



## The Effect of Economic Factors on Property Crime Rates

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### Abstract

*This research is motivated because the number of property crimes on the island of Sumatera is the highest in Indonesia during the 2014-2019 period. This study aims to examine the economic factors that influence property crime on the island of Sumatera. The type of data used is secondary data. The type of data used is panel data which is a combination of cross-section data from 10 provinces on the island of Sumatera and time series data for 2014-2019. The analytical method used is panel data regression analysis. The best model chosen is the Fixed Effect Model (FEM). The results of this study indicate that GRDP growth and unemployment have no significant effect, while poverty, income inequality, and per capita expenditure have a significant positive effect on property crime. The value of  $R^2$  is 0.9521, meaning that the independent variable can explain the dependent variable by 95.21%.*

**Keywords:** *Property Crime, GRDP, Unemployment, Poverty, Income Inequality*

### Abstrak

Penelitian ini dilatarbelakangi karena jumlah kejahatan harta benda di Pulau Sumatera terbanyak di Indonesia selama periode 2014-2019. Penelitian ini bertujuan untuk meneliti faktor-faktor ekonomi yang mempengaruhi kejahatan harta benda di Pulau Sumatera. Jenis data yang digunakan adalah data sekunder. Tipe data yang digunakan adalah data panel yang merupakan kombinasi data cross section 10 Provinsi di Pulau Sumatera dan data time series tahun 2014-2019. Metode analisis yang digunakan adalah analisis regresi data panel. Model terbaik yang terpilih adalah Fixed Effect Model (FEM). Hasil penelitian ini menunjukkan bahwa Pertumbuhan PDRB dan pengangguran tidak berpengaruh signifikan, sedangkan kemiskinan, ketimpangan pendapatan dan pengeluaran per kapita berpengaruh positif signifikan terhadap kejahatan harta benda. Nilai  $R^2$  sebesar 0,9521, artinya variabel independen dapat menjelaskan variabel dependen sebesar 95,21%.

**Kata Kunci:** *Kejahatan Harta Benda, PDRB, Pengangguran, Kemiskinan, Ketimpangan Pendapatan*

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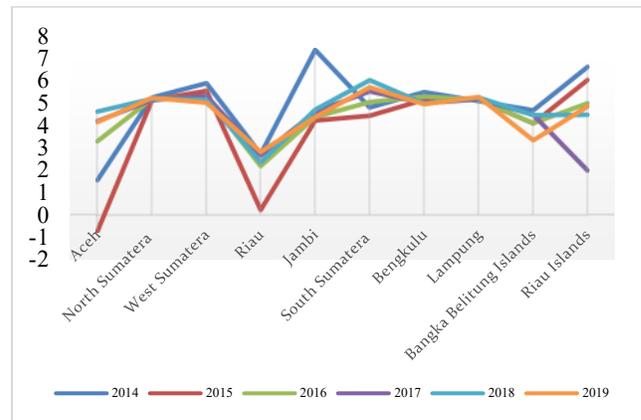
## INTRODUCTION

The development process is increasingly rapid where the industrialization process and information are included, both directly and indirectly involved in the change process, so that humans are required to survive in that era (Sugiarti, 2014). Along with the development process, there is a lot of fierce competition among the people, especially competition in the economic field. In this era of competition, it appears that in fact many kinds of crimes are often committed by people with the excuse of meeting economic needs or just to improve their lifestyle.

Crime in Indonesia during the 2014-2019 period fluctuated, in 2015-2016 it increased and in 2017-2019 experienced a declining trend. However, based on Numbeo, Southeastern Asia: Crime index by country this downward trend is not matched by the trend position of Indonesia's crime index ranking in Southeast Asia. Property crimes during the 2014-2019 period became the category of crime with the highest number. Over the last six years, the average property crime has reached 35.62% of the total crime cases in Indonesia (BPS, 2020).

Sumatera Island during the 2014-2019 period became the island with the highest cases of crimes against property rights or goods in Indonesia. For six consecutive years, this category of crimes on the island of Sumatera reached an average of 40.39% of the total cases of crimes against property rights or property. The causes of crime according to (Abdulsyani, 1987) are caused by internal factors (the special nature and general nature of each individual) and external factors, external factors that influence include legal, social, religious, reading, and film factors, as well as economic factors. The settlement of criminal

acts is an indicator that is considered from a legal perspective. In addition to paying attention to the law, it is also necessary to pay attention to the causes of the crime rate from an economic perspective, such as economic growth and economic development.



