



## The Influence of Monetary Policies on Manufacturing Output

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### Abstract

The aim of this study is to examine the effect of monetary policies on manufacturing outputs in Indonesia. This research uses a quantitative method with the Engle-Granger Error Correction Model (E-G ECM) analysis. This study applies monetary policies variables which consist of broad money, foreign exchange reserves, inflation, and Bank Indonesia interest rates on the outputs of the manufacturing sector reflected in the value of the gross domestic product of the manufacturing sector. The data are time-series data from 2010 Q1 to 2021 Q4. The results show that in the short run, inflation significantly influences manufacturing outputs. Meanwhile, broad money, foreign exchange reserves, and interest rates do not affect manufacturing outputs. In the long run, broad money, inflation, and the interest rate of Bank Indonesia significantly influence manufacturing outputs, while the foreign exchange reserve does not significantly affect manufacturing outputs. This study emphasizes the importance of broad money, inflation, and the interest rate to increase manufacturing outputs in Indonesia.

**Keywords:** Manufacturing Output, Monetary Policies, GDP, ECM

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### INTRODUCTION

One of the Indonesian national development goals is to make the people of Indonesia prosperous and well-being in life, as

stated in the fourth paragraph of the 1945 Constitution (UUD 1945). The central government must make decisions or policies to improve economic growth. The government has

fiscal policies and Central Bank has monetary policies to improve the economy. According to (The Fed, 2017), monetary policy is an action taken by the central bank to improve the macroeconomy and maintain currency stability, full employment, and economic growth. Fiscal policy is implemented through the provision of taxes and government spending. It is fully controlled by the government and there is no central bank intervention in it.

Keynesians suggest expansionary fiscal policy can support aggregate demand and output rates through a multiplier effect. On the other hand, monetarists state that monetary policy has a more important role in the economic aspects than fiscal ones. They believe that the money supply can regulate economic growth because the outputs increase the money supply (Tan et al., 2020).

Economic growth describes the quantity and quality of goods and services produced and consumed by a nation (Roser, 2013). In short, economic growth has a fairly complex calculation. The Central Bureau of Statistics uses Gross Domestic Product (GDP) as an indicator to identify economic conditions and growth. Gross domestic product is a measure of the value of monetary outputs for goods and/or services produced within a certain period (Callen, 2020). The Central Bureau of Statistics shows the value of Gross Domestic Product has been increasing every year since 2010, even though it experienced a decline of 2.07% in 2020 due to the Covid-19 pandemic.

The United Nations (UN) in 2008 suggest The System National Account (SNA) to uniform the calculation of the GDP among its members. The Central Bureau of Statistics has changed the reference year (base year) in calculating gross domestic product. That is due to the influence of

the global economic conditions and the structural changes in the national economy in the last ten years. The calculation is to keep the consistency among the three gross domestic product income approaches: production, income, and consumption. The calculation can also summarize the difference between the national gross domestic product and regional gross domestic product (GRDP). Calculation of gross domestic product for the base year 2010 has expanded the economic sector which initially consisted of 9 sectors to 17 sectors that contribute to the Indonesian economy. The five most contributing business sectors are described in the following gross domestic product.

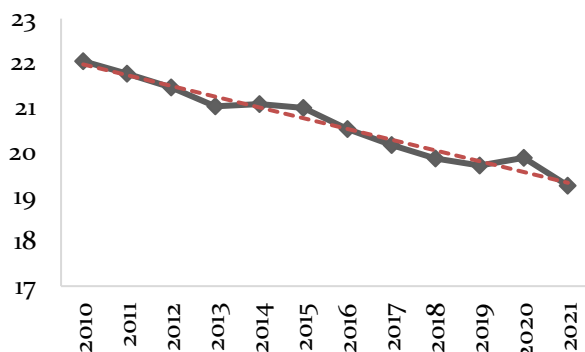
**Table 1.** Contribution of Year 2021 Gross Domestic Product (2020 Constant Values) in Percent

No.	Business Sector	GDP Contribution
1	Manufacturing	20.55
	Wholesale and Retail	
	Trade; Repair of Motor	
2	Vehicles and	13.04
	Motorcycles	
3	Agriculture, Forestry,	12.62
	and Fishing	
4	Construction	9.92
5	Mining and Quarrying	7.39

Source: Central Bureau of Statistics, 2021

Table 1 shows that Indonesian economy is dominated by the manufacturing sector (20.55% in 2020), higher than the agricultural sector (12.63%). The data indicates the theory of changes in the economic structure of the developmental pattern by Chenery. He stated that a developing country is marked by changes in its existing economic sectors. It means there is

a decreasing outputs in the agricultural sector and a shift or increase in the industrial sector (Todaro. & Smith., 2006). Development of the manufacturing sector is also a strategy to realize the value of economic growth in each country (Akpunonu & Orajaka, 2021; Muryani & Chiputyani, 2019), and government should set policies to prioritize capital-intensive industries (Chen & Lin, 2021).



