can be developed in a country will be able to help activities in the economy in that country as well. It happens because there are no obstacles in liquidity to achieve a high economy (Brandl, 2002). The development of the economy itself can be seen through its ability to provide sufficient savings for investment purposes in growth or in overcoming existing economic problems.

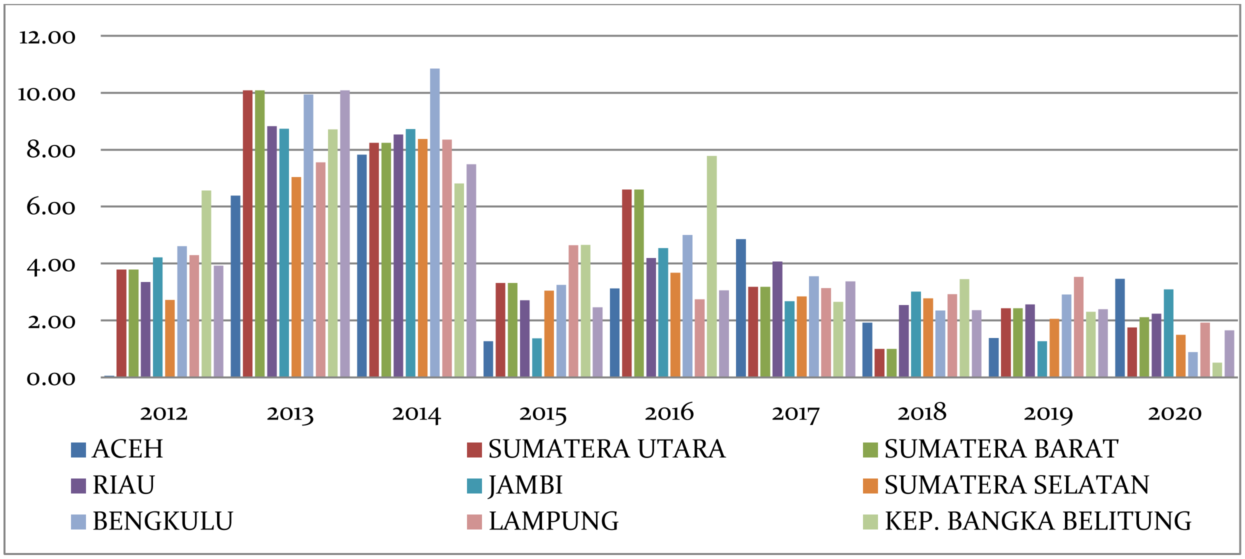


Source: Central Bureau of Statistics (BPS)

Figure 3. Ratio of Savings to GDP per Province in Sumatra 2012-2020

Bank Indonesia reported that Indonesia's financial sector remains generally weak compared to several countries, particularly in the Asian region. The weakness of the financial sector in Indonesia is reflected in various parameters. Figure 3. shows the ratio of savings to GDP per capita on the island of Sumatra with ten provinces from 2012 to 2020. It can be seen that the highest average savings ratio on the island of Sumatra occurred in 2020 at 28.3%, and the highest was in Bengkulu province, with a ratio of 63.2%. Meanwhile, in 2020, the province with the lowest savings ratio was Riau province, which was 23.3%. Furthermore, the year with the smallest ratio occurred in 2012 at 25.9%, with the highest value of the province being Bengkulu at 37.4% and the lowest was the Bangka Belitung Islands at 21.1%.

The cause of economic growth that constantly fluctuates from year to year is aggregate demand. Meanwhile, according to the law of demand, aggregate demand itself is influenced by prices. When prices rise, demand decreases. According to the Keynesian theory created by J.M., Keynes believed that fiscal and monetary policies should be used to overcome high inflation and rising unemployment. Through this concept, called Keynesian, creating economic growth carried out by the government is very large and generally shows an increasing and sustainable economic situation at the price level (Murni, 2006). Inflation generally indicates an improved and sustainable economic situation at the price level. Inflation is considered a massive problem in the economies of many countries. It is part of the monetary sector and has been considered a nuisance and dangerous disease in many countries.



