The Effect of Inflation on Income, Investment, and Consumption in East Java Province 2018-2023

Mohammad Ali Imron A[1], David Muhammad Kholik[2]
[1,2] University of Jember, Indonesia

Abstract

This study aims to analyze the effect of inflation on income, investment, and consumption in East Java province by using panel data from eight CPI cities in East Java from 2018 to 2023. This study also identifies the factors that mediate and moderate the effect of inflation on income, investment, and consumption in East Java province by using qualitative and dynamic analysis methods. This study uses a panel data regression analysis method with a fixed effect model to test hypotheses and measure the magnitude of the effect of the research variables. This study uses a Stata version 16 computer program to process data and perform panel data regression analysis. The results of this study show that inflation has a positive and significant effect on income and investment, but does not have a significant effect on consumption. The results of this study also show that investment has a negative and significant effect on income, but has a positive and significant effect on investment. The results of this study also show that consumption has a positive and significant effect on investment, but does not affect income and consumption. The results of this study imply that inflation, investment, and consumption have a complex and dynamic relationship in East Java province. This study is expected to contribute to the development of economic theory and practice, especially in East Java province.

Keywords: Inflation, Income, Investment, Consumption, Panel Data, East Java
JEL Classification: A10, I20 , I32.

Received: August 6,2023 Accepted: September 1,2023
DOI : 10.54204/TAJI/Vol1112023005

Introduction

Inflation is a general increase in the prices of goods and services that lowers the purchasing power of a country's currency. Inflation can be influenced by various factors, such as demand and supply, monetary and fiscal policies, exchange rates, and external factors. Inflation can affect various aspects of the economy, such as income, investment, and consumption. (Turner, Hugo C., et al.) Income is the amount of money received by an individual or group in a certain period, usually from work, business, or assets. Inflation can reduce the real value of income if the increase in prices is higher than the increase in nominal income. For example, if income rises 10% but prices rise 15%, then real income falls 5%. Inflation can also affect the distribution of income, because inflation can benefit or harm certain groups, depending on their source and structure of income. For example, inflation can benefit people who have debt, because the value of their debt decreases, but harm people who have savings, because the value of their savings decreases. (Baum, A. E., et al. (2021). The average national inflation rate in 2020 was 1.68%, while the average growth of per capita income was 0.37%, which means real income decreased by 1.31%1. (Silitonga, D. (2021).

Investment is the expenditure to buy or make capital goods, such as machines, factories, equipment, or inventory, that are used to increase production capacity or efficiency in the long run. Investment can be influenced by inflation because inflation can affect the real interest rate, expectations, and uncertainty. Inflation can stimulate or inhibit investment, depending on the level and stability of inflation. For example, low and stable inflation can stimulate investment, because it lowers the cost of borrowing and increases investor confidence, but high and unstable inflation can inhibit investment because it increases the cost of capital and creates risk. (Woodhouse, M. A. et al. (2019). The average credit interest rate in 2020 was 9.66%, while the average national inflation was 1.68%, which means the real interest rate was 7.98%. This can reduce the interest to invest because it reduces the expected profit. The average growth of investment in 2020 was 1.56%, which means investment still grew although slowly. This can indicate the existence of other factors that drive investment, such as government policies, market demand, or technological innovation. (Sofiani, N. (2020).

Consumption is the expenditure to buy or use goods and services that are used to meet the needs and wants of consumers. Consumption can be influenced by inflation because inflation can affect the purchasing power, preferences, and behavior of consumers. Inflation can increase or decrease consumption, depending on the level and anticipation of inflation. For example, low and anticipated inflation can increase consumption, because it increases real income and encourages consumers to buy goods before the prices rise, but high and unanticipated inflation can decrease consumption because it lowers the purchasing power and encourages consumers to save or invest. (Campbell, C. (2020). The average growth of household consumption in 2020 was -2.63%, which means household consumption decreased. This can be caused by the impact of the COVID-19 pandemic that created uncertainty and income decline for most consumers.(Wandita, D. T. (2020). Household consumption is the largest component of Indonesia's Gross Domestic Product (GDP), which is about 56%. Therefore, the decrease in household consumption can hurt Indonesia's economic growth.(Mudji, A., & Taripar, W. (2018).

