The Effects of Regional Expenditure, Inflation, and Credit Interest Rate on the Domestic Investment in Sumatera Province, Indonesia

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Abstract: The economic growth in a certain region is unity by a national development plan based on the autonomy as implemented by the region and formulation of the national development resource that leads to the improvement of regional development performance for realising fair public welfare without any deception. Domestic investment is an indicator of success for development investment in the region. This research was associative quantitative to identify the effect of regional expenditure, inflation, and interest rate on domestic investment in ten provinces of Sumatera from 2010 to 2020. This research used panel data. Regional expenditure, inflation, and interest rate simultaneously affected domestic investment. Regional expenditure partially had positive and insignificant effects on domestic investment. Inflation had a negative effect without showing significance on domestic investment, while an interest rate partially had a negative effect by showing significance for domestic investment. The coefficient of determination shows that regional expenditure, inflation, and interest rate yielded 39.91% for domestic investment.

Keywords: regional expenditure; inflation; credit interest rate; domestic investment

1. Introduction

Economic growth in a nation is an indicator of success in viewing several economic sectors in regional development. It will indirectly show the change in the domestic economic level. Economic growth can be seen in the success of several existing economic sectors in the region, which describes the change in the regional economy. The most important aspect of the economic sector is based on the implementation of power or authority in the region. The policy affects the increase of performance in a region for making people prosperous. The success in implementing regional development can be measured through investment, including domestic investment. Domestic investment is a type of funding from within the country in which the investment itself is from Indonesian citizens (Aristeus, 2021).
Based on the article issued by Capital Investment Coordinating Board in 2020, in Quarter I of 2020, the percentage of the domestic investment was 53.5%, residue from previous investment, namely 46.5% for foreign investment. It indicates that domestic investment is still dominant, considering the investment amount. Besides, private or foreign and domestic investments is attempted to encourage economic activities with the spirit of the multiplier effect, capable of stimulating economic activity in regional sectors that lead to the work opportunity of the local community.

Sumatera, famous for its diversity of regional potency, plantations and industry, is still not yet capable of supporting investment that can affect the economic growth, as a result of the COVID-19 pandemic that leads to the investment problem in Quarter II of 2020 in Sumatera. The investment target that the National Development Planning Agency stipulated in 2020 for all regions in Sumatera was IDR 46.00 trillion. However, investment realisation for Sumatera in Quarter I of 2020 was only IDR 19.028 trillion. On the contrary, domestic investment in Quarter II of 2020 increased to IDR 5.881 trillion, from IDR 3.966 trillion in Quarter I of 2020 (Antara News, 2020). Implementation of the domestic investment from 2010 to 2020 in Sumatera Province is shown in Table 1.