Sumber : Badan Pusat Statistik (BPS)

Figure 4. Tingkat Inflasi per Provinsi di Sumatera 2012-2020

It is necessary to take policies that seem like a double-edged knife, which will appear at the aggregate economic growth level. However, even though inflation harms economic growth, it does not mean that inflation must be minimized because it will cause economic growth to occur stagnant.

Figure 4. shows the increase and decrease in inflation in 10 provinces on the island of Sumatra. From 2012 to 2020, it can be said that in 9 years, the average value of the highest increase in inflation on the island of Sumatra was in 2013, with the highest inflation value of 10.09% and the lowest inflation value of 6.39%. Meanwhile, the lowest average increase in inflation on the island of Sumatra occurred in 2020 at 1.91%. With an inflation value of 3.46%, the weakest for the last nine years with an inflation value of 0.52%.

From the various exposures and data that have been presented, this study aims to explore the impact of corruption, financial deepening, and inflation on economic growth in Sumatra. The composition of the paper consists of theoretical foundations, research methods, discussions, conclusions and suggestions.

THEORETICAL BASIS

Theory of economic growth

A. Economic Growth Theory: Rostow

According to Rostow (1960), the economic process can be grouped into five stages: the traditional society, the preconditions for take-off, the take-off, towards maturity and the age of high mass consumption.

The basis Rostow uses in distinguishing economic processes into five stages is the characteristics of changes in economic, social, and political conditions. Moreover, Rostow (1960) said that economic growth can also be interpreted as a process that causes:

1. Changes in the orientation of economic, political and social organizations.
2. Changes in people's views regarding the number of children in the family.
3. Changes in community investment activities.
4. Changes in life attitudes and customs that are less supportive of economic growth.

B. Theory of Economic Growth: Adam Smith

Arsyad (2012) In his book, Adam Smith's theory distinguishes two main aspects of economic growth. That is total *output* growth and population growth.

Based on the view of Adam Smith, in every market, there will always be such a thing as *an "Invisible Hand",* which functions as an allocation of funds so that there is a balance in the market. Free market policies and reducing government intervention *(laissez-faire)* are also considered a solution to the problem. However, according to Adam Smith, government intervention in the economy will only disrupt the work of market mechanisms. Historically, there have been several factors that have a relationship in the process of economic growth.

C. The Concept of Economic Growth According to BPS

According to the Central Bureau of Statistics (Badan Pusat Statistik, 2017), a country's economic growth rate will be seen through the size of the *Gross Domestic Product* (GDP) figure in the same year in the country. At the same time, on a regional scale in a country, economic growth can be seen in the Gross Regional Domestic Product (GDP) value. In measuring GDP, it can be seen from the amount of weight that can be produced by each sector or part of the business that carries out activities in an area without thinking about ownership in the factors of production.

Generally, in its measurement, regional economic growth uses the growth rate of Gross Regional Domestic Product (GDP) according to constant prices. According to the Central Bureau of Statistics (Badan Pusat Statistik, 2017), GRDP is an added value of goods or services that all business units can produce in a particular combined area, where the production factors are owned by residents from within or outside the country. The rate of economic growth seen from GDP based on constant prices will show the process of increasing output in the long run. The growth rate of Gross Regional Domestic Product can also be used as an indicator of whether the policies that have been implemented are effective, and the calculation of the GDP rate is usually done in annual time to find out how to increase the area's economic growth.

Corruption Theory

Corruption is adopting the word corruption, a verb Corrumpere, which means broken, rotten, twisted and bribery. Corruption is an inhumane act usually carried out for personal interests committed by state officials who have power and are entrusted with maintaining and improving the welfare of each. Corruption is defined as the abuse of power for personal gain, as defined by the *World Bank* and *the International Monetary Fund*.

Corruption is a global phenomenon affecting all aspects of life, including social and economic. As predicted by the World Bank (World Bank, 2016), more than $10 billion or about 5% of the world's Gross Domestic Product is lost every year to corruption. Meanwhile, the African Union predicts that over 25% of its GDP has been lost to corruption.

A. Types of Corruption Types

Sugito (2021) explained that based on Law Number 20 of 2001 concerning the Eradication of Corruption Crimes, there are seven types of corruption according to the Corruption Law, which are as follows:

- State financial losses

  Shortages in the form of money, securities, tangible and definite amounts caused by unlawful acts committed intentionally or negligently are a form of state or regional losses, based on Law No. 11 of 2004 concerning State Treasury article 1 paragraph (2).