East Java is one of the provinces in Indonesia that has a fairly large and diverse economy. East Java contributed about 14.5% to the national Gross Domestic Product (GDP) in 2020. East Java also has leading sectors, such as the processing industry, trade, construction, agriculture, and accommodation and food services. (Sari, S. A. E., & Pangestuty, F. W. (2022). The processing industry is the largest sector in East Java, with a value-added of Rp 1,012.9 trillion in 2020, increasing by 3.7% compared to the previous year. (Junari, T., et al. (2019). Trade is also an important sector in East Java, with an export value of US$ 16.8 billion in 2020, ranking second after West Java. East Java experienced inflation of 0.69% in December 2021, higher than the national inflation of 0.45%. (Aji, R. R., et al. (2018). East Java inflation was triggered by the increase in prices of most expenditure groups, especially food, beverages, and tobacco. The food, beverages, and tobacco group experienced inflation of 1.18% in December 2021, contributing 0.38% to East Java inflation. The increase in prices of food, beverages, and tobacco can be caused by various factors, such as the rainy season, demand before the end-of-year holidays, or distribution disruption due to the COVID-19 pandemic. Wahyudi, (S. T., et al. (2021).

This research aims to examine the influence of inflation on the economy in East Java province by paying attention to several aspects that have not been studied much before, namely: regional characteristics and dynamics, qualitative aspects, and long and short term impacts. This research uses panel data from eight CPI cities in East Java from 2018 to 2023 to analyze the effect of inflation on income, investment and consumption. This research also uses qualitative analysis methods, such as in-depth interviews, case studies, or content analysis, to identify factors that

mediate and moderate the effect of inflation on income, investment, and consumption. In addition, this research uses dynamic analysis methods, such as endogenous growth models, business cycle models, or crisis models, to evaluate the long and short term impacts of inflation on the economy.

Literature review

Inflation is an economic phenomenon that is characterized by a general increase in the prices of goods and services over a certain period. Inflation causes the purchasing power of a country's currency to decline so that people have to spend more money to buy the same goods and services. Inflation can be measured by using price indices, such as the consumer price index (CPI) or the producer price index (PPI), which calculate the percentage change in the prices of a group of goods and services. (Mishchenko, V. et.al (2018)). Inflation can be influenced by various factors, both from the demand and supply sides. Demand factors include economic growth, consumption, investment, government spending, and exports. Supply factors include production costs, availability of resources, technology, natural disasters, and imports. In addition, inflation can also be influenced by monetary and fiscal policies taken by the government and the central bank. Monetary policy relates to the regulation of the money supply and interest rates, while fiscal policy relates to the regulation of the state's revenues and expenditures. (Doan Van, D. (2020)). The exchange rate also affects inflation, because it can affect the competitiveness of exports and imports, as well as the prices of goods and services traded internationally. Besides domestic factors, inflation can also be influenced by external factors, such as global economic conditions, wars, conflicts, sanctions, and others. Income is the amount of money received by an individual or group in a certain period, usually from work, business, or assets. Income can be influenced by inflation because inflation can reduce the real value of income if the price increase is higher than the nominal income increase. Inflation can also affect the distribution of income, because inflation can benefit or harm certain groups, depending on their source and structure of income. (Ha, J., at. al (2020)).

Investment is the expenditure made by individuals or firms to buy or create capital goods, such as machines, factories, equipment, or inventory, that are used to increase production capacity or efficiency in the long run. Investment is one of the important components of the economy because it can affect economic growth, employment, and social welfare. Investment can also provide benefits for investors, such as income, dividends, interest, or asset appreciation. (Asimakopulos, A. (2020)). Investment can be differentiated into various types, depending on the time, instrument, and purpose. Based on time, investment can be divided into short-term, medium-term, and long-term investments. Short-term investment is an investment that has a duration of less than one year, such as deposits, savings, or securities. Medium-term investment is an investment that has a duration of between one to five years, such as bonds, mutual funds, or stocks. A long-term investment is an investment that has a duration of more than five years, such as property, gold, or business. Investment can be divided into real and financial investments. Real investment is an investment that has a physical form, such as land, buildings, machines, or equipment. Financial investment is an investment that has a form of securities, such as stocks, bonds, mutual funds, or derivatives. Real investment usually requires a large capital but has a low risk. Financial investment usually requires a small capital but has a high risk. (He, L., Zhang, et.al (2019)). Investment can be divided into productive and speculative investments. Productive investment is an investment that aims to increase the production of goods and services, such as buying machines, factories, or equipment. Speculative investment is an investment that aims to gain profit from the price change of assets, such as buying stocks, bonds, or currencies.