**Figure 1.** GRDP Growth of 10 Provinces in Sumatera Island 2014-2019 (Percent)

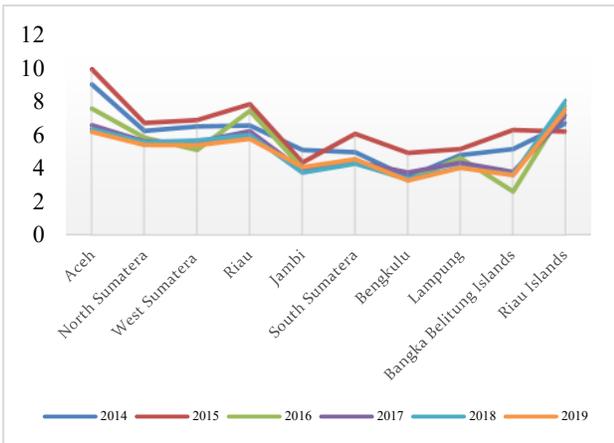
Source: BPS Indonesia, 2020

During 2014-2019 Sumatera Island became the second-best contributor after Java Island as the largest GRDP contributor to Indonesia's GDP, during that year the average GRDP contribution of Sumatera Island to Indonesia's GDP was 21.47%. the second largest during the 2014-2019 period, this situation is still accompanied by the highest number of crimes in Indonesia. GRDP can describe the income of the legal sector, according to Ehrlich (1996) the income of the legal sector is one of the factors that influence the supply of crime.

In addition to GRDP growth, unemployment can also have an impact on the level of property crime because unemployment causes an individual to have no income while each individual must continue to meet their basic needs to survive. Becker, (1968) states that "In the economics of crime, individuals who commit

criminal acts tend to be caused by financial factors to get profits easily and quickly compared to doing legal work or working in the formal sector without considering the losses caused by these behaviors. "

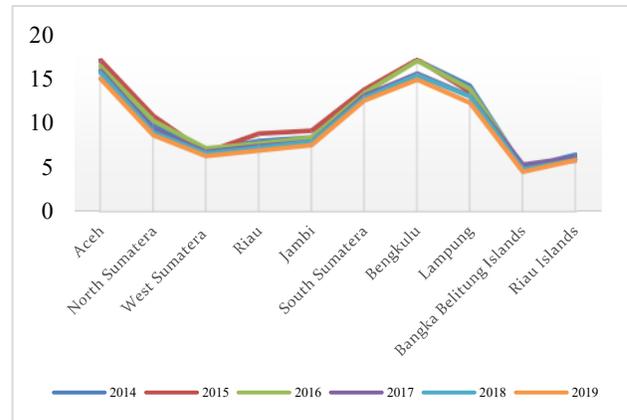
robbery are illegal methods that still often occur, this crime is one of the problems caused by reasons to meet their economic needs.



**Figure 2.** Unemployment Rate of 10 Provinces in Sumatera Island 2014-2019 (Percent)  
Source: BPS Indonesia, 2020

During the 2014-2019 period, the open unemployment rate on the island of Sumatera reached an average of 5.36%, this figure is lower than the islands of Java and Papua, which have less property crime rates than Sumatera. In addition, the unemployment rate on the island of Sumatera is also below the national unemployment rate of 0.18%. However, the position of Sumatera Island is still the island with the highest number of property crimes.

Todotua (2016) states that the poorer a person is, the farther his reach is to get facilities that can prosper the population. This tends to be unable to provide proper education, with low levels of education and weak knowledge of the law, this has a great opportunity to commit crimes. In addition, poverty triggers a person to seek additional income legally and even illegally. Incidents of theft, pickpocketing, looting,



