



Analysis of factors affecting poverty in the special region of yogyakarta

Susilo Nur Aji Cokro Darsono¹, Latifah Dian Iriani², Dedek Putra¹, Ibnu Hajar^{1*}

¹ Department of Economics, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

² Department of Management, Faculty of Economics, Universitas Muhammadiyah Sorong, West Papua, Indonesia

*Correspondence: Ibnu Hajar

Email: ibhajar23@gmail.com

Received: 11 Jan 2024

Accepted: 26 Mar 2024

Published: 30 Mar 2024



Copyright: © 2024 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license

(<http://creativecommons.org/licenses/by/4.0/>).

Abstract: One of the provinces in Indonesia that has a fairly high poverty problem is Yogyakarta Special District Province. This is because the poverty rate of cities/districts in the Yogyakarta Special District is higher than the provincial and national poverty rates. The study examines the influence of electricity consumption, investment, economic growth, and the District/City Minimum Wage on poverty levels in Yogyakarta Special District. The data used is panel data with cross-section data covering 5 districts/cities in Yogyakarta Province and data time series with the course of the year 2014 – 2020. The method of analysis used is a panel data regression, but the model used in this study is the Fixed Effect Model. The results show that the variables of electricity consumption and investment variables have no influence, while the economic growth variables and the minimum wage variable of the district/city have a negative and significant influence on the poverty level in the Yogyakarta Region.

Keywords: District Minimum Wage, Economic Growth, Electricity

Consumption, Investment, Poverty Rate

Introduction

Poverty is a problem that never leaves a territory. Various policies are put in place by the government to reduce poverty because high poverty will affect development in a region. According to the Statistics Agency (Badan Pusat Statistik, 2021), poverty arises as a result of economic incapacity in which people cannot satisfy their basic needs. (basic needs approach). The failure to meet such basic needs will lead to a decline in the quality of human resources, followed by a decrease in productivity and a fall in wages that will ultimately impede the national development of a region (Astuti & Lestari, 2018).

Therefore, poverty eradication is a matter that needs serious attention. One of the provinces in Indonesia that has a fairly high poverty problem is the Province of Yogyakarta Special District. This is because the poverty rate of cities/districts in Yogyakarta special district is higher than the provincial poverty rates and the national poverty level. The poverty rate of Yogyakarta Province is also recorded consistently to be the highest in Java Island (Badan Pusat Statistik, 2021) . According to the Report of the DIY Regional Development Planning Agency (BPPD DIY, 2019), poverty in DIY is caused by low

investment in labor-intensive industries, uneven electricity consumption, and uninclusive economic growth.

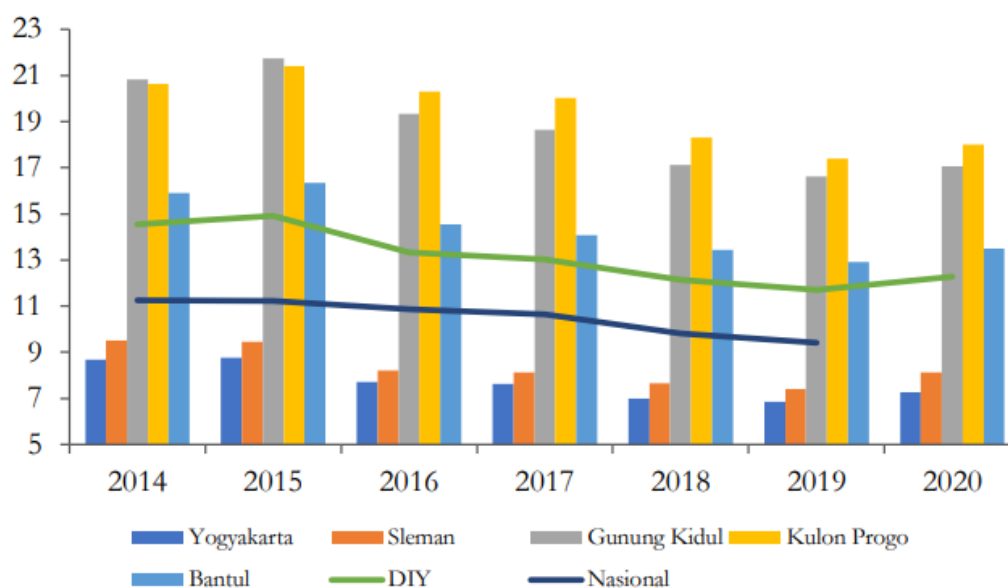


Figure 1. Poverty level in DIY district/province city
Source: Regional development planning agency, 2021