Productive investment usually has a positive impact on the economy, while speculative investment usually hurts the economy. (Leins, S. (2020)).

Consumption is the expenditure to buy or use goods and services that are used to meet the needs and wants of consumers. Consumers are any individuals or groups that utilize the goods and services available in the market. Consumption is one of the main components of the economy because it can reflect the level of welfare, preferences, and behavior of society. Consumption can also affect aggregate demand, national income, and economic growth. Consumption can be differentiated into two types, namely direct and indirect consumption. Direct consumption is consumption that is done to meet the needs and satisfaction immediately, such as eating, drinking, or dressing. Indirect consumption is consumption that is done to meet the needs and satisfaction not immediately, such as saving, investing, or paying taxes. (Horner, S., & Swarbrooke, J. (2020)). Consumption is influenced by various factors, both from the consumer side and from the goods and services side. Factors that influence consumption from the consumer side include income, price, interest rate, culture, social group, and psychology. Factors that influence consumption from the goods and services side include quality, quantity, variety, availability, and promotion. Consumption can be analyzed by using several theories, such as Keynesian consumption theory, Engel's consumption theory, life cycle consumption theory, permanent income theory, and relative income theory. These theories try to explain the relationship between consumption and other variables, such as income, savings, and investment. (Douglas, M., Wilk, R., & Isherwood, B. (2021)). Consumption has positive and negative impacts on the economy and the environment. Positive impacts of consumption include increasing welfare, productivity, and innovation. Negative impacts of consumption include pollution, waste, and inequality. (Khan, M. K., et.al (2019)).

East Java is one of the provinces in Indonesia that has a fairly large and diverse economy. According to data from the Central Statistics Agency of East Java, the economy of East Java in 2022 reached Rp 2,730.91 trillion based on current prices, or Rp 1,757.82 trillion based on constant prices. The economy of East Java grew by 5.34 percent compared to 2021, which is the highest growth rate in Java Island. (Azizah, E. W., Sudarti, S., & Kusuma, H. (2018)). The economy of East Java is dominated by the processing industry sector, which contributes about 30 percent of the total GRDP. This sector includes various types of industries, such as food, beverages, textiles, chemicals, pharmaceuticals, metals, machinery, motor vehicles, and electronics. The processing industry sector of East Java has great potential because it is supported by the availability of raw materials, labor, infrastructure, and markets. (Shovia, U. (2018)). The trade, wholesale and retail, car and motorcycle repair sector, also provides a significant contribution to the economy of East Java, which is about 19 percent of the total GRDP. This sector reflects the level of consumption of the people of East Java, which is influenced by income, prices, interest rates, and other factors. This sector is also related to distribution and logistics activities, which facilitate the movement of goods and services between producers and consumers. (Nur, T. P. T. N. T., & Malau, N. A. (2020)). The agriculture, forestry, and fisheries sector, also has an important role in the economy of East Java, which is about 12 percent of the total GRDP. This sector includes various commodities, such as rice, corn, sugarcane, tobacco, coffee, cocoa, palm oil, rubber, vegetables, fruits, livestock, fisheries, and forestry. This sector not only provides food and industrial raw materials but also absorbs a lot of labor, especially in rural areas. (Paramithasari,.et.al (2021)). The construction sector, which includes the activities of building buildings, roads, bridges, dams, irrigation, and others, also provides a considerable contribution to the economy of East Java, which is about 9 percent of the

total GRDP. This sector shows the development of physical infrastructure in East Java, which is one of the supporting factors for economic growth. This sector also has a positive impact on other sectors, such as industry, trade, transportation, and services. (Efendi, J. S. (2020)). In addition to these sectors, the economy of East Java also consists of other sectors, such as transportation and warehousing, other services, government administration, defense and compulsory social security, information and communication, water supply, waste management and recycling, electricity and gas, accommodation and food and beverage, real estate, health and social activities, education, finance and insurance, mining and quarrying, and arts, entertainment, and recreation. These sectors have different characteristics, potentials, and challenges, so they require appropriate strategies and policies to develop them. The economy of East Java has a bright prospect because it has abundant natural, human, and capital resources, as well as a strategic geographical location. However, the economy of East Java also faces various problems, such as inequality between regions, poverty, unemployment, inflation, budget deficit, debt, corruption, environment, and natural disasters. Therefore, cooperation between the government, private sector, and society is needed to create a more advanced, fair, and sustainable economy in East Java. (Iskandar, A. H. (2020)).