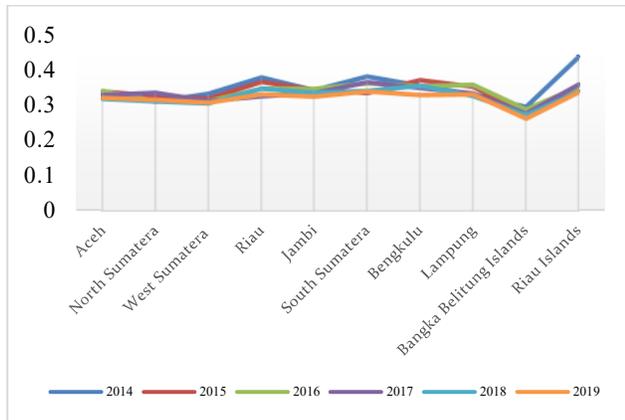
**Figure 3.** Poverty Rate of 10 Provinces in Sumatera Island 2014-2019  
Source: BPS Indonesia, 2020

The average poor population for the 2014-2019 period on the island of Sumatera was 21.79% or the equivalent of 6,042,530 people, with this number Sumatera Island for six years became the island with the second largest number of poor people after Java. Java Island has the highest poverty rate compared to Sumatera Island. However, the number of property crime cases in Java is lower than in Sumatera.

Sumatera Island is the island with the second most poor population after Java and the second largest contributor to gross domestic product. The high rate of GRDP growth followed by a high rate of poverty indicates inequality in income distribution. According to Todaro & Smith (1997).

Figure 4 shows that there are still disparities between provinces on the island of Sumatera during the 2014-2019 period. The Province of the Bangka Belitung Islands became the province with the lowest average inequality level of 0.278 while the Riau Islands province with an inequality

level of 0.36 became the province with the highest average inequality during that period. Becker's theory (1968) that crime occurs because of the expected utility, an increase in the relative income of the rich compared to the poor will make the distribution of income more unequal (occurs gap) and will increase the crime rate.



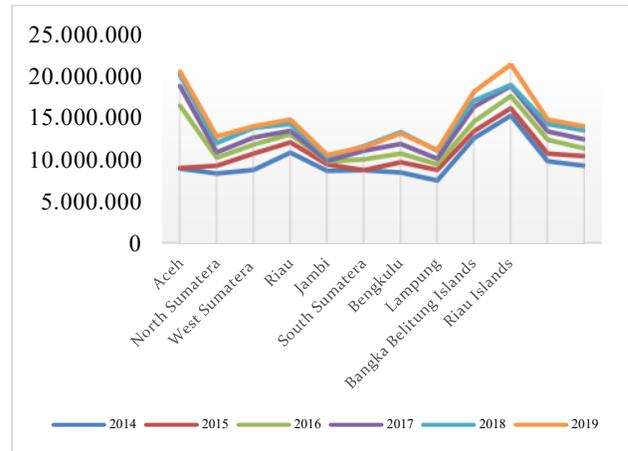
**Figure 4.** Gini Ratio of 10 Provinces in Sumatera Island 2014-2019 (Percent)

Source: BPS Indonesia, 2020

Increases the expectation that someone with a lower income earns more than someone with a higher income. In addition, it is also supported by Becker's economic function regarding the supply of offense, in this function, it is explained that legal sector income is a consideration for someone to commit an offense or crime, and low income causes someone to look for other additions, both legally and illegally.

In addition to high unemployment, poverty, and inequality that can trigger crime, high household spending can also trigger criminal acts. Per capita expenditure in Sumatera during the 2014-2019 period was above the average per capita expenditure in Indonesia. In fact, the difference between the income and expenditure of the respondent's household is negative (deficit), so in financing the expenditure and investment a loan is needed (debt), so some

households are in debt, and some lend money (receivables). So apart from savings, income from work sources of funds can come from loans (BPS, 2020).



**Figure 5.** Expenditures Per Capita 10 Provinces in Sumatera Island 2014-2019 (Percent)

Source: BPS Indonesia, 2020

The Modigliani life cycle hypothesis finds that income varies and can be predicted over the course of a person's life and consumers use savings and loans to smooth consumption over their lifetimes (Mankiw, 2003). The attachment of a person to a loan (debt) can lead to illegal acts. Stealing is one way that is considered easy to get money and repay debts and fulfill economic needs (Pitra, 2019).

Expenditures that exceed receipts and savings make a person need a loan to fulfill it, the loan must be returned because it is an obligation. However, if the income is fixed then someone must look for additional work, it is not uncommon for people who are involved in debt to cover their expenses to do work illegal such as theft, robbery, and beheading.