- Bribe

  Bribery is the act of giving or promising something to a person to persuade that person to do something or not to do something in the performance of his duty, which is contrary to his authority or obligation which concerns the public interest. In addition, it also receives a promise or something necessary that the given has the purpose of doing something or not doing something in performing its duties, contrary to its authority/obligation, which concerns the public interest. It is based on Law No.20 of 2001, interpreted as bribery.

- Embezzlement

  A dishonest act is carried out by hiding other people's goods or property without being known by the owner to transfer ownership (theft), control, or to be used for other purposes. It can interprete as embezzlement.

- Extortion

  Public servants or organizers committed unlawful acts aimed at obtaining personal or other benefits or abuse of power by forcing a person to give, pay, or receive payment by deduction or for that person to do something for himself. It is based on Law No. 31 of 1999 jo article 12 letter e. Law No. 20 of 2001, is an act known as Extortion.

- Cheating

  Cheating can be interpreted as a unique criminal offence related to property. Whereas if viewed historically, cheating is a form of common law violation. Cheating and deceiving are dishonest acts done intentionally to harm the rights of others.

- Gratuities

  Gratuity is a gift that, in a broad sense, includes the provision of additional money (fees), goods, rebates (discounts), monetary donations, travel tickets, interest-free loan commissions, tourist trips, free treatment, and other facilities.

B. The sanders and the greasers

In what has been conveyed by Aidit (Aidt, 2009) states the existence of two types of supporters in the influence between corruption and economic growth. The first is *greasers*, defined as economists who have evidence and believe that the cycle of a trade can run efficiently when there is an element of corruption. One of the first researchers and researchers was Leff (Leff, 1964), who paved the way for thought and conveyed the idea of the first theoretical framework in the aspect of *"grease"* on the topic of corruption.

Research from Leff (Leff, 1964) explains that corruption can positively impact investment and even economic growth in certain circumstances. This research has a basic idea explaining that through corruption, a country can benefit through the transactions carried out. It may not be possible if corruption is not part of the activity.

Mauro (Mauro, 1995) stated that in recent years, researchers have agreed that corruption in public and government officials has adversely affected economic growth, which has increased substantially. He also asked various countries why they are not willing to work harder to find solutions to corruption. The conclusion of why corruption is so difficult to eradicate is that in countries where large areas are too difficult to move individually. However, eliminating it will make everyone better off.

Mauro (Mauro, 1995) also explained some of the reasons that can hinder economic growth caused by corruption, namely:

1. Corruption can reduce the level of investment.
2. Causing distortions to public spending and investment and damaging physical infrastructure.
3. Causing distortions to the development of companies and sector growth in the non-formal economy

Financial Deepening

Kiyotak *et al.* (Kiyotaki, Nobuhiro and Moore, 2005) define *Financial Deepening* to build national business through financial intermediation for growth. In this context, Financial Deepening is an increase in total production and financing from investments obtained through formal or particular markets. Financial deepening is also seen as an attempt to increase capital accumulation, accessibility, and financial assets, thus contributing to real economic growth.

Financial Deepening is an indicator that shows an increasing role and activity of financial services in the economy. The purpose of this understanding is also for people to have access to a more diverse and broader selection of financial services. Financial sector deepening will continue to reduce poverty. In addition, strength and balance on the part of power holders in the financial sector can reduce the risk of economic turmoil and increase the country's economic resilience. *Financial deepening* is the process by which efficiency, depth (intermediation of credit and markets), emergence (range of markets and instruments), and achievement (access) of financial markets increase. Therefore, efficient and in-depth financial markets have four characteristics:

1. Access to funding provides borrowers such as corporations and financial institutions with a wide selection of instruments to raise funds.
2. Wide range of investment diversification options- providing retail/institutional investors with a choice of products with a wide range of maturities and risk returns.
3. Quality of market infrastructure - timely and convenient connectivity between market actors.
4. Risk management- availability of suitable assets to facilitate risk sharing and diversification.