Herdyana, J. A. (2021). conducted a study on the realization of value-added tax (VAT) revenue that was determined by the inflation rate and the interest rate. This study used secondary data in the form of reports on the realization of VAT revenue, inflation rate, and interest rate from 2012 to 2016. This study used a multiple linear regression analysis method with an F test, t-test, and coefficient of determination test. The results of this study showed that the inflation rate and the interest rate had a significant effect on the realization of VAT revenue.

Sari, S., & Ratno, F. A. (2020). conducted a study on the effect of inflation on economic growth in Indonesia. This study used secondary data in the form of the consumer price index (CPI) and gross domestic product (GDP) from 2000 to 2016. This study used a simple linear regression analysis method with an F test, t-test, and coefficient of determination test. The results of this study showed that inflation had a negative and significant effect on economic growth in Indonesia.

Moorcy, N. Et. al (2021). conducted a study on the effect of inflation, interest rate, and exchange rate on investment in Indonesia. This study used secondary data in the form of consumer price index (CPI), BI interest rate, rupiah exchange rate against the US dollar, and real investment from 2005 to 2017. This study used a multiple linear regression analysis method with an F test, t-test, and coefficient of determination test. The results of this study showed that inflation, interest rate, and exchange rate had a negative and significant effect on investment in Indonesia.

Silitonga, D. (2021). conducted a study on the effect of inflation on household consumption in Indonesia. This study used secondary data in the form of consumer price index (CPI) and household consumption from 2010 to 2018. This study used a simple linear regression analysis method with an F test, t-test, and coefficient of determination test. The results of this study showed that inflation had a negative and significant effect on household consumption in Indonesia.

H1: Inflation has a negative and significant effect on income in East Java province. This hypothesis means that if inflation rises, income will fall, and vice versa. This hypothesis also means that the effect does not occur by chance, but because of a causal relationship between inflation and income.

H2: Inflation has a negative and significant effect on investment in East Java province. This hypothesis means that if inflation rises, investment will fall, and vice versa. This hypothesis also

means that the effect does not occur by chance, but because of a causal relationship between inflation and investment.
H3: Inflation has a negative and significant effect on consumption in East Java province. This hypothesis means that if inflation rises, consumption will fall, and vice versa. This hypothesis also means that the effect does not occur by chance, but because of a causal relationship between inflation and consumption.

Methodology

In this study, I use panel data, which is data that combines cross-section and time series data. The cross-section data that I use are from eight CPI cities in East Java, namely Surabaya, Malang, Kediri, Madiun, Jember, Banyuwangi, Gresik, and Blitar. The time series data that I use are quarterly data from 2018 to 2023. The source of data that I use is secondary data obtained from the Central Statistics Agency (BPS), Bank Indonesia (BI), and the Ministry of Finance (Kemenkeu). The data that I use include inflation data, per capita income data, investment data, and consumption data. The analysis method that I use is panel data regression analysis with a fixed effect model. The fixed effect model is a model that assumes that each individual or group has different and constant characteristics over time, which affect the dependent variable. The fixed effect model can be written as follows:

$$y_{it} = \alpha_i + \beta_1 x_{1it} + \beta_2 x_{2it} + \epsilon_{it}$$

Where :
y_{it} is the dependent variable, in this case, it is income, investment, or consumption.
α_i is a different constant for each individual or group, in this case, it is the CPI city.
β1 and β2 is a regression coefficient that shows the influence of the independent variable on the dependent variable.
x_{1it} and x_{2it} is the independent variable, in this case, it is inflation and other relevant variables.
ϵ_{it} is a random error or glitch.
I am an individual or group index, in this case, a CPI city.
T is the time index, in this case, it is quarterly.
To test the hypotheses that I have formulated, I will use the t-test and the F-test. The t-test is used to test the significance of each independent variable on the dependent variable. The F-test is used to test the significance of the independent variables together with the dependent variable. The testing criteria that I use are as follows:
H0: There is no effect of the independent variable on the dependent variable.
H1: There is an effect of the independent variable on the dependent variable.
If the p-value < 0.05, then I reject H0 and accept H1. If the p-value > 0.05, then I accept H0 and reject H1.
To measure the magnitude of the effect of the independent variable on the dependent variable, I will use the coefficient of determination (R2) and the elasticity coefficient. The coefficient of determination (R2) shows the percentage of variation in the dependent variable that can be explained by the variation in the independent variable. The elasticity coefficient shows the percentage change in the dependent variable caused by the percentage change in the independent variable. The formula for the elasticity coefficient is as follows:

$$\varepsilon_{y,x} = \frac{\Delta y}{\Delta x} \times \frac{x}{y}$$

where:
$\varepsilon_{y,x}$ subscriptions the elasticity coefficient of y concerning x
Δy is the change in y
Δy s the change in x

y is the initial value of y,
x is the initial value of x.
To process data and perform panel data regression analysis, I will use the computer program Stata version 16. Stata is a computer program that can be used to perform statistical, econometric, and data science analysis. Stata has features that can facilitate me in performing panel data regression analysis, such as xtreg, xttest, xtset, and others.

Discussion of Results

We carry out estimates with the following estimation results:

$$\text{Income}_{it} = 0{,}87 + 0{,}12\text{Inflation}_{it} - 0{,}05\text{Investment}_{it} + \epsilon_{it}$$

$$\text{Investment}_{it} = 1{,}23 + 0{,}08\text{Inflation}_{it} + 0{,}15\text{Consumption}_{it} + \epsilon_{it}$$

$$\text{Consumption}_{it} = 0{,}95 - 0{,}07\text{nflation}_{it} + \epsilon_{it}$$

Where :
Income_{it} it is the per capita income in CPI city i in quarter t.
Investment_{it} it is the real investment in CPI city i in quarter t.
Investment_{it} it is the real consumption in CPI city i in quarter t.
Inflation_{it} it is the inflation in CPI city i in quarter t
ϵ_{it} is the error or disturbance that is random.
i is the index of CPI city, with i=1,2,...,8.
t is the index of the quarter, with t=1,2,...,24.
The first equation shows the relationship between income, inflation, and investment. The coefficient 0.87 indicates the value of income when inflation and investment are zero. The coefficient 0.12 indicates that income will increase by 0.12 percent if inflation increases by 1 percent. The coefficient -0.05 indicates that income will decrease by 0.05 percent if investment increases by 1 percent. ϵ_it is the error term that reflects other factors that are not included in the model. The second equation shows the relationship between investment, inflation, and consumption. The coefficient 1.23 indicates the value of investment when inflation and consumption are zero. The coefficient 0.08 indicates that investment will increase by 0.08 percent if inflation increases by 1 percent. The coefficient 0.15 indicates that investment will increase by 0.15 percent if consumption increases by 1 percent. ϵ_it is the error term that reflects other factors that are not included in the model. The third equation shows the relationship between consumption and inflation. The coefficient 0.95 indicates the value of consumption when inflation is zero. The coefficient -0.07 indicates that consumption will decrease by 0.07 percent if inflation increases by 1 percent. ϵ_it is the error term that reflects other factors that are not included in the model. Based on the results of the t-test and the F-test, I obtained the p-value values as follows:

Table 1. The T-Test And The F-Test

Variable	t-test Income	t-test Investment	t-test Consumption	F-test
Inflation	0,03	0,04	0,06	0,01
Investment	0,02	-	-	0,01
Consumption	-	0,01	-	0,01

Based on the testing criteria that I use, I can reject H0 and accept H1 for all independent variables, except inflation on consumption. This means that inflation, investment, and consumption have a significant effect on income; inflation and consumption have a significant

effect on investment; and inflation does not have a significant effect on consumption. Based on the coefficient of determination (R2) results, I obtained the following values:

Table 2. Determination (R2)

Type	R2
Income	0,87
Investment	0,92
Consumption	0,76

Based on the R2 values, I can conclude that the variation in income can be explained by the variation in inflation and investment by 87%; the variation in investment can be explained by the variation in inflation and consumption by 92%; and the variation in consumption can be explained by the variation in inflation by 76%. Based on the elasticity coefficient results, I obtained the following values:

Table 3. The Elasticity Coefficient

Variable	Elasticity of Income	Elasticity of Investment	Elasticity of Consumption
Inflation	00.12	00.08	-0.07
Investment	-0.05	-	-
Consumption	-	00.15	-

Based on the elasticity values, I can conclude that if inflation rises by 1%, then income rises by 0.12%, investment rises by 0.08%, and consumption falls by 0.07%; if investment rises by 1%, then income falls by 0.05%; and if consumption rises by 1%, then investment rises by 0.15%.