Economic factors are external factors that really need to be considered in relation to the level of property crime. Such as increasing economic growth which is expected to also

increase people's income which can reduce the level of property crime. High unemployment, poverty, and inequalities can trigger a person to get money or property that is useful to meet the basic needs of his life, as well as an imbalance between expenditure and revenue (income) that causes a budget deficit in the household can also trigger property crimes objects to cover the value of the deficit.

Everyone has a different background which triggers them to commit property crimes. The aim of the research is to analyze the influence of economic factors on the level of property crime on the island of Sumatera.

**RESEARCH METHODS**

This type of research is a quantitative descriptive study, using panel data, which is a combination of data time series annual, from 2014 to 2019 and data cross-section from 10 provinces on the island of Sumatera. Data on GRDP growth, unemployment, poverty, Gini ratio, income inequality, per capita expenditure and the number of crimes against in 10 Provinces on Sumatera Island use data released by the Central Statistics Agency.

The data analysis method used in this study is to describe the factors that influence the problems that are used to support the results of panel data regression. The object studied is in this study the variables used to consist of the dependent variable and the independent variable.

The dependent variable (Y) is property crime and the independent variable (X) consists of GRDP growth, unemployment, poverty, income inequality, and per capita expenditure. This research was conducted in 10 provinces on the island of Sumatera. The type of data used is

secondary data which is panel data. Panel data is a combination of cross-section data and time series data.

The model used to determine the effect of the independent variable on the dependent variable in this study uses the logarithmic model (Log). This research model before using the logarithmic model (Log). The logarithmic model (Log) has the advantage that it is to equalize units and minimizes the possibility of heteroscedasticity because the transformation that places the variable measurement scale and the slope coefficient  $i$  can directly show the elasticity of  $Y$  to  $X_i$ , namely the percentage change in  $Y$  due to the percentage change in  $X_i$  (Gujarati, 2012) After using the logarithmic model (Log), the model in this study is as follows:

$$\text{LogCrime}_{it} = \beta_0 + \beta_1 \text{GRDP}_{it} + \beta_2 \text{Unemployment}_{it} + \beta_3 \text{Poor}_{it} + \beta_4 \text{Gr}_{it} + \beta_5 \text{Expenditure}_{it} + e_{it} \dots \dots \dots (1)$$

Information:

- LogCrime = The logarithm of Property Crime
- $\beta_0$  = Constanta
- $\beta_1 \text{GRDP}$  = Growth Gross Regional Domestic Product
- $\beta_2 \text{Unemployment}$  = Unemployment
- $\beta_3 \text{Poor}$  = Poverty
- $\beta_4 \text{GR}$  = Gini Ratio
- $\beta_5 \text{Expenditure}$  = Per Capita Expenditure
- $e$  = Error
- $i$  = Provincial cross-section data in Sumatera Island
- $t$  = Time series 2014-2019

Used is secondary data, so to meet the requirements determined before testing the hypothesis through the t-test and F test, it is necessary to test the classical assumptions. Where the classical assumption test consists of a

normality test, autocorrelation test, multicollinearity test, and heteroscedasticity test. In this study, the classical assumption test has been carried out, the results show that the model is normally distributed and free from autocorrelation, multicollinearity, and heteroscedasticity.

In the panel data, there are three models, namely the model common effect, the fixed-effect model, and the random effect model. There are several methods for choosing the best model on panel data, namely the Chow test, Hausman test, and LM test.

## RESULTS AND DISCUSSION

To estimate the effect of GRDP growth, unemployment, poverty, income inequality, and per capita expenditure on property crime, it is necessary to select the best model to be chosen in this study. Based on the test results from the chow test showed Prob. Chi-square < alpha 10% means that the best model between FEM and CEM is FEM (fixed effect model).

**Table 1.** Estimated Results of Fixed Effect Model

Variable	Coefficient	Prob.
Constanta	4.739900	0.0000
GRDP	-0.050413	0.2065
Unemployment	0.006130	0.8906
Poor	0.156932	0.0126
GR	3.608282	0.0676
Expenditure	0.007362	0.0652
R <sub>2</sub>	0.952117	
Adjusted R <sub>2</sub>	0.937220	

Source: E-Views 9.0 output results

After performing the Chow test, the Hausman test was conducted to select the best model between the fixed effect model and the random effect model. The test results from the

Hausman test obtained a prob alpha value of < 10%, meaning that the best model between FEM and REM is FEM (fixed effect model).