According to Figure 1, poverty rates in some districts/cities in the Yogyakarta Special District are higher than the poverty rate in both provinces and nations. Furthermore, as by BPS that the poverty rate of the districts located in the southern region of Yogyakarta Special Territory, namely Kulon Progo and Gunung Kidul tend to be higher than those in the northern region, Sleman and Yogyakarta. The high level of poverty requires an effort to find a determinant of the poverty level in the Yogyakarta Special Region in order to have guidelines in eradicating poverty (Badan Pusat Statistik, 2021).

Figure 1 shows that the poverty rate has generally continued to decline from 2014 to 2019, but not in 2020, which has increased. The highest levels of poverty in DIY are found in Kulon Progo district and further in Mount Kidul district, this corresponds to the geographical conditions that are generally dominated by the agricultural sector with low incomes so that people cannot meet the standard of living needs. This is the opposite of Yogyakarta and Sleman districts that have the lowest poverty rate in DIY because they are in urban areas where the availability and ease of access to infrastructure helps in the activities and needs of the community (Suryandari, 2018).

Poverty is closely linked to the infrastructure in which the construction of electricity infrastructure is aimed at facilitating the mobility of both people, goods and services, thereby having a direct impact on the reduction in poverty rates (Purnomo et al., 2021). Research conducted by Sumardjoko & Akhmadi shows that the availability of an infrastructure in a region, especially a decent connectivity infrastructure, will provide ease of access in conducting activities (Sumardjoko & Akhmadi, 2019).

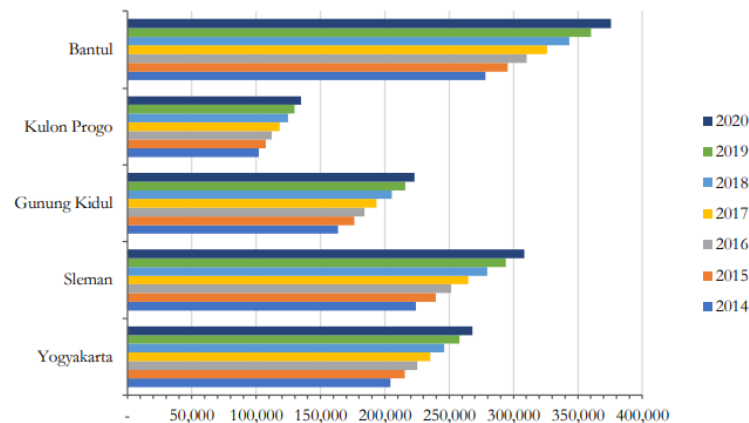


Figure 2. Number of electricity customers in DIY district/province city
Source: State power company, 2021

Figure 2 shows the growth of electricity consumers in the city/district of Yogyakarta Special Provincial Region that generally increased from 2014 to 2020. Based on its growth, in 2015 there was an increase of 6.34% in electricity customers compared to 2014, but in 2016 the electricity customer growth decreased to 4.75%.

Previous research has suggested that increasing number of electricity consumers suggests that electricity is increasingly becoming a vital necessity for people to support their daily lives and economic activities which can improve the well-being of people and eventually help reduce poverty (Sumardjoko & Akhmadi, 2019). Research conducted by Nugraheni & Priyarsono mentions that a decent electricity infrastructure in a region will help economic employability and reduce the poverty of the region (Nugraheni & Priyarsono, 2012).

Some of the other factors that are known to help reduce poverty are the size of capital growth in a region (Rarun et al., 2018). Blatman stated that when investment enters a region it will open up new employment opportunities that will help boost public income so that improving the income of the poor will reduce the poverty rate (Blatman & Ralston, 2015).