**Table 1. Realisation of Domestic Investment in All Regions of Sumatera from 2010 to 2020.**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North Sumatera</td>
<td>0.66</td>
<td>1.67</td>
<td>2.55</td>
<td>5.06</td>
<td>4.22</td>
<td>4.28</td>
<td>4.864</td>
<td>11.68</td>
<td>8.37</td>
<td>14.70</td>
<td>18.37</td>
<td>76.424</td>
</tr>
<tr>
<td>Aceh</td>
<td>0.04</td>
<td>0.25</td>
<td>0.06</td>
<td>3.63</td>
<td>5.11</td>
<td>4.19</td>
<td>2.45</td>
<td>0.78</td>
<td>0.96</td>
<td>2.58</td>
<td>8.36</td>
<td>28.41</td>
</tr>
<tr>
<td>Riau</td>
<td>1.03</td>
<td>7.46</td>
<td>5.45</td>
<td>4.87</td>
<td>7.70</td>
<td>9.94</td>
<td>6.61</td>
<td>10.8</td>
<td>9.05</td>
<td>21.12</td>
<td>34.49</td>
<td>118.42</td>
</tr>
<tr>
<td>South Sumatera</td>
<td>1.73</td>
<td>1.06</td>
<td>2.93</td>
<td>3.39</td>
<td>7.04</td>
<td>10.94</td>
<td>8.53</td>
<td>8.20</td>
<td>9.51</td>
<td>11.30</td>
<td>16.03</td>
<td>80.66</td>
</tr>
<tr>
<td>West Sumatera</td>
<td>0.07</td>
<td>1.02</td>
<td>0.88</td>
<td>0.67</td>
<td>0.42</td>
<td>1.55</td>
<td>3.79</td>
<td>1.51</td>
<td>2.30</td>
<td>2.17</td>
<td>3.29</td>
<td>17.67</td>
</tr>
<tr>
<td>Jambi</td>
<td>0.22</td>
<td>2.13</td>
<td>1.44</td>
<td>2.79</td>
<td>0.90</td>
<td>3.54</td>
<td>3.88</td>
<td>3.00</td>
<td>2.87</td>
<td>3.27</td>
<td>3.57</td>
<td>27.61</td>
</tr>
<tr>
<td>Lampung</td>
<td>0.27</td>
<td>0.82</td>
<td>0.30</td>
<td>1.32</td>
<td>3.49</td>
<td>1.10</td>
<td>6.03</td>
<td>7.01</td>
<td>12.31</td>
<td>1.97</td>
<td>7.17</td>
<td>41.79</td>
</tr>
<tr>
<td>Kepri</td>
<td>0.16</td>
<td>1.37</td>
<td>0.04</td>
<td>0.41</td>
<td>0.02</td>
<td>0.61</td>
<td>0.49</td>
<td>0.19</td>
<td>4.38</td>
<td>4.61</td>
<td>14.47</td>
<td>27.95</td>
</tr>
<tr>
<td>Bangka Belitung</td>
<td>0.00</td>
<td>0.51</td>
<td>0.51</td>
<td>0.53</td>
<td>0.60</td>
<td>1.02</td>
<td>2.20</td>
<td>1.73</td>
<td>3.11</td>
<td>1.94</td>
<td>1.93</td>
<td>14.08</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>0.00</td>
<td>0.00</td>
<td>0.05</td>
<td>0.10</td>
<td>0.00</td>
<td>0.55</td>
<td>0.94</td>
<td>0.29</td>
<td>4.90</td>
<td>2.25</td>
<td>5.50</td>
<td>14.58</td>
</tr>
</tbody>
</table>

In ten years, the realisation of the domestic investment above had fluctuation. The realisation of the domestic investment was caused by several factors that made domestic investment optimal. In this research, the determinants can be viewed through regional expenditure, inflation, and credit interest rate. Regional expenditure is an expenditure in the region from the regional general treasury to limit the current fund equity. Regional expenditure is also an obligation of local government expenditure in a fiscal year. Investment planning should be based on the amount of regional expenditure to spend to improve the climate for investing money, so the investment per project does not bring any loss or effect to the local economic growth. Thus, in other words, regional expenditure is closely related to domestic investment in positive terms. The increase in regional expenditure will improve the investment itself, while the increase in investment will improve the economic growth in that region (Iqbal et al., 2020). The following information from the Local Government Financial Statement, the realisation of income and expenditure, the average annual budget was increased, with the average below a budget as stipulated in ten provinces of Sumatera.