Diversification is essential, considering that Indonesia is improving its infrastructure. Diversification of financial markets will attract investment and accelerate development. The development of the financial industry extension can be through several indicators. His explanation of this indicator can be seen later in the development of the financial sector in a country. Here are the factors of financial deepening:

1. Private Sector Credit
2. Bank Assets
3. Savings

Financial deepening measurement

Financial deepening shows how high the ratio of financial wealth in a country to gross domestic product is (Putri dan Mubin, 2021). If the financial sector in a country develops well, the wheels of the economy also run well. There are two sides to the financial sector in economic activities, namely *inflow* or capital from existing savings and *outflow* or flow to investment in the form of credit in the financial sector so that the wheels of the economy can run so that all levels of society can feel the distribution of credit made by banks to all people. Some private sectors have difficulty obtaining credit from farmers, ranchers, and others. So that the community can have the capital to increase their business and also be used by the community to increase company production; if the wheels of the economy run well, it can increase the growth.

Harrod-domar's neoclassical theory (1947) states that capital formation is essential to economic growth. Capital formation can be obtained from accumulated savings, and high savings rates will allow an increase in investment activities to accelerate the economic growth rate.

Inflation

Inflation is part of the events in the modern economy that are very much noticed and occur thoroughly in existing countries. The core definition of inflation is a general and sustained trend of rising prices (Barro, 2013). But this does not mean that the costs of various commodities have increased by the same percentage. Maybe the increase did not coincide, and the important thing is that the total price of that item continues to rise over time. In other cases, when a high percentage increase occurs in one day, this is not referred to as inflation.

A. Inflation Classification

Boediono (Boediono, 1998) explained that there are four different levels of inflation, namely:

1. Mild Inflation Rate: less than 10% per year
2. Moderate Inflation Rate: increase in the range of 10 - 30% per year
3. Severe Inflation Rate: The growth that occurs ranges from 20 – 100% per year
4. Hyperinflation Rate: Increase up to 100% or even more per year

The classification of inflation has also been divided into two, namely:

1. Demand-pull inflation is inflation arising from the public solid demand for goods and services, while the amount of goods and services available is limited.
2. Cost-push inflation is a type of inflation caused by the increase in the cost of factors of production continuously and over a certain period.

B. Theories of Inflation

- Quantity Theory

Quantity theory is the oldest theory of inflation, but it is still used in research to explain what inflation is and its components, including modern inflation as it is today. Especially in developing countries (Boediono, 1998) :

1. Money supply

Inflation will occur under the condition that money in circulation in society increases without an increase in the value of the money supply. For example, crop failures that befall farmers and create a scarcity of goods will only raise prices temporarily and will return to normal with the entire demand for these goods.

2. Psychology (*expectations*) of society regarding prices

The inflation rate can be seen through how fast the money supply grows and the public perception of the increase. There are three possible scenarios, and the first is that people do not expect an increase in the price of an item in the future. The second is that people begin to understand and understand the occurrence of inflation that occurs. And the third is that people no longer trust the value of their currency; this is what can be called the Hyperinflation rate. Hyperinflation itself occurred in Indonesia in 1961-1966.

- Keynes theory

Keynes's theory of inflation builds on his macro theory and suppresses other aspects of inflation (Boediono, 1998). This theory explains that infection can occur because a society wants to exceed the limits of its economic capacity. Thus, according to this explanation, inflation is nothing more than a process of income competition among social groups who want more income than they get from the rest of society. This process of struggle eventually transformed into a situation where people's demand for goods consistently exceeds the amount of goods available (the so-called inflation gap). The inflation gap arises because this group has successfully translated their desires into effective demand for goods. In other words, they managed to secure funding, turning their passions into plans to purchase goods backed by funds. This group may be the government trying to capture a larger share of social output by running its budget deficit, financed by printing new money. This group can also be private entrepreneurs who want to make new investments and obtain financing from bank credit. This group is usually also a trade union and, in addition to increasing labor productivity, seeks to expand its members' wages.

RESEARCH METHOD

This research is explanatory. A panel regression approach was used to identify the effects of corruption, financial deepening, and inflation rates on Sumatra's economic growth. The observation period was conducted from 2012-2020, with the observation area consisting of 10 provinces. The similarities in this study are written as follows:

$$EG_{it} = \alpha + \beta 1Cor_{it} + \beta 2FD_{it} + \beta 3INF_{it} + e_{it}$$

EG is economic growth measured by the rate of GDP based on constant prices (%), Cor is the number of cases of corruption with fixed law (units), FD is Financial Deepening measured through the ratio of savings to GDP (%), and inflation is measured through the consumer price index in an annual period (%).