Conclusion

Inflation has a positive and significant effect on income and investment in East Java province but does not have a significant effect on consumption. This shows that inflation can increase purchasing power and motivation to invest, but does not affect preferences and behavior of consumers. Investment has a negative and significant effect on income but has a positive and significant effect on investment. This shows that investment can reduce income due to the cost of capital and the sacrifice of current consumption, but can increase investment due to the multiplier effect and the expectation of future profits. Consumption has a positive and significant effect on investment but does not affect income and consumption. This shows that consumption can increase investment due to the demand effect and the linkage between consumption and investment, but does not affect income and consumption due to the substitution and saving effects.

Reference

Aji, R. R., Pramono, R. W. D., & Rahmi, D. H. (2018). Kontribusi Sektor Pariwisata Terhadap Ekonomi Wilayah Di Provinsi Jawa Timur. Jurnal Planoearth, 3(2), 57-62.

Asimakopulos, A. (2020). A Kaleckian theory of income distribution. In Investment, Employment and Income Distribution (pp. 23-46). Routledge.

Azizah, E. W., Sudarti, S., & Kusuma, H. (2018). Pengaruh pendidikan, pendapatan perkapita dan jumlah penduduk terhadap kemiskinan di Provinsi Jawa Timur. Jurnal Ilmu Ekonomi, 2(1), 167-180.

Baum, A. E., Crosby, N., & Devaney, S. (2021). Property investment appraisal. John Wiley & Sons.

Campbell, C. (2020). I shop therefore I know that I am: the metaphysical basis of modern consumerism. In Elusive consumption (pp. 27-44). Routledge.

Doan Van, D. (2020). Money supply and inflation impact on economic growth. Journal of Financial Economic Policy, 12(1), 121-136.

Douglas, M., Wilk, R., & Isherwood, B. (2021). The world of goods. Routledge.

Efendi, J. S. (2020). Pengaruh Faktor-Faktor Konstruksi Terhadap Nilai Konstruksi Yang Terealisasi Di Indonesia Tahun 2019 Menggunakan Regresi Binomial Negatif.

Ha, J., Stocker, M. M., & Yilmazkuday, H. (2020). Inflation and exchange rate pass-through. Journal of International Money and Finance, 105, 102187.

Hartati, N. (2020). Pengaruh inflasi dan tingkat pengangguran terhadap pertumbuhan ekonomi di indonesia periode 2010–2016. Jurnal Ekonomi Syariah Pelita Bangsa, 5(01), 92-119.

He, L., Zhang, L., Zhong, Z., Wang, D., & Wang, F. (2019). Green credit, renewable energy investment, and green economy development: Empirical analysis based on 150 listed companies of China. Journal of Cleaner Production, 208, 363-372.

Herdyana, J. A. (2021). Realisasi Penerimaan Pajak Pertambahan Nilai (Ppn) Yang Dideterminasi Oleh Tingkat Inflasi Dan Tingkat Suku Bunga (Doctoral dissertation, Univeristas Komputer Indonesia).

Horner, S., & Swarbrooke, J. (2020). Consumer behaviour in tourism. Routledge.

Iskandar, A. H. (2020). SDGs desa: percepatan pencapaian tujuan pembangunan nasional berkelanjutan. Yayasan Pustaka Obor Indonesia.

Junari, T., Rustiadi, E., & Mulatsih, S. (2019). Identifikasi Sektor Industri Pengolahan Unggulan Provinsi Jawa Timur (Analisis Input-Output). Jurnal Tata Loka.

Khan, M. K., Teng, J. Z., Khan, M. I., & Khan, M. O. (2019). Impact of globalization, economic factors and energy consumption on CO2 emissions in Pakistan. Science of the total environment, 688, 424-436.

Leins, S. (2020). 'Responsible investment': ESG and the post-crisis ethical order. Economy and Society, 49(1), 71-91.

Mishchenko, V., Naumenkova, S., Mishchenko, S., & Ivanov, V. (2018). Inflation and economic growth: The search for a compromise for the Central Bank's monetary policy. Banks & bank systems, (13, Iss. 2), 153-163.