Inflation is a phase in which price tends to increase without any decrease sustainably. During the COVID-19 pandemic, the decrease of inflation is on the government's orders that issue the policy of Large-Scale Social Restrictions during high COVID-19 transmission. A decrease in inflation will increase the local revenue. If local revenue increases, the economic growth will also increase, along with the contribution of domestic investment (Tajuddin, 2021). Thus, inflation has a negative effect on domestic investment in a nation. Based on information from the Central Bureau of Statistics in Province/Regency/City in ten provinces of Sumatera, there was a fluctuation from 2010 to 2020. It is known that a high-interest rate affects the company's present value, which makes investment in a country not interesting. The high-interest rate also leads to capital costs that the company must bear. Besides, a high-interest rate means that the return given by investors will be high or various. On the contrary, a low-interest rate affects the investor because bank credit seems advantageous for an investment, so the investment is from within the country. Ermita et al. (2013) state that investment decreases when the interest rate increases. When the interest rate decreases,
investment increases because of the decrease in investment cost itself. On the basis of credit interest rate development data from the Local Government Bank in all Sumatera Provinces from 2010 to 2020, all ten provinces in Sumatera had a credit interest rate that was the same every year.

In 2010, there was the highest interest rate for the 2010-2020 period, namely 13.37%. Meanwhile, the lowest rate was in 2020, namely 10.70%. From 2010 to 2020, the credit interest rate also fluctuated in ten provinces of Sumatera, Indonesia. This study aims to analyse the effect of regional expenditure, inflation, and credit interest rate on domestic investment.

2. Literature Review

2.1. Domestic Investment

On the basis of the Article 1 Verse 2, Law No. 25 the Year 2007 concerning investment, it is stated that domestic investment is an activity to invest a certain amount of capital in a business of The Unitary State of the Republic of Indonesia by a person from The Unitary State of the Republic of Indonesia or in other words Indonesian Citizen. Domestic investment can be used by the government, and local government, for the development of several projects in the region. Domestic investment hires as many local labourers as possible, minimises the excessive state foreign exchange, and positively affects the domestic industry, regardless of the dependence on the foreign product. Objectives of domestic investment are as follows: Profit and benefit in local tax and so on serve to get the return on investment or higher return in the country and, most importantly, to draw the flow of domestic investment. The use of domestic investment Mentari (2021) is for 1) state foreign exchange saving; 2) reduction on foreign product consumption; 3) encouragement for the success of domestic industry; and 4) contribution in opening the work opportunity, particularly in a region where money is invested.

2.2. Regional Expenditure

Regional expenditure is an annual obligation spent by the government of the Regency/City to reduce the government's net wealth. Regional expenditure is designed to fund the implementation of affairs in the local government of the regency/city. Implementation of local governance also belongs to their authority. The effect of regional expenditure on economic development is the increased productivity and people's capability to provide various output that leads to the output of regional aggregate. As the effect of regional expenditure on poverty through social development, a fiscal-based policy can be distributed to solve the social development or eradication of poverty in a region. If the regional expenditure is low, it will lead to difficulty in solving poverty (Amalia, 2017).

2.3. Relevance between regional expenditure and domestic investment

As stated by Harrod Domar, investment is important in supporting economic growth (Milbourne et al., 2003). This investment is like a domestic investment. Presumably, when investment is higher, economic growth will be faster. Thus, it is important to plan investment in detail through synchronisation or based on the amount of regional expenditure to spend, thus improving the climate to invest their money or preventing from directly investing their money on a disadvantageous project. Thus, in other words, regional expenditure is closely related to domestic investment in positive terms. The increasing regional expenditure will increase the investment itself, while the increase in investment will improve the economic growth in that region.

Hypothesis 1 (H1): Regional expenditure positively and significantly affects domestic investment.

2.4. Inflation

Inflation is identical to a tendency of the sustainably increasing price (Latumaerissa, 2011). At the same time, the inflation increase includes several goods in the market. As the result of increased demand for goods or cost to produce the goods, it can be confirmed that the price of raw materials and labour wage in a company will increase. The effect of inflation on the economy is to encourage the expenditure and less purchasing power as a trigger of economic growth and wealth distribution.

2.5. Relevance between inflation and domestic investment

Inflation is the most worrying concern for the economic agent, including the government, for bringing bad and negative effects to the prosperity. In the event of a price increase, common prices increase unreasonably, which affects the goods production process. In other words, if inflation decreases, it will...
increase the local revenue. If local revenue increases, the economic growth will also increase, along with the contribution of the domestic investment increase. It can be concluded that inflation negatively affects domestic investment.