Classical assumption tests in multicollinearity and heteroscedasticity will be applied to avoid bias. In addition, the best model test will also be carried out so that it is known whether to use a common effect model, fixed effect model, or random effect model.

RESEARCH RESULT AND DISCUSSION

Classic Assumption Test

To obtain an unbiased model, a classical assumption test is performed. For panel regression, because it uses a combination of time series and cross-section observations, there is no need for autocorrelation tests. The classical assumption tests that need to be employed are only the multicollinearity and heteroscedasticity tests.

1. Multicollinearity

The multicollinearity test aims to test whether the regression model formed has a close or perfect correlation between independent variables.

Table 1. The result of multicollinearity

	KOR	FD	INF
KOR	1	0.16721	-0.27549
FD	0.16721	1	-0.171379
INF	-0.27549	-0.17137	1

Source: processed data, 2022

The data from the management above shows that no variables have a correlation matrix value *of* more than 0.8. So, from this, it can be concluded that there is no multicollinearity problem.

2. Heteroscedasticity

This study applies heteroskedasticity testing using a *robust* estimation coefficient or immune to violations of the heteroskedasticity *of the Huber-White estimation coefficient* to overcome the inequality of variance of errors for all observations of each independent variable from the regression model.

Based on the results of the Huber-White test listed in table 2, it is stated that there is no heteroscedasticity in the model, evidenced by an alpha value (α) greater than 0.05.

Table 2. Hasil uji Heteroskedastisitas-Huber

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.5528	0.37514	4.1393	0.0001
KOR	0.0046	0.00408	1.1362	0.2590
FD	-0.0002	0.00304	-0.0821	0.9347
INF	-0.0131	0.00519	-2.5387	0.1290

Source: processed data, 2022

Best Model Testing

This study uses three analysis models to analyze panel data: The common effect model, the Fixed effect model, and the Random effect model. To determine which analysis model is most appropriate for this study, comparative testing will be carried out first, namely the

Chow Test, Hausman Test, and Lagrange Multiplier Test.

1.) Chow Test

The Chow test is conducted to determine which model is better between the Common effect model or Fixed effect model, to use in this study. Here are the hypotheses in the Chow Test:

- Ho: *Common Effect Model*
- Ha: *Fixed Effect Model*

Table 3. The result of the Chow test

Test effects	Statistics	d.f.	Prob.
Cross-section F	3.342863	(9,69)	0.0019
Cross-section Chi-square	32.569134	9	0.0002

Source: processing data, 2022

The *error rate* (α) is 5%. In determining whether the hypothesis is acceptable if the probability value < 0.05, Ha is accepted, and Ho is rejected. Vice versa, if the probability value > 0.05, then Ho is accepted, and Ha is rejected.

Based on the test results in the Chow test, the probability of a *chi-square cross-section* is 0.0002 < 0.05, which means Ha is accepted and Ho is rejected. So, these results show that the best model in the Chow test is the *Fixed effect model* (FEM).

2.) Hausman Test

The Hausman test is conducted to determine which model is better, between the Fixed effect model or the Random effect model, to be used in this study. Here are the hypotheses in the Hausman test:

1. Ho: Random Effect Model
2. Ha: Fixed Effect Model

The error rate (α) is 5%. In determining whether the hypothesis is acceptable if the value of prob. < 0.05, then Ha is accepted, and Ho is rejected. Vice versa, if the value of prob. > 0.05, then Ho is accepted, and Ha is rejected.

Table 4. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. City.	Prob.
Cross-section random	2.819425	3	0.0403

Source: processing data, 2022

Based on the test results in the Hausman Test, it was found that the results of Prob *cross-section Random*, which is 0.0403 < 0.05, means Ha is accepted, and Ho is rejected. So, these results show the best model in the Hausman test and, at the same time, in this study is the *Fixed effect model* (FEM).

Regression Model Interpretation

Based on the results of the Chow Test and *Hausman Test tests*, it was found that the best model chosen was the Fixed Effect Model (FEM).