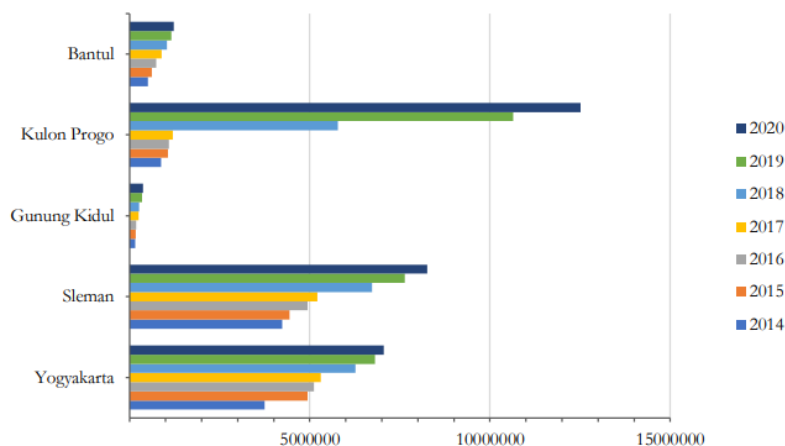


Figure 3. Investment realization in DIY district/province city
Source: Regional development planning agency, 2021

Based on Figure 3 it can be seen that overall investment realisation in Yogyakarta Special Territory Province has experienced a significant increase. In 2018, investment realisation grew by 56.18% compared to the previous year, and the growth continued until 2019 with growth of 32.47% over the preceding year. In 2020, investment realization increased by 10.62% over 2019.

Poverty in a region can be eliminated by boosting economic growth. According to Safuridar, economic growth will encourage job creation, thereby reducing unemployment and ultimately reducing poverty rates (Safuridar, 2017). The sources of economic growth will help improve the well-being of the poor and help reduce the poverty rate (Astuti & Lestari, 2018).

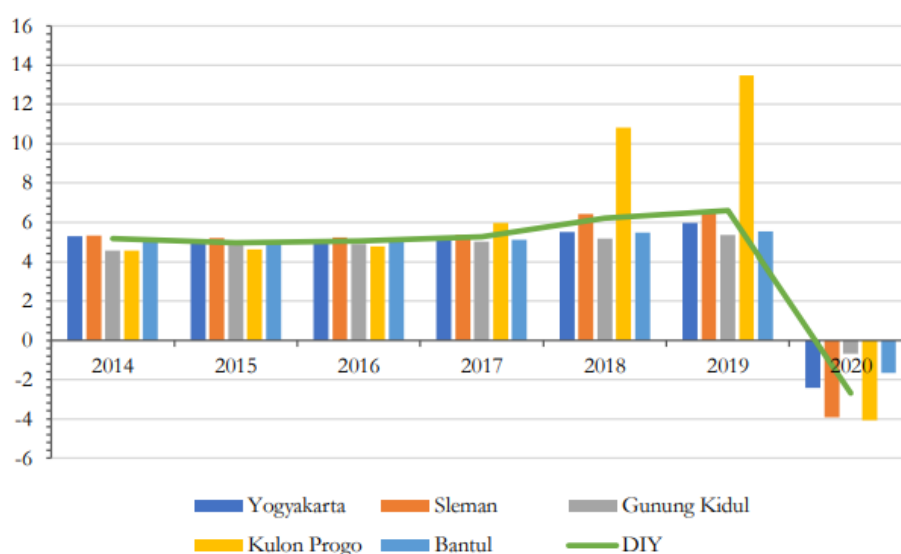


Figure 4. Rate of economic growth in districts/cities and provinces DIY

Source: Regional development planning agency, 2021

The rate of economic growth in Yogyakarta Special Region during the observation period is known to have fluctuated. The figure shows that in 2014, the economic growth of Yogyakarta Special Region was 5.17%, while in the following year it dropped to 4.95% due to the pressure of the declining global economic conditions. Figure 4 also shows that each district/city has a relatively similar economic growth trend, except for Kulon Progo district whose economic growth is excessively high compared to some surrounding districts/cities. The high rate of economic growth is expected to boost productivity and thus help provide jobs and ultimately have an impact on the reduction in poverty in the Yogyakarta Special Region.