Hypothesis 2 (H2): Inflation negatively and significantly affects domestic investment.

2.6. Credit Interest Rate

A credit interest rate is a compensation for the loan (Firdaus & Endri, 2020). Interest rate is a consideration for the debtor in finding the right loan. A decrease in the credit interest rate will reduce the credit interest rate of the commercial bank, while the credit interest rate will decrease yearly. This decrease affects the inflow of capital to Indonesia. Factors affecting interest rate are the need for the fund in the bank with fund deficit, competition in obtaining the saving fund, government policy concerning the interest rate itself, profit price to earn, period, assurance quality, company reputation, assurance of party, and request for a loan in the banking.

2.7. Relevance between credit interest rate and domestic investment

Investment is performed by considering the interest rate. If the return is lower than the interest rate, the investment will not earn a profit. The previously planned investment is certainly cancelled (Sari and Baskara, 2018: 13). Thus, if the credit interest rate increases, the domestic investment will decrease, and vice versa. Ernita (2013) stated the investment would decrease if the interest rate increases, and vice versa.

Hypothesis 3 (H3): The interest rate negatively affects domestic investment.

3. Materials and Methods

Research objects were regional expenditure, inflation, and interest rate effects on domestic investment. The use of data in this research was in panel data for 2010-2020 period in ten provinces of Sumatera, namely North Sumatera, Aceh, Bengkulu, Bangka Belitung, Jambi, Riau, Lampung, West Sumatera, and South Sumatera. The research used the panel data (Quarters I, II, and III) for 11 years, while this research was from ten regions. Data of this research were collected through the Central Bureau of Statistics, Finance Investigating Body, and Agency for Management of Regional Finance and Asset in all provinces in Sumatera in panel data about the realisation of domestic investment, regional expenditure, inflation, and credit interest rate concerning realisation data of 10 (ten) provinces in Sumatera. This research used the regression analysis of panel data from 2010 to 2020 from ten provinces in Sumatera. The econometric model of panel data regression as seen in Equation 1 below:

\[ DINV_{it} = \alpha + \beta_1 REXP_{it} + \beta_2 INFL_{it} + \beta_3 CIR_{it} + \varepsilon_{it} \]  

(1)

Where \( DINV \) is a domestic investment, \( \alpha \) is constant, \( REXP_{it} \) is regional expenditure; \( INFL_{it} \) is Inflation, \( CIR_{it} \) is the credit interest rate, \( \beta_1, \beta_2, \beta_3 \) is regression coefficients and \( \varepsilon_{it} \) is error term or disturbance terms.

In addition, there are three models, namely Common Effect Model (CEM); Fixed Effect Model (FEM) and Random Effect Model (REM). Chow Test examines whether the parameters of one group of the data
are equal to those of other groups. Simply put, the test checks whether the data can be pooled. If only intercepts are different across groups, this is a fixed effect model, which is simple to handle.

\[ H_0: \text{CEM is the best model that should be chosen} \]
\[ H_1: \text{FEM is the best model that should be chosen} \]

Hausman test aims to detect the endogenous regressors (predictor variables) in a regression model. Endogenous variables have values that are determined by other variables in the system. Having endogenous regressors in a model will cause ordinary least squares estimators to fail, as one of the assumptions of OLS is that there is no correlation between a predictor variable and the error term. Instrumental variables estimators can be used as an alternative in this case. However, before deciding on the best regression method, you must first figure out if your predictor variables are endogenous.

\[ H_0: \text{REM is the best model that should be chosen} \]
\[ H_1: \text{FEM is the best model that should be chosen} \]

LM test, commonly referred to as Lagrange Multiplier Test, is an analysis performed to determine the best method in panel data regression, whether to use common effect or random effect.

\[ H_0: \text{CEM is the best model that should be chosen} \]
\[ H_1: \text{REM is the best model that should be chosen} \]

Also, hypothesis testing will be used t-test. It aims to partially test the effect of capital expenditure, inflation, and credit interest rate on domestic investment. Meanwhile, F test aims to simultaneously test the effect of capital expenditure, inflation, and credit interest rate on domestic investment. The coefficient of determination can be viewed from the R square value. When R2 is almost 0, the relationship between the independent and bound variables gets weaker. When R2 is almost 1, the relationship between the two variables increases.