Table 5. Fixed effect model regression results (FEM)

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	2.202404	2.061375	0.981891	0.0221
COR	0.012823	0.010392	1.234013	0.2214
FD	0.035096	0.020118	1.744499	0.0855
INF	0.025236	0.012279	2.055232	0.0436
Adjusted R-squared	0.476066	R-squared		0.593804
F-statistic	5.043430	Prob (F-statistic)		0.000000
Fixed Effects (Cross)				
_ACEH—C	-0.473705	_SUMSEL—C	0.672250	
_SUMUT—C	-3.305577	_BENGKULU—C	1.569707	
_SUMBAR—C	1.148516	_LAMPUNG—C	1.620656	
_RIAU—C	-0.477210	_KEPBABEL—C	-2.238064	
_JAMBI—C	1.492944	_KEPRIAU—C	-0.009518	

Source: processed data, 2022

Based on the table of results from the calculation of panel data using the *Fixed Effect Model* regression model, the regression equation is obtained and interpreted as follows:

$Y = \alpha + \beta 1Cor_{it} + \beta 2FD_{it} + \beta 3INF_{it} + \varepsilon_{it}$

EG = 2.202404+ 0.012823COR + 0.035096FD + 0.025236INF

Description :

EG = Economic growth

COR = Corruption

FD = *Financial deepening*

INF = Inflation

a. The constant value (α) is 2.202404, which means that when independent variables (Corruption, *financial deepening* and inflation) are assumed to be unchanged, economic growth on the island of Sumatra is 2.2%.
b. The regression coefficient value of the corruption variable is 0.012823 and has a probability value of 0.2214, meaning corruption has no significant effect on economic growth.
c. The regression coefficient value of the financial deepening variable is 0.035096, which means that every increase in financial deepening by one percent will increase economic growth by 0.04%.
d. The regression coefficient value of the inflation variable is 0.025236I, which means that every increase in inflation by one percent will increase economic growth by 0.03%.

Table 6 shows the intercepts for each province on the island of Sumatra. The difference in intercept shows variations in the response of economic growth in each province due to the influence of dependent variables, namely corruption, financial deepening, and inflation. This difference can be due to the special character of each province. This indicates that ten provinces on the island of Sumatra have different potential sources of economic growth apart from the independent research variables observed.

Table 6. Intercept in 10 provinces on the island of Sumatra

	Above Combined Intercept			Under Combined Intercept	
No.	Province	Intercept	No.	Province	Intercept
1.	Sumatrea Barat	3.35092	1.	Aceh	1.728699
2.	Jambi	3.695348	2.	Sumatera Utara	-1.103173
3.	Sumatera Selatan	2.874654	3.	Riau	1.725194
4.	Bengkulu	3.772111	4.	Kep. Bangka Belitung	-0.03566
5.	Lampung	3.82306	5.	Kep. Riau	2.192886

Source: data processed, 2022.

DISCUSSION

The Effect of Corruption on Economic Growth

Corruption has not been able to prove its effect on economic growth on the island of Sumatra, this result is different from the initial hypothesis that suspected corruption would negatively affect economic growth. Alatas (1982) defines corruption as an act that is generally carried out by an individual and is carried out by giving a property to an official or civil servant with the intention of influencing him to give special attention to the interests of the giver. Three phenomena are included in the term corruption, namely bribery, extortion, and nepotism. Corruption is divided into seven forms, namely state losses, bribery, embezzlement, extortion, fraudulent acts, conflicts of interest in procurement, and gratuities.

Corruption is a big problem faced by people in every region. Both urban and rural communities. In corrupt practices such as bribery, extortion, embezzlement, and fraudulent acts carried out secretly or blatantly, there is a person or party who is harmed. As a result, there is reduced public welfare due to such losses. These losses are not only felt directly, such as the loss of a community who is forced to spend money because they are blackmailed by officials, but there are indirect losses that can occur more seriously. For example, if in making public facilities such as bridges, hospitals and others there are corrupt practices, the manufacture of public facilities will not be effective and efficient. If the public facility should last for twenty-five years, it will only be able to last ten to fifteen years. Likewise with other corrupt practices.