Poverty can be overcome if people's incomes rise (Islami & Anis, 2019). The policy of raising the minimum wage has an impact on improving the economic conditions of low-wage workers (Kurniawati et al., 2017). The increase in the minimum wage also affects the rise in people's incomes, which is followed by increased consumption and well-being so that people can get rid of poverty (Giyanti Permata Dewi, 2015).

Research Method

This type of research is quantitative using panel data that follows the type of confirmatory research based on the theories described earlier. This research focuses on all the districts and cities that exist in Yogyakarta Special District namely, One city of Yogyakarta, Kulon Progo District, Bantul District, Kidul Mountain District, Sleman District in the period 2014-2020. This study aims to test the hypothesis put forward by measuring the influence of the relationship between variables. In addition, this study shows the direction of the relationship between dependent variables and independent variables as well as the cause of their consequences (Kuncoro, 2001). The data used in this research is quantitative data collected from a credible agency namely the Central Statistical Agency (BPS).

The models used in this study are as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + e_{it} \quad (1)$$

Where:

Y	= Poverty rate in the region i in the period t (%)
β_0	= Constanta
$\beta_{1,2,3,4}$	= Coeffisien
X_1	= Number of electricity customers in the area i at the time t
X_2	= Investment realisation in the Region i at that time t (million rupees)
X_3	= Economic growth in the Area i at this time t period (%)
X_4	= The minimum wage of the district in the region i for the period t (rupiah)
e	= Error terms

The dependent variable in this study is the poverty rate is the percentage of the population whose standard of living is lower than the Poverty Line (GK). This dependent variable uses data on poverty levels, which represents the ratio between the poor population and the population in the district/city of Yogyakarta Province of Istimewa Region in 2014 to 2020 in percentage units.

Then as an independent variable, the researchers used several variables. First, electricity consumption refers to a public facility that provides direct benefits to processes and distribution in the economy. The data used on the variable electricity consumption is the number of electricity customers in the district/city of Yogyakarta Province. Secondly, investments are capital investments in some areas of business carried out by companies over a fairly long period of time. The data used on the investment variable is the investment realization data in the district/city of the Province of Istimewa Yogyakarta.

The third independent variable is economic growth measured by an increase in the income of a region caused by increased production of goods and services compared to the previous period. The data used on the economic growth variable is the data on economic growth in the districts/cities of the Yogyakarta Provincial Region. Lastly, the minimum

wage is the lowest wage that the employee receives in the month which consists of two components namely basic wage and benefits. Data used on the variable of minimum wages is the data of the minimal wage district/city (UMK) of Yogyakarta Special District.

The method used in this research is fixed effect estimation to estimate the influence of institutional quality and government spending on economic growth. The fixed effect approach was chosen based on the assumption that the error term is correlated with the independent variable. The error term is another variable that influences the dependent variable but is not included in the regression model. To eliminate the fixed effect α_i , an alternative method in the form of a transformative fixed effect is to add one independent variable as follows:

$$y_{it} = \beta_i x_{it} + \alpha_i + u_{it} \quad (2)$$

Because α_i is constant over time, then for every t , we get:

$$y_{it} - \bar{y}_i = \beta_1(x_{it} - \bar{x}_i) + u_{it} - \bar{u}_i \quad (3)$$

In equation (3), the unobserved effect, α_i , has been removed. This shows that equation (3) can be estimated using OLS by adding more independent variables with slight modification. The model of unobserved effects is as follows:

$$y_{it} = \beta_1 x_{it1} + \beta_2 x_{it2} + \dots + \beta_k x_{itk} + \alpha_i + u_{it} \quad (4)$$

Equation (4) uses time-demeaning in each independent variable, including the time-period dummy and then the time-demeaned variable is used in the OLS regression. The general equation for time-demeaned at each i is as follows:

$$\ddot{y}_{it} = \beta_1 \ddot{x}_{it1} + \beta_2 \ddot{x}_{it2} + \dots + \beta_k \ddot{x}_{itk} + \ddot{u}_{it} \quad (5)$$

Fixed effects estimation is appropriate because strong variable bias has been eliminated given that the method already considers unobservable factors in each country, such as culture captured by the intercept.