Based on the Chow test and Hausman test, the best model chosen is the fixed effect model and Table 1 is the fixed effect model. Based on the table above shows the estimation results of the fixed effects model with the regression coefficient values obtained for each research variable as follows:

$$\text{LogCrime} = 4,739900 - 0,050413\text{GRDP}_{it} + 0,006130\text{Unemployment}_{it} + 0,156932\text{Poor}_{it} + 3,608282\text{GR}_{it} + 0,007362\text{Expenditure}_{it} + e_{it}\dots\dots(2)$$

The FEM estimation results in table 1 show that the regression coefficient value for the GRDP growth variable shows a negative value of 0.050413 and a probability value of 0.2065 > 0.1 or not significant at the 10% alpha level. This shows that every 1% increase in the percentage of GRDP will increase property crime cases by 0.05% with the assumption of ceteris paribus. However, statistically, the GRDP growth variable is not significant, meaning that if there is an increase in GRDP growth, it will not reduce property crime cases.

The results of the study are not in accordance with Ehrlich's theory which reveals that the supply of crime is formed because of the average wage in the legal sector. If GRDP growth increases it will increase the average legal sector wages which can reduce illegal acts. Apart from not being in line with Ehrlich's theory, this research is also not in line with Becker's theory, high GRDP growth should be able to reduce the expected utility expected (benefit) of an individual participating in criminal/illegal acts if the expected utility is obtained from income by using time and resources. others for legal

activities greater than the expected utility obtained by using the time and resources for activities illegal, there will be a decrease in the crime rate.

The results of this study also disagree with several recent studies including the research of Purwanti & Widyaningsih (2019) and Kathena & Sheefeni, (2017) The GRDP variable has no effect on property crime supported by research conducted by Arathya, (2018) and Khairani & Ariesa (2019) according to him, a high amount of GRDP has not been able to become a measure of welfare, based on the RPJMN in this research period, the GRDP growth of 10 Provinces on the island of Sumatera on average is not in accordance with the target of achieving GRDP growth that has been determined (Bappenas, 2015), this could be wrong. one cause of the insignificant influence of GRDP on property crimes on the island of Sumatera.

The FEM estimation results in table 1 the regression coefficient value for the unemployment variable shows a positive value of 0.006130 and a probability value of 0.8906 > 0.1 or not significant at the 10% alpha level. This result shows that every 1% increase in the percentage of unemployment will increase property crime cases by 0.006% with the assumption of *ceteris paribus*. However, statistically, the unemployment variable is not significant, meaning that if there is an increase in unemployment it will not increase cases of property crime.

The results of the study are not in accordance with Becker's theory, according to him unemployment will have an impact on the level of property crime because unemployment causes an individual to not earn while each individual must continue to meet their basic

needs to survive. Then this research is also different from the results of the latest research conducted by Fauziah (2019).

Previous research that is in line with this research is research conducted by Audey (2017), Hardianto (2009) Rahman & Prasetyo, (2018) unemployment in Indonesia has no effect. Crime can occur for several reasons, the unemployed have more free time, and they are more choose to wait for a permanent job or work part-time to earn a living even though the income is small, the government also provides the Family Hope Program (PKH), as well as the Kube program (Joint Business Group).

The regression coefficient value for the poverty variable shows a positive value of 0.156932 and a probability value of 0.0126 < 0.1 or significant at the 10% alpha level. This shows that every 1% increase in the percentage of poverty will increase cases of crimes against property rights or property by 0.16% with the assumption of *ceteris paribus*.

Based on the results of the study, according to the theory. This is also explained in the theoretical model built by Chiu & Madden (1998) which found a relationship between worsening poverty conditions or the sense that increasing poverty led to an increase in crime, especially in robbery. Poverty has a positive effect on the number of property crimes, also according to research conducted by Dulkiah & Nurjanah, (2018) and Fachrurrozi et al., (2021).