Several studies suggest differences in the effect of corruption on economic growth. Some claim that the economy grew with the encouragement of corrupt activities (Sharma & Mitra, 2019; Spyromitros & Panagiotidis, 2022; Trabelsi, 2023). While in some cases, growth will be degraded due to corrupt practices (Gründler & Potrafke, 2019; Alfada, 2019). In addition, in some areas the influence of corruption on economic growth is not direct so that when empirically proven the relationship is not significant (Lutfi et al., 2020).

Empirical evidence that states corruption has no significant effect from the results of this study is also in line with that conducted by Lutfi and Diartho (2020). This condition does not mean that corruption is not an important element that can explain economic growth but, in this case, it can be explained that the impact caused by corruption on economic growth is indirect, but rather leads to the efficiency of production processes and the allocation of resources to institutions. This happens because corruption can reduce institutional quality and create leakage in resource financing. The ambiguous role of institutions in some regions causes the application of rules related to corruption to vary in interpretation.

The effect of financial deepening on economic growth

After finding the Fixed effect regression model results, it shows a coefficient of financial deepening variables of 0.035 and a probability of 0.08. This indicates that the variable financial deepening has a positive and significant effect on economic growth on the island of Sumatra, meaning that every 1 percent increase in financial deepening in the isle of Sumatra will cause an increase of 0.035 percent in economic growth on the island of Sumatra assuming that other variables are considered fixed, this result is following the initial hypothesis that suspected financial deepening will have a positive effect on economic growth.

Financial deepening, also known as financial deepening, is a term that describes the condition of the financial sector in a region. In the development of the financial sector, a region is faced with the condition of the financial sector that is experiencing deepening (financial deepening) and the financial sector that is experiencing shallow (Fry, 1995). If the deeper the financial sector, the better the effect on the economy, on the other hand, if the shallower the existing financial sector, the worse it will be for the economy in the region.

Financial deepening aims to increase economic growth. The basic objective of financial deepening is to increase the ratio of savings to domestic income and which will be channeled in the form of credit to the public so as to provide attractive investment opportunities and encourage the course of savings allocation, enabling better portion of savings through expansion and diversification of financial and capital markets (Putri dan Mubin, 2019). There are two sides to the financial sector in economic activity, namely inflow or capital from existing savings and outflow or flow to investment in the form of credit in the financial sector so that the wheels of the economy can run. The ratio of Deposito savings as initial capital will be managed and then distributed in the form of credit to the public to provide attractive investment opportunities and encourage the allocation of savings, enabling a better share of savings through expansion and diversification of financial and capital markets (Putri dan Mubin, 2019).

The financial sector is very influential in economic development because the purpose of financial deepening is to increase capital accumulation and financial access, as seen from the increase in financial assets, leading to natural economic expansion. The high and low financial deepening ratio indicates the financial sector's health to maintain financial market stability. A country can be said to experience financial deepening if the value of the financial deepening ratio is more excellent than 20% and if it experiences shallow finance if the ratio is less than 20% (Aizenman dan Chricton, 2006).

The positive influence of financial deepening on economic growth on the island of Sumatra is consistent with theories and some studies. It is indicate that money is increasingly liquid, so opportunities for sustainable growth are increasingly present. In addition, it also suggests the mobilization of savings, improves resource allocation and facilitates diversification and management of risk. The harmonious connection between financial deepening and economic growth in Sumatra proves the dynamism of the financial deepening process; when the process is too fast, it will make the economy and finances unstable. It encourages higher risk-taking and high leverage if not accompanied by good supervision. The empirical studies of Harisuddin & Hartono (2019) explain the positive correlation between financial deepening and regional economic growth, while negative impact on economic growth is found in study by Wasiaturrahma et al. (2019). Otherwise, Dularif (2010) states there is no a significant positif impact between financial deepening and economic growth.

Therefore, it is necessary to develop good institutions and regulations in line with financial development. It should be understood that financial deepening impacts total factor productivity growth more than capital accumulation. As the economy develops, the benefits of financial institutions will also increase.

The Effect of Inflation on Economic Growth

The estimation results show a coefficient of the inflation variable of 0.025 and a probability of 0.046. This informs that the inflation variable has a positive and significant effect on economic growth on the island of Sumatra, meaning that every 1 percent increase in inflation on the island of Sumatra will cause an increase of 0.025 percent in economic growth on the island of Sumatra assuming that other variables are considered fixed, this result is different from the initial hypothesis that predicts inflation will have a negative effect on economic growth. Even though some studies displays a negative relationship between inflation and growth (Akinsola & Odhiambo, 2017). Nevertheless, there is study that claim to refute growth. There is a significant reduction in the average economic growth rate among the inflation targeting adopters by over ½ percentage point (Khan, 2022). Asaduzzaman (2021) declare occurs unidirectional from growth to Inflation and there is no feedback from inflation to growth.