Result and Discussion

Table 1 Heteroscedasticity test results

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	1.670	0.693	2.410	0.022
X ₁	0.184	0.096	1.908	0.065
X ₂	0.009	0.007	1.201	0.238
X ₃	4.84E-08	2.82E-08	1.714	0.096

X_4	-0.446	0.192	-2.319	0.027
-------	--------	-------	--------	-------

Source: central statistics agency (processed)

Based on the above table the PDRB probability value is 0.0659 Unemployment is 0.2388, Population is 0.0967, and IPM is 0.0273 which means > 0.01 free from Heteroscedasticity.

Tabel 2 Multicollinearity test results

Variable	X_1	X_2	X_3	X_4
X_1	1.000000	0,071240	-0,067719	0,605565
X_2	0,071240	1.000000	-0,427025	0,725910
X_3	-0,067719	-0,427025	1.000000	-0,407803
X_4	0,605567	0,725910	-0,407803	1.000000

Source: central statistics agency (processed)

Multicollinearity appears when the correlation coefficient of each independent variable is more than 0.8. Based on the test above, the research is free from multicollinearity problems.

Based on the Chow and Hausman tests, which are used to test model specifications, recommend the application of the Fixed Effect Model. Since the model has passed the classical assumption test at the previous test stage, the estimate findings are considered impartial and consistent. This fixed-effect model is known to provide the most accurate estimates of the impact of investment, electricity consumption, economic growth, and minimum wages on poverty levels in Yogyakarta Special District Province.

Table 3 Estimation Results of the Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	101,119	42,196	2,396	0,024
<i>Log(electricity)</i>	1,369	10,052	0,136	0,892
<i>Log(Investment)</i>	-0,179	0,130	-1,372	0,181
Economic growth	-0,094	0,037	-2,508	0,018
<i>Log(minimum wages)</i>	-7,145	5,857	-1,219	0,000
R-squared	0,989	Prob (F-statistic)		0,000
Adjusted R-Squared	0,985	S.D. dependent var		5,217
F-Statistic	296,590	Durbin-Watson stat		1,730

Source: central statistics agency (processed)

Discussion

The Influence of electricity consumption on Poverty Levels

The variable of electricity consumption of Yogyakarta Special Territory is an independent variable (X1) applied to this study. This variable has a positive correlated regression coefficient value of 1.369575 and is known to have a probability value of 0.8927 which is not significant at alpha (α) = 5%. This explains that the increase or decrease in the development of power consumptions does not affect the poverty rate in Yogyakarta special Territory. The results of this study are inconsistent with the theory and hypothesis in this study which states that electricity consumption has a negative and significant impact on poverty rates.

The findings that electricity consumption has no impact on poverty alleviation in Yogyakarta Special District are not consistent with what Fardilla & Masbar (2020) that regions with good electricity flow availability will be faster in income growth so that they are able to alleviate poverty. Prasetyo stated that the impact caused by electricity consumption on the economy is only small so it does not very much benefit the well-being of the people (Prasetyo, 2016). Furthermore, the study also believes that the development of electricity consumption will benefit the community in a region if supported by the construction of other factors, if only relying on electricity use then the benefits received will be limited.

The Effect of Investment on Poverty Levels

The Yogyakarta Special Region investment variable is the independent variable (X2) used in this research. The regression results state that the investment variable is known to have a negatively correlated regression coefficient of 0.179496 with a probability value of 0.1815 which is not significant at alpha (α) = 5%. This explains that the level of investment does not affect the level of poverty in the Special Region of Yogyakarta Province and the results of this research are not in line with the theory and hypothesis in this research which states that investment has a negative and significant influence on the level of poverty.

The results of this research are also in line with the results of research conducted by Arabyat which shows that both PMDN and PMA have a positive and insignificant correlation with poverty levels, which shows that investment has no role in reducing poverty levels (Arabyat, 2017). According to Arabyat investment has no effect on poverty alleviation because the investment carried out has not been directed at productive economic sectors (Arabyat, 2017). Investments that have no effect on poverty alleviation in the Special Region of Yogyakarta can be in accordance with the opinion of Mustamin which states that the investments made are still focused on developing sectors that do not provide enough employment opportunities (Mustamin & Agussalim, 2015). Moreover, the investments made only have an impact on a few middle and upper classes who are not included in the poor category.