**Figure 1.** Contribution of Manufacturing Industry Gross Domestic Product 2010-2021 (Percent)

Source: Central Bureau of Statistics, 2022

Based on the value of the gross domestic product, there is a decreasing trend in the contribution of gross domestic product by the manufacturing sector. Gross domestic product for the base year 2010 divides Indonesian economics into 17 sectors (in 2000, there were only 10). The manufacturing industry is the most contributing sector (22.04%) but then shows a decline pattern until 2013 (21.76% in 2011; 21.45% in 2012; and 21.03% in 2013).

In 2014, the manufacturing sector has developed well by a percentage of 20.08%. Its contribution to Indonesian economy has increased by 0.05%. This positive growth did not last long because from 2015 to 2021, the manufacturing sector experienced declining

performance although it still dominated to the GDP. In 2015, this sector contributed 20.99%; in 2016, it contributed 20.52% of the total gross domestic product; in 2017, it decreased by 20.16%. Again, it performed bad results in 2018 at the contribution of 19.86%, 19.70% in 2019, slightly increased in 2020 by 19.87%, but decreased again in 2021 by 19.25% (minus 0.62%). Therefore, based on the decreasing trend of the manufacturing sector, it needs further study to examine whether monetary policies influence manufacturing sector outputs.

A study that has been conducted by (Otokini et al., 2018) with an error correction model (ECM) approach and it was found that the inflation variable has a significant positive effect, interest rates have a significant negative effect, and the money supply has a negative and significant effect on manufacturing industry outputs in Nigeria. By using the ARDL analysis tool, George-Anokwuru & Bosco (2020) showed that manufacturing outputs in Nigeria in both the short run and long run in the period 1980 to 2018 was positively influenced by interest rates, while inflation does not significantly affect manufacturing outputs. By using the ARDL analysis method, Osakwe et al. (2019) got the results that monetary policy (interest rates, treasury bill rates, cash reserve ratios, and money supply) was only able to affect manufacturing outputs in Nigeria during the period (1986-2017) in short run.

Olamade (2019) examined the determinants of manufacturing outputs in 1981-2017 using the ARDL method and the results showed that the real sector (manufacture and service) was influenced by domestic credit and monetary policy can provide good benefits to the real sector. Still in Nigeria, in the period 1981-2019, Mustafa & Jeffrey (2021) used the ECM

method and the result showed that manufacturing outputs was directly and significantly affected by manufacturing credit, then government spending has a direct but not significant effect, while the exchange rate and corruption were not significant to manufacturing outputs.

Okafor et al. (2018) conducted research on manufacturing outputs in the 1981Q1-2018Q4 period with the SVAR method, and the results showed that the exchange rate and inflation decreased industrial outputs. Onakoya et al. (2017) in their study showed that monetary policy (external reserve, exchange rate, board money, inflation rate, and interest rate) only has a positive effect in the long run on manufacturing outputs in Nigeria in the 1981-2015 period.

Meanwhile, Ozigbo (2021) used the VECM method found that high-interest rates can hamper manufacturing outputs in Nigeria. Likewise, the results of study by Isaac et al. (2019) with a simple regression model (least square) found that interest rates have a significant negative effect on manufacturing outputs. Odebode & Aras (2019) in their study using the SVAR analysis method explained that in the 2010Q1-2018Q4 period, the exchange rate had the influence manufacturing outputs.

Besides Nigeria, a study by Bekele & Haile (2020) in Ethiopia indicated that in the long run, macroeconomic variables (inflation, exchange rates, and trade openness) have a significant positive effect on manufacturing outputs using the ARDL model.

To find out what affects manufacturing output in Indonesia, Dhina & Wasiaturrahma (2018) conducted a study using the ECM analysis method in the 2005Q1-2017Q4 period and got the results that in the long run an increase in loan interest rates and inflation can reduce

manufacturing outputs significantly, and FDI can increase the value of manufacturing outputs in Indonesia. In the short run, FDI is not significant while interest rates on loans and inflation have a negative and significant impact on manufacturing outputs in Indonesia. Amri (2022) applied the ECM method found that manufacturing outputs in the 2011Q1-2020Q4 period was significant and positive influenced by the exchange rate and labor in the short run and long run, and the money supply positively and significantly affected manufacturing outputs in the long run.