4. Results

Before embarking on the hypothesis test, this study conducts the three important tests to determine the best panel data regression model, namely common (CEM), random effect model (REM) and fixed effect model (FEM). The result of the Chow test is seen in Table 2 below:

**Table 2. Result of Chow test**

<table>
<thead>
<tr>
<th>Effect test</th>
<th>Statistic</th>
<th>df.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>9.442</td>
<td>9.97</td>
<td>0.000</td>
</tr>
<tr>
<td>Cross-section Chi Square</td>
<td>69.210</td>
<td>9</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2 shows the result of the Chow test. The result indicated that the statistic value of cross-section F is 9.442, the degree of freedom (df) is 9.97 and significant at the level 1 percent or 0.000. Also, the statistic value of cross-section chi-square is 69.210, df is 9 and significant at 1 percent or 0.000. It means that between the common model (CEM) and fixed effect model (FEM), FEM is the best model. However, if FEM is chosen, we are required to test the random effect model (REM) using the Hausman test. The result of the Hausman test can be seen in Table 3 below:

**Table 3. Result of Hausman test**

<table>
<thead>
<tr>
<th>Test summary</th>
<th>Chi-square statistic</th>
<th>Chi-square df.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>1.071</td>
<td>3</td>
<td>0.784</td>
</tr>
</tbody>
</table>

Table 3 displays the result of the Hausman test that aims to choose the best model between FEM and REM. The result indicates that the Chi-square statistic of cross-section random is 1.071, Chi-square df is 3, and the probability value is higher than 0.05 (0.784). Thus, we can conclude that REM is the best model. Further analysis is required to determine the best model between CEM and REM with the Lagrange Multiplier test.

Table 4 captures the result of the Lagrange Multiplier test to determine the best model between CEM and Rem. The result indicated that the cross-section value of Breush-Pagan is 87.501 and significant at the
level 1 percent or 0.000. For the time test hypothesis, the Breush-Pagan test is 9.97, and the significant value is higher than 5 percent or 0.300. The value of Breush-Pagan test for both (cross-section and time) is 88.571 and significant at 1 percent or 0.000. It means that REM is the model.

### Table 4. Result of Lagrange Multiplier test

<table>
<thead>
<tr>
<th>Test name</th>
<th>Test hypothesis</th>
<th>Cross-section</th>
<th>Time</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breush-Pagan</td>
<td>87.501</td>
<td>9.97</td>
<td>88.574</td>
<td></td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.300)</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Further, we report the result of panel data regression using REM. The panel REM analysis can be in Table 5 as below:

### Table 5. Result of panel data analysis using random effect model (REM)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. error</th>
<th>t-statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>40.017</td>
<td>5.187</td>
<td>7.714</td>
<td>0.000</td>
</tr>
<tr>
<td>REXP</td>
<td>1.39E-14</td>
<td>1.38E-14</td>
<td>1.004</td>
<td>0.317</td>
</tr>
<tr>
<td>INFL</td>
<td>-0.031</td>
<td>0.145</td>
<td>-0.219</td>
<td>0.826</td>
</tr>
<tr>
<td>CIR</td>
<td>-2.901</td>
<td>0.433</td>
<td>-6.696</td>
<td>0.000</td>
</tr>
</tbody>
</table>

R-square 0.415, Adjusted R-square 0.399, S.E. of regression 3.305, F-statistic 25.135

Dependent variable: Domestic investment (DINV)

Table 5 shows the result of panel data analysis using the random effect model (REM). The result indicated that the value of coefficient determination is 0.415. The independent variables (REXP, INFL and CIR) used in this study explain their relationship with the dependent variable (DINV) is 41.5 percent.