The regression coefficient value for the income inequality variable shows a positive value of 3.608282 and a probability value of 0.0676 < 0.1 or significant at the 10% alpha level. This shows that every 1% increase in the percentage of income inequality will increase cases of crimes against property rights or property by 3.6% with

the assumption of *ceteris paribus*. The results of this study according to Becker's (1968) theory that crime occurs because of expected utility, an increase in the relative income of the rich compared to the poor will make the distribution of income more unequal (there is a gap) and will increase the crime rate. Increases the expectation that someone with a lower income earns more than someone with a higher income.

It is also supported by the economic function Becker about the supply of offense (SpecialOffenses), in the function explained that the legal sector revenues into consideration a person to commit an offense or crime. This study also agrees with the research conducted by Hendri (2014) research of Wu & Wu (2012) In his research explains that income inequality has a significant positive effect on crime.

The regression coefficient value for the expenditure variable per capita shows a positive value of 0.007362 and a probability value of  $0.0652 < 0.1$  or significant at the 10% alpha level. This shows that every 1% increase in the percentage of per capita expenditure will increase cases of crimes against property rights or property by 0.007% with the assumption of *ceteris paribus*.

The results of this study are not in line with the latest research conducted by Ervina (2020) in his research that the income per capita variable has a significant negative effect on the number of crimes. However, based on information from the Central Statistics Agency, it is not uncommon for residents to have higher levels of expenditure than their income, resulting in a household budget deficit, so the results of this study are in accordance with Modigliani's hypothesis and the research conducted by Pitra (2019).

The theory from Modigliani found that income varies and can be predicted over the

course of a person's life and consumers use savings and loans to even out consumption over their lifetime. A person is bound by a loan (debt), while debt can trigger unlawful acts.

## CONCLUSION

The GRDP growth variable has a negative but not significant effect on the number of property crimes on Sumatera Island in 2014-2019 with the assumption of *ceteris paribus*. The unemployment variable has a positive but not significant effect on the number of property crimes on the island of Sumatera in 2014-2019 with the assumption of *ceteris paribus*. The poverty variable has a significant positive effect on property crimes on the island of Sumatera in 2014-2019 with the assumption of *ceteris paribus*.

The income inequality variable has a significant positive effect on property crimes on the island of Sumatera from 2014-2019. Sumatera 2014-2019 with the assumption of *ceteris paribus*. The per capita expenditure variable has a significant positive effect on property crimes on the island of Sumatera in 2014-2019 with the assumption of *ceteris paribus*.

## REFERENCES

- Abdulsyani. (1987). [*Sosiologi Kriminalitas*]. Remaja Rosda Karya.
- Aranthya, P. D., Prihanto, P. H., & Parmadi, P. (2018). [Analisis Faktor-Faktor yang Mempengaruhi Tingkat Kriminalitas Pada Kabupaten/Kota di Provinsi Jambi (Suatu Pendekatan Ekonomi)]. *e-Jurnal Ekonomi Sumberdaya dan Lingkungan*, 7(2), 68-82.
- Audey, R. P., & Ariusni, A. (2019). [Pengaruh Kualitas Sumber Daya Manusia Terhadap Tingkat Kriminalitas di Indonesia]. *Jurnal Kajian Ekonomi Dan Pembangunan*, 1(2), 653-666.
- BPS. (2020). Jakarta: Badan Pusat Statistik Republik Indonesia.
- Becker, G. S. (1968). Crime and Punishment: An Economic Approach. In *The Economic Dimensions of Crime*. (pp. 13-68). Palgrave Macmillan, London.