Furthermore, research conducted by Muryani & Chiputyani (2019) obtained the results that by analyzing panel data the variables of labor, capital, materials, and energy together influenced manufacturing outputs positively and significantly. From the three studies, this study added one newer variable that has never been used in previous studies regarding manufacturing outputs in Indonesia. The variable is foreign exchange reserves which is one of the monetary policy instruments in Indonesia that is needed in manufacturing activities. Considering the existence of globalization, international markets are freely open and require foreign currencies to carry out transactions for manufactured products on an international scope.

Based on the explanation above, the purpose of this study is to determine the effect of monetary policy (Board money, foreign exchange reserves, Inflation, and Interest Rate) on manufacturing outputs in the short run and long run in Indonesia in the 2010Q1-2021Q4 period.

## RESEARCH METHODS

This research applied the quantitative method. Certain data are needed to investigate the factors that influence the outputs of the

processing industry by using different mathematical or statistical tools. The analytical tool used in this study is the Engle-Granger Error Correction Model (E-G ECM) using four independent variables: broad money, foreign exchange reserves, inflation, and interest rates, on manufacturing outputs.

The manufacturing outputs is proxied by the value of manufacturing sector on the gross domestic product. The data are secondary and ready-to-use provided by a second source, taken from the Central Bureau of Statistics and Bank Indonesia. The economic model contained in the equation is re-formulated into the ECM equation. It forms empirical models as follow.

Short-run:

$$D(\text{LogOutput}) = \alpha_0 + \alpha_1 D(\text{LogM2})_t + \alpha_2 D(\text{LogFER})_t + \alpha_3 D(\text{Inflation})_t + \alpha_4 D(\text{BI\_Rate})_t + \text{ECT}_{t-1} + \varepsilon_t$$

Where D is first order differentiation,  $\alpha_0$  is total Gross Domestic Product of the manufacturing sector,  $\alpha_1$ - $\alpha_4$  is short run independent variable ratio regression coefficient, Output is manufacturing sector of Gross Domestic Product (Billion IDR), M2 is amount of money in circulation (Billion IDR), FER is total foreign exchange reserves (Billion IDR), Inflation is inflation rate (%), BI Rate is Bank Indonesia benchmark interest rate (%), Log is logarithm, t is time series from 2010Q1-2021Q4, ECT is error correction term,  $\varepsilon_t$  is residual for short run.

Long-run:

$$\text{LogOutput} = \beta_0 + \beta_1 \text{LogM2}_t + \beta_2 \text{LogFER}_t + \beta_3 \text{Inflation}_t + \beta_4 \text{BI\_Rate}_t + \mu_t$$

Where  $\beta_1$ -  $\beta_4$  is long-run independent variable regression coefficient,  $\beta_0$  is constant,  $\mu_t$  is residual for long run.

Gross domestic product of the manufacturing sector is the added value obtained from the production of the manufacturing sector in a particular country or it can also be said to be the final value of the goods or services produced by the manufacturing sector. The gross domestic product consists of current prices and constant prices. Gross domestic product is used when current prices are used to see the economic structure in balance, while gross domestic product at constant prices is used to see the value of economic growth from year to year.

The money supply is the amount of money that circulates in the community in a country and at a certain period. Narrow money consists of currency outside bank and savings that can be taken at anytime. The money supply used is broad money or can be interpreted as money in circulation in broad definition (Mazher & Dahlan, 2020). The broad money supply is total of narrow amount of money plus time deposits. Time deposits consist of savings deposits, fixed deposits, call deposits, and margin deposits (Gnawali, 2019).

Foreign exchange reserves are the amount of assets reserved by the central bank in the form of foreign currency that will be used to carry out the obligations of the monetary authority and also influence monetary policy itself. The types of currencies commonly used are USD, EUR, GBP, and JPY which are often used in international transactions.

Inflation rate is a condition of increasing prices of goods in general in the market continuously within a certain area and period. Inflation is calculated by the Central Bureau of Statistics using the consumer price index (CPI).

The Bank Indonesia benchmark interest rate is a monetary policy instrument set by Bank Indonesia as the central bank and announced by the Board of Governors of Bank Indonesia to the public every month. The Bank Indonesia benchmark interest rate is used to regulate the money supply in the community in an effort to maintain the stability of the IDR.