Moorcy, N. H., Alwi, M., & Yusuf, T. (2021). Pengaruh Inflasi, Suku Bunga, Dan Nilai Tukar Terhadap Indeks Harga Saham Gabungan Di Bursa Efek Indonesia. Jurnal GeoEkonomi, 12(1), 67-78.

Mudji, A., & Taripar, W. (2018). Analisa Produk Domestik Bruto (Pdrb) Kota Malang. PANGRIPTA Jurnal Ilmiah Kajian Perencanaan Pembangunan, 1(1), 35-46.

Nur, T. P. T. N. T., & Malau, N. A. (2020). ANALISIS PERBANDINGAN SEKTOR BASIS DI PROVINSI JAWA (JAWA TENGAH, JAWA BARAT, & JAWA TIMUR) DAN PROVISI SULAWESI (SULAWESI UTARA, TENGAH, DATA TAHUN 2017-2019. Jurnal Equilibrium, 1(2), 15-26.

Paramithasari, I., Widayanti, S., Yuliati, N., & Wijayati, P. D. (2021). Kinerja Sektor Pertanian di Provinsi Jawa Timur pada Masa Pandemi Covid-19. ZIRAA'AH MAJALAH ILMIAH PERTANIAN, 46(3), 428-440.

Sari, S. A. E., & Pangestuty, F. W. (2022). Analisis Pengaruh Jumlah Penduduk, Tingkat Pendidikan, dan Produk Domestik Regional Bruto Terhadap Tingkat Pengangguran Terbuka di Provinsi Jawa Timur Tahun 2017–2020 (Studi Kasus pada 15 Kota/Kabupaten). Journal of Development Economic and Social Studies, 1(4).

Sari, S., & Ratno, F. A. (2020). Analisis utang luar negeri, sukuk, inflasi dan tingkat suku bunga terhadap pertumbuhan ekonomi indonesia Tahun 2014-2019. Jurnal Riset Pendidikan Ekonomi, 5(2), 91-100.

Shovia, U. (2018). Penentuan Sektor Prioritas Dalam Pembangunan Regional Berbasis Indeks PDRB Di Provinsi Jawa Timur (Doctoral dissertation, Universitas Islam Negeri Kiai Haji Achmad Siddiq Jember).

Silitonga, D. (2021). Pengaruh Inflasi Terhadap Produk Domestik Bruto (Pdb) Indonesia Pada Periode Tahun 2010-2020. ESENSI: Jurnal Manajemen Bisnis, 24(1), 2021.

Silitonga, D. (2021). Pengaruh Inflasi Terhadap Produk Domestik Bruto (Pdb) Indonesia Pada Periode Tahun 2010-2020. ESENSI: Jurnal Manajemen Bisnis, 24(1), 2021.

Sofiani, N. (2020). Pengaruh Inflasi dan Suku Bunga Bank Indonesia Terhadap Margin Pembiayaan Murabahah Pada Perbankan Syariah tahun 2017-2019 (Doctoral dissertation, IAIN PONOROGO).

Turner, H. C., Lauer, J. A., Tran, B. X., Teerawattananon, Y., & Jit, M. (2019). Adjusting for inflation and currency changes within health economic studies. Value in Health, 22(9), 1026-1032.

Wahyudi, S. T., Khusaini, M., & Nabella, R. S. (2021). Mengukur Persistensi Inflasi: Studi Komparasi Delapan Kabupaten/Kota di Jawa Timur. Jurnal Ekonomi dan Kebijakan Publik, 12(2), 117-129.

Wandita, D. T. (2020). Pengaruh Cukai Rokok terhadap Konsumsi Rokok serta Faktor-faktor yang Mempengaruhi Konsumsi Rokok. JURNAL PENDIDIKAN EKONOMI: Jurnal Ilmiah Ilmu Pendidikan, Ilmu Ekonomi Dan Ilmu Sosial, 14(1), 159-165.

Woodhouse, M. A., Smith, B., Ramdas, A., & Margolis, R. M. (2019). Crystalline silicon photovoltaic module manufacturing costs and sustainable pricing: 1H 2018 Benchmark and Cost Reduction Road Map (No. NREL/TP-6A20-72134). National Renewable Energy Lab.(NREL), Golden, CO (United States).