The Effect of Economic Growth on Poverty Levels

The Yogyakarta Special Region economic growth variable is the independent variable (X_3) used in this research. The economic growth variable is known to have a probability value of 0.0187 which is significant at alpha (α) = 5% and is negatively correlated with a regression coefficient of -0.094231. This shows that an increase or decrease in economic growth can affect the level of poverty in the Special Region of Yogyakarta Province. These results are in line with the theory and hypothesis in this research which states that economic growth has a negative and significant influence on poverty levels.

This research is in line with previous research which also provided results that economic growth has an influence on poverty levels (Akhir, 2019). The rate of economic growth has proven to have an influence in reducing poverty levels in the Special Region of Yogyakarta. This is in accordance with theory, where economic growth alleviates poverty through increased economic activity and growth in output production which will later be followed by an increase in people's income, thereby reducing poverty levels.

The Effect of Minimum Wages on Poverty Levels

The Yogyakarta Special Region Regency/City Minimum Wage variable is the independent variable (X_4) used in this research. The district/city minimum wage variable is known to have a probability value of 0.0000 which is significant at alpha (α) = 5% and a negative relationship with a regression coefficient of -7.145523. These results explain that increasing or decreasing the minimum wage influences fluctuations in poverty levels in the Special Region of Yogyakarta Province. These results are in accordance with the theory and hypothesis in this research which states that the district/city minimum wage has a negative and significant influence on the poverty level.

The results of this research have the same results as those conducted by AkinOlagunju et al. that the minimum wage has an influence on reducing poverty rates, where when the minimum wage increases in both the formal and informal sectors it will be possible to reduce the poverty level of society (Akin-Olagunju et al., 2019). This research also provides results that the higher the minimum wage given, the higher the poverty rate will decrease. Poor people will receive higher income if the minimum wage increases so that the purchasing power of poor people will increase and this will be followed by increased welfare, the implication of this situation is that the poverty rate will decrease (Sari, 2018).

Conclusion

Based on the research results, electricity consumption does not show any influence on the level of poverty in Yogyakarta Special Region Province. Likewise, the investment variable also does not have an impact on the level of poverty in the region. However, the economic growth variable has a negative and significant effect of -0.094 on the level of "Poverty in the Special Region of Yogyakarta. This means that an increase in economic growth of 1 percent will reduce the poverty rate by 0.094231 percent. Apart from that, the

district/city minimum wage variable also has a negative influence of -7.145 on the poverty level in the Special Region of Yogyakarta Province.

From the results of this research, it is hoped that the Yogyakarta Special Region government can take steps to encourage inclusive and equitable economic growth. Economic growth that is effective in overcoming poverty is economic growth that is not only focused on a few parties, but also benefits all levels of society, both poor and rich. To achieve this, the government can focus on increasing output production through labor-intensive industries, not just capital-intensive industries. This move will create more jobs, raise living standards and provide income to more people.

This research also found that the determination of the provincial minimum wage in the Special Region of Yogyakarta has not fully adjusted to the increase in relative prices. "Therefore, it is recommended that regional governments review the minimum wage policy and consider increasing it so that it can contribute to reducing poverty rates in the region."