## RESULTS AND DISCUSSION

There are some pre-requirements before using the EG-ECM Model. The first step in estimating the ECM model is conducting a stationary test on the data. It aims to check if the data are stationary at the first different levels, and ECM data use a time-series model. When the findings are not stationary, they may generate inappropriate results in decision-making efforts. After the unit root test using Philips-Perron Test, the results show that the data are not stationary

at the level but the there were stationary at first different level. Since the pre-requirements of the ECM Model are fulfilled, EG-ECM is alloed to be applied.

To identify the influence of the money supply, foreign exchange reserves, inflation, and interest rates of Bank Indonesia on the Gross Domestic Product of the manufacturing sector, there will be an ECM analysis for both long and short run. In the short run estimation, the money supply does not significantly influence the gross domestic product of the manufacturing sector. The foreign exchange reserves do not affect the gross domestic product of the manufacturing sector. Inflation significantly affects the gross domestic product of the manufacturing sector. The interest rate of Bank Indonesia has no significant influence on the gross domestic product of the manufacturing sector.

**Table 2.** Estimation ECM in Short Run

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007147	0.005471	1.306476	0.1987
Log Broad Money	0.179606	0.092175	1.948520	0.0582
Log Foreign Reserves	-0.064829	0.090151	-0.719113	0.4762
Inflation	-0.008011	0.003873	-2.068334	0.0450
BI Rate	0.018240	0.011925	1.529501	0.1338
ECT (-1)	-0.732365	0.157930	-4.637287	0.0000
R-squared	0.401560	Prob (F-statistic)		0.000577

Source: Data Processed, 2022

The ECT significantly influences probability value, so the ECM model is valid and can correct imbalances in short run estimates into long run balance. Result of the coefficient of determination (R-squared) is 0,401560. Its means

that 40% of the variation of dependent variable can be explained by variation of independent variables and the 60% of the variation is explained by another variables exclude in the model.

**Table 3.** Estimation ECM in Long Run

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.094846	0.551462	12.99830	0.0000
Log Broad Money	0.394104	0.023185	16.99830	0.0000
Log Foreign Reserves	-0.005015	0.060360	-0.083091	0.9342
Inflation	-0.011297	0.004084	-2.766377	0.0083
BI Rate	0.014649	0.007079	2.069275	0.0446
R-squared	0.943057	Prob (F-statistic)		0.000000

Source: Data Processed, 2022

The long run estimation results show that the money supply has a significant relationship to the gross domestic product of the manufacturing sector. The probability value is higher than 0.05, which shows that foreign exchange reserves do not significantly affect the gross domestic product of the manufacturing sector. Inflation can influence the gross domestic product of the manufacturing sector, whereas interest rate has a significant effect on the gross domestic product of the manufacturing sector. Result of the coefficient of determination (R-squared) is 0.943057. Its means that 94% of the variation of dependent variable can be explained by variation of independent variables and the 6% of the variation is explained by another variables exclude in the model.

The short run estimation results in Table 2 shows a coefficient value of Broad Money is 0.179606 with a probability value of 0.0582. It is higher than the alpha (0.05) and has no significant effect on manufacturing outputs. The long run estimation generates a coefficient value of 0.394104 with a probability value of 0.0000 lower than the alpha (0.05). It means that the money supply significantly and positively influences manufacturing outputs in the long run. If the money supply increases by 1% (with the assumption of *ceteris paribus*), the value of

manufacturing outputs will also increase by 0.39104%.

The result is consistent with some previous studies (Amri, 2022; Hamed, 2020; Onakoya et al., 2017) that the money supply positively and significantly affects manufacturing outputs in the long run. Furthermore, this study contradicts to previous study conducted by Otokini et al. (2018) that the money supply has a negative effect on manufacturing outputs. The finding shows that increasing the money supply can support manufacturing outputs because people will allocate their funds for consumption produced by manufacturing sectors. Therefore, the producers will produce more goods and increase production, and improve manufacturing outputs.

Foreign exchange reserves are one of the monetary policies in the form of currency that is reserved at the central bank for development of financing and international transaction tools (Davis et al., 2021). The short run estimation generates a coefficient value of -0.064829 with a probability value of 0.4762. It is higher than alpha 0.05 and there is no significant effect of foreign exchange reserves on manufacturing outputs in the short run. The long run estimation shows a coefficient value of -0.005015 with a probability of 0.9342 (higher than alpha 0.05). It means no significant effect of the foreign exchange reserve on manufacturing outputs in the long run.