The broad meaning of inflation is an economic condition in a region where there is an increase in the prices of goods and services continuously or continuously. Inflation will occur when there is an increase in the price of goods and services in general. For example, in the case of fuel, every time there is an increase in fuel prices, the prices of other commodities also rise because fuel is a strategic commodity with a chain effect that can cause price increases in other items. In inflation, general price increases also do not cause inflation if they only occur for a moment; for example, there is an increase in prices today compared to the previous day, but the next day it has gone back down. Several factors, such as 1) demand-pull inflation, which is inflation that occurs due to the pull of increased demand; 2) Cost-push inflation, which is inflation that occurs due to pressure from production costs; 3) Imported inflation, which is inflation caused by inflation abroad.

Inflation in a region is not always bad for the economy. The increase in the inflation rate, which is still at a mild level, can actually stimulate producers to increase production. Following the law of supply, if the price level rises, the supply will rise, this is what makes producers increase their production. When goods produced in the community increase and prices are still affordable by the community, because the inflation rate is still at a low level of below 10%, people's purchasing power will not decrease so that this can increase economic growth even though the inflation rate increases.

In fact, Indonesia's inflation rate is still very low when compared to many developed countries, even in other developing countries.

No exception is also on the island of Sumatra. On average, the development of inflation in Sumatra is still classified as mild inflation, which is below 10% per year, even the highest increase in inflation in Sumatra occurred in 2013 at 8.82%. The increase in inflation in 2013 was due to soaring subsidized fuel prices at that time. Thus, contributing to the increase in prices of other goods and causing cost push inflation.

The positive relationship between inflation and economic growth can be explained by the Phillips curve approach. In this approach, it is assumed that high inflation causes low unemployment so that it will have a positive effect on economic growth. Several studies have confirmed the positive relationship between inflation and economic growth. The relationship occurs in the short term in cases when inflation occurs that is not anticipated in advance. On the other hand, an increase in inflation will result in a decrease in individual welfare. In this context, individuals increase their savings to achieve wealth as it was before the rise in inflation occurred. Therefore, interest rates fall along with the increase in investment.

In countries or regions where the financial system is inadequate, the government earns revenue through inflation taxes using the resources of the Central Bank. If the government uses these revenues to finance investment spending, then the inflation that materializes will drive economic growth. In addition, slow wage adaptation to changes in inflation as well as the government's willingness to increase real wages will reduce the real income of people who tend to save low and increase the real income of those who tend to save high. These conditions will contribute to growth.

CONCLUSION AND SUGGESTIONS

Based on the research analysis, they were carried out in 10 provinces on the island of Sumatra within nine years, namely 2012-2020. So, the conclusion obtained from this study is that from the three variables studied, namely Corruption, Financial deepening, and inflation, two variables affect economic growth: Financial deepening and inflation. At the same time, the variable corruption does not influence economic growth in Sumatra.

Corruption that occurs in Indonesia does not directly affect economic growth. However, it will affect and damage the institutional system first, to damage the movement of economic growth through decision-making policies. As for the condition of financial deepening, the excellent scheme of financial institutions in collecting public funds makes a region's economy better because the capital accumulation created is substantial and can support investment activities and regional development. Furthermore, the average inflation is generally only below 10 percent, which is still considered low inflation. However, inflation that shows a positive direction for economic growth reflects the government's continued dependence on revenue from investment financing expenditures and a wage lag that causes contraction in individual welfare.

From the results of this study, policies can be drawn to strengthen financial deepening through programs that attract depositors and control inflation by shifting the strong pull between inflation and unemployment. In addition, although corruption in this study does not significantly affect economic growth, it does not mean that corruption does not need attention. This insignificance must be re-proved with a different approach to clarify its position. This is because corruption can shake the economy if not managed. Therefore, the government needs to maintain opportunities for corruption, one of which is by gradually changing the service system to the e-government system.

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