References

- Akhir, S. (2019). Analysis of The Effect of Education Level, Economic Growth, and Unemployment Rate on The Poverty Rate In Sumatera Barat, Indonesia. Third Padang International Conference On Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA 2019), 714–719.
- Akin-Olagunju, O. A., Akinribido, B., & Yusuf, S. A. (2019). Poverty Effects of Minimum Wage Increase in Nigeria. *Developing Country Studies*, 9(11), 19–29.
- Arabyat, Y. A. (2017). The impact of foreign direct investment on poverty reduction in the developing countries. *International Finance and Banking*, 4(2), 92–111.
- Astuti, M., & Lestari, I. (2018). Analisis Pengaruh Tingkat Pertumbuhan Ekonomi dan Tingkat Pengangguran Terhadap Tingkat Kemiskinan di Kabupaten/Kota Kulonprogo, Bantul, Gunung Kidul, Sleman, dan Yogyakarta. *At-Tauzi: Islamic Economic Journal*, 18(2), 149–164.
- Badan Pusat Statistik. (2021). Penghitungan dan Analisis Kemiskinan Makro Indonesia Tahun 2021. Badan Pusat Statistik. <https://www.bps.go.id/id/publication/2021/11/30/9c24f43365d1e41c8619dfe4/penghitungan-dan-analisis-kemiskinan-makro-indonesia-tahun-2021.html>
- Blattman, C., & Ralston, L. (2015). Generating employment in poor and fragile states: Evidence from labor market and entrepreneurship programs. Available at SSRN 2622220.
- BPPD DIY. (2019). Kajian Pendahuluan Penurunan Kemiskinan dan Ketimpangan. 1–110.
- Giyanti Permata Dewi, I. (2015). ANALISIS TINGKAT PENDIDIKAN, PDRB DAN UPAH MINIMUM REGIONAL TERHADAP KEMISKINAN DI PROVINSI BANTEN. Universitas Sultan Ageng Tirtayasa.

- Islami, N., & Anis, A. (2019). Pengaruh upah minimum provinsi, pendidikan dan kesehatan terhadap kemiskinan di indonesia. *Jurnal Kajian Ekonomi Dan Pembangunan*, 1(3), 939–948.
- Kuncoro, M. (2001). Metode kuantitatif: Teori dan aplikasi untuk bisnis dan ekonomi.
- Kurniawati, A., Gunawan, B. T., & Indrasari, D. P. R. (2017). Dampak upah minimum terhadap kemiskinan di Indonesia tahun 2006-2014. *Jurnal Riset Ekonomi Dan Manajemen*, 17(2), 233–252.
- Mustamin, S. W., & Agussalim, S. U. N. (2015). Pengaruh variabel ekonomi makro terhadap kemiskinan di kota makassar provinsi sulawesi selatan. *Jurnal Analisis*, 4(2), 165–173.
- Nugraheni, D., & Priyarsono, D. S. (2012). Kinerja Keuangan Daerah, Infrastruktur, dan Kemiskinan: Analisis Kabupaten/Kota di Indonesia 2006 {2009. *Jurnal Ekonomi Dan Pembangunan Indonesia*, 12(2), 5.
- Prasetyo, G. A. (2016). Pengaruh Pembangunan Infrastruktur Telekomunikasi Terhadap Pertumbuhan Ekonomi di ASEAN. Diss. UNIVERSITAS AIR-LANGGA.
- Purnomo, S. D., Wijaya, M., & Setiawan, H. (2021). Infrastruktur dan Kemiskinan di Provinsi Daerah Istimewa Yogyakarta. *Majalah Imiah Manajemen Dan Bisnis*, 18(1), 10–19.
- Rarun, C. C. E., Kawung, G. M. V, & Niode, A. O. (2018). ANALISIS PENGARUH BELANJA BANTUAN SOSIAL DAN INVESTASI SWASTA TERHADAP KEMISKINAN DI PROVINSI SULAWESI UTARA. *Jurnal Berkala Ilmiah Efisiensi*, 18(01).
- Safuridar, S. (2017). Pengaruh pertumbuhan ekonomi terhadap kemiskinan di Kabupaten Aceh Timur. *Ihtiyath: Jurnal Manajemen Keuangan Syariah*, 1(1).
- Sari, N. P. (2018). Minimum Wage Implications and Poverty Numbers East Java Province. *Jurnal Ekonomi Pembangunan*, 16(2), 115–121.
- Sumardjoko, I., & Akhmadi, M. H. (2019). Pengembangan Infrastruktur Konektifitas Sebagai Daya Ungkit Ekonomi Dan Pemangkas Kemiskinan Jawa Timur. *Jurnal Manajemen Keuangan Publik*, 3(1), 22–31.
- Suryandari, A. N. (2018). Pengaruh Pertumbuhan Ekonomi, Pendidikan, Dan Kesehatan Terhadap Tingkat Kemiskinan Di Provinsi DIY Tahun 2004-2014. *Jurnal Pendidikan Dan Ekonomi*, 7(1), 33–41.