- Chiu, W. H., & Madden, P. (1998). Burglary and income inequality. *Journal of Public Economics*, 69(1), 123-141. [https://doi.org/10.1016/S0047-2727\(97\)00096-0](https://doi.org/10.1016/S0047-2727(97)00096-0)
- Dulkiah, M., & Nurjanah. (2018). [Pengaruh Kemiskinan Terhadap Tingkat Tindak Kriminalitas Di Kota Bandung]. *JISPO Jurnal Ilmu Sosial Dan Ilmu Politik*, 8(2), 36-57.
- Ehrlich, I. (1996). Crime, Punishment, and the Market for Offenses. *Journal of Economic Perspectives*, 10(1), 43-67. <https://doi.org/10.1257/jep.10.1.43>
- Ervina, M. E. (2020). [Hubungan Rata-rata Lama Sekolah, Gini Ratio, dan Pengeluaran Per Kapita dengan Tingkat Kejahatan Tahun 2011-2018]. *Euclid*, 7(2), 97. <https://doi.org/10.33603/e.v7i2.2974>
- Fachrurrozi, K., Fahmiwati, Hakim, L., Aswadi, & Lidiana. (2021). [Pengaruh Kemiskinan dan Pengangguran Terhadap Kriminalitas di Indonesia di Tahun 2019]. *Jurnal Real Riset*, 3(2), 173-178. <https://doi.org/10.47647/jrr>
- Fauziah, R. (2019). [Analisis Pengaruh Kemiskinan, Disparitas Pendapatan, Pendidikan dan Tingkat Pengangguran Terbuka terhadap Jumlah Kriminalitas Properti di Provinsi Jawa Timur Tahun 2013-2017]. Doctoral dissertation, Universitas Brawijaya).
- Gujarati, D. N. (2012). [*Dasar-dasar Ekonometrika, Terjemahan Mangunsong* (5th ed.)]. Salemba Empat.
- Hardianto, F. N. (2009). [Analisis Faktor-Faktor Yang Mempengaruhi Tingkat Kriminalitas Di Indonesia Dari Pendekatan Ekonomi]. *Bina Ekonomi*, 13(2).
- Hendri, D. (2014). [Kriminalitas: Sebuah Sisi Gelap Dari Ketimpangan Distribusi Pendapatan]. *Jurnal Ekonomi dan Kebijakan Publik*, 5(2), 239-252.
- Kathena, I. N., & Sheefeni, J. P. S. (2017). The Relationship Between Economic Growth and Crime Rates in Namibia. *European Journal of Basic and Applied Sciences*, 4(1), 51-62.
- Khairani, R., & Ariesa, Y. (2019). [Analisis Faktor-Faktor Yang Mempengaruhi Tingkat Kriminalitas Sumatera Utara (Pendekatan Ekonomi)]. *Jurnal Kajian Ekonomi Dan Kebijakan PUBLIK*, 4(2), 99-110.
- Mankiw, N. (2003). [*Teori Makro Ekonomi*]. Erlangga.
- Pitra, Y. A. (2019). [Faktor-Faktor Yang Mempengaruhi Terjadinya Penjahat Kambuhan (Residivis) Pada Tindak Pidana Pencurian Kendaraan Bermotor di Kota Semarang]. (Doctoral dissertation, Unika Soegijapranata Semarang).
- Purwanti, E. Y., & Widyaningsih, E. (2019). [Analisis Faktor Ekonomi Yang Mempengaruhi Kriminalitas Di Jawa Timur]. *Jurnal Ekonomi-Qu*, 9(2). <https://doi.org/10.35448/jequ.v2i2.7165>
- Rahman, Y. A., & Prasetyo, A. D. (2018). Economics and Crime Rates in Indonesia. *JEJAK: Jurnal Ekonomi dan Kebijakan*, 11(2), 401-412. <https://doi.org/10.15294/jejak.v11i2.16060>
- Rahmawati, B., & Bowo, P. (2021). The Analysis of Interaction for Center of Economic Growth. *Efficient: Indonesian Journal of Development Economics*, 4(3), 1290-1303. <https://doi.org/10.15294/efficient.v4i3.48662>
- Sugiarti, Y. (2014). [Kemiskinan sebagai salah satu penyebab timbulnya Tindak kejahatan]. *Jendela Hukum*, 1(April 2014), 1-10.
- Todaro, M. P.; Smith, S. C. (1997). *Population Growth and Economic Development: Causes, Consequences, and Controversies*. Reflections on Economic Development: The selected essays of Michael P. Todaro. Aldershot, Hants, Edward Elgar.
- Todotua, D. S., & Hendarto, R. M. (2016). [Pengaruh Kemiskinan, Kepadatan Penduduk, Tingkat Penyelesaian Kasus, dan Jumlah Polisi Terhadap Tingkat Kejahatan Properti DKI Jakarta (2006-2013)]. (Doctoral dissertation, Universitas Diponegoro).
- Wu, D., & Wu, Z. (2012). Crime, Inequality and Unemployment in England and Wales. *Applied Economics*, 44(29), 3765-3775. <https://doi.org/10.1080/00036846.2011.581217>