### 5. Discussion

This study found that regional expenditure does not significantly affect domestic investment. The study findings contradicted Adams (2009), which found that government expenditure positively and significantly affects domestic investment. Gisore et al. (2014) found that government expenditure positively and significantly affected economic growth. Meanwhile, this research is supported by a research conducted by Soekapdjo et al. (2020), which stated that the domestic investment variable did not have any effect on the economic growth in East Java. Keynes stated that in which role of investment or capital formation, in theory, is ignored. Keynes stated that fiscal policy could affect the economy (Arestis & Sawyer, 2003). However, Harrod stated that capital formation as an expenditure could improve the economic capability to produce goods and increase people's demand (Davidson, 1968).

Also, this study found that inflation does not significantly affect domestic investment. Utami et al. (2015) supported the findings that the inflation variable negatively and insignificantly affected investment in Indonesia. Tajuddin (2021) found that domestic investment negatively and insignificantly affected economic growth when investors' climate is not yet stable, marked by low public service and a lack of region to encourage business. Thus, it means that inflation negatively and insignificantly affects domestic investment. If a region's inflation increases, it will reduce the local revenue, lead to imbalance of people's income, and reduce economic growth.

Credit Interest Rate partially, negatively, and significantly affected domestic investment. It is in line with research by Nasution & Siregar (2020), which shows that credit interest rate significantly affects domestic investment. If the credit interest rate increases, the domestic investment will decrease, and vice
versa. Thus, the credit interest rate negatively affects domestic investment. This statement is supported by Ernst et al. (2013), who stated if the interest rate increases, the investment will decrease and vice versa.

This research shows that $F_{table} = 2.30$, and the value of $F_{count}$ was 25.13. Because $F_{count} > F_{table}$ was 25.13 > 2.30, it can be concluded that regional expenditure, inflation, and interest rate simultaneously affected domestic investment. The value of Adjusted R-Square was 0.3991. Regional expenditure, inflation, and interest rate accounted for 39.91% of domestic investment. The rest, 60.09%, was affected by other variables. Harrod stated new investment as capital stock, like a domestic investment. The increasing investment will accelerate economic growth. However, economic growth depends on the productivity rate of the investment (Colecchia & Schreyer, 2002). Therefore, it is important to plan investment in detail through synchronization or based on the amount of regional expenditure to spend, thus improving the climate to invest money or preventing from directly investing money in the disadvantageous project. The increasing regional expenditure will increase the investment itself, while the increase in investment will improve the economic growth in that region.

If inflation decreases, the local revenue will increase. If local revenue increases, the economic growth will also increase, along with the contribution of the domestic investment increase. Thus, inflation negatively affects domestic investment. Investment considers the interest rate. When the return is lower than the interest rate, the investment does not bring gain or profit, so the investment does not occur at all (Krugman, 1999). If the credit interest rate increases, the domestic investment will decrease, and vice versa. Thus, the credit interest rate negatively affects domestic investment. Government should make policies to support domestic investment. Academicians should add new variables so that the next research can be improved and have various results. Investors can use variables of regional expenditure, inflation, and interest rate as consideration to investing their money carefully towards the information in domestic investment.

6. Conclusion

In conclusion, this study identified that the regional expenditure, inflation, and interest rate simultaneously and significantly affect domestic investment in all Sumatera provinces from 2010 to 2020. Partially, regional expenditure positively and insignificantly affects domestic investment. Inflation negatively and insignificantly affects domestic investment in all Sumatera provinces from 2010 to 2020. Partially, interest rate negatively and significantly affects domestic investment.


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