Hammed (2020) suggested manufacturing sectors do not affected by external shocks in export and import activities. However, this finding is contradict to Onakoya et al. (2017), that foreign exchange reserves has a positive effect on manufacturing outputs in Nigeria.

The short run estimation generates a coefficient value of inflation is  $-0.008011$  with a probability value of  $0.0450$  lower than alpha  $0.05$ . Inflation negatively and significantly affects manufacturing outputs. The coefficient indicates that if the inflation rate increases by  $1\%$ , it can reduce manufacturing outputs by  $0.008011\%$ , ceteris paribus. The long run estimation shows inflation's coefficient value of  $-0.011297$  with a probability value of  $0.0083$  lower than the alpha value of  $0.05$ .

It means that inflation can negatively and significantly influence the manufacturing outputs. if the inflation rate increases by  $1\%$  in the long run, it will reduce manufacturing outputs by  $0.011297$ , with the ceteris paribus assumption. The finding is consistent with previous studies Dhina & Wasiaturrahma (2018), George-Anokwuru & Bosco (2020) and Okafor et al. (2018) that inflation negatively and significantly affect manufacturing outputs. This study is not in line with previous studies Bekele & Haile (2020), Onakoya et al. (2017), Otokini et al. (2018) that inflation has a positive effect on manufacturing outputs. (Amri, 2022) on his study also found that the negative effect of inflation on manufacturing outputs was only insignificant in both the short and long run.

Inflation is a phenomenon where prices generally increase continuously within a certain period (Adu-Gyamfi et al., 2020). The results show that the increasing inflation rate will hinder manufacturing outputs because it can suppress investment in a country, increase the interest

rates and speculative investment, disrupt economic development and instability, deficit balance payments, and obstruct people's welfare (Xia, 2021). In overall, low inflation is preferred for the higher manufacturing outputs.

Based on the theory of liquidity preference, Keynes explains that interest rates are formed from the interaction of supply and demand in the money market (Culham, 2020). The short run estimation generates a coefficient value of  $0.018240$  with a probability value of  $0.1338$  (higher than alpha  $0.05$ ). It means that the interest rate of Bank Indonesia has no short run effect on manufacturing outputs.

The long run estimation shows that the Bank Indonesia interest rate has a coefficient value of  $0.014649$  with a probability value of  $0.0446$  (lower than the alpha value of  $0.05$ ). The Bank Indonesia interest rate has a positive and significant effect on manufacturing outputs in the long run. When the interest rate of Bank Indonesia increases by  $1\%$ , it can increase the value of manufacturing outputs by  $0.014649$ , ceteris paribus. It is consistent with study by (George-Anokwuru & Bosco, 2020).

Interest rates are used proactively to adjust economic conditions (Ozigbo, 2021). However, in practice, interest rates that are too high can disrupt economic activity because high-interest rates can affect people's desire to save compared to using their money for consumption, which eventually causes the economy to become slower. On the other hand, interest rates at a certain level can encourage economic activity to overcome excessively high inflation. The increasing interest rate can also increase manufacturing outputs, because it can be used to control high inflation. This finding provides evidence of the benchmark interest rate used by Bank Indonesia to control the inflation rate. If the inflation can be well-



managed, all business sectors can maximize the production process without increasing the raw prices.

## CONCLUSION

Based on the discussion above, the money supply positively and significantly influences monetary outputs only for the long run. Foreign exchange reserve has no effect either in the short run or in the long run. Inflation has a significant and negative effect in both the short and long runs on manufacturing outputs. Bank Indonesia's interest rate does not significantly affect manufacturing outputs in the short run, while it has a positive and significant influence in the long period. Based on the short run estimation, the ECT can negatively and significantly affect manufacturing outputs.

## REFERENCES

- Adu-Gyamfi, G., Nketiah, E., Obuobi, B., & Adjei, M. (2020). Trade Openness, Inflation and GDP Growth: Panel Data Evidence from Nine (9) West Africa Countries. *Open Journal of Business and Management*, 08(01), 314–328. <https://doi.org/10.4236/ojbm.2020.81019>
- Akpunonu, U. E., & Orajaka, U. P. (2021). Effect of Monetary Policy on Industrial Growth in Nigeria. 4(1), 47–60. <https://doi.org/10.52589/IJEBI-1Z4IYBYE>
- Amri, F. (2022). THE EFFECT OF INFLATION, EXCHANGE RATE, LABOR, AND MONEY SUPPLY ON THE MANUFACTURING INDUSTRY SECTOR IN INDONESIA 2011 – 2020. 7(1), 116–131. <https://doi.org/10.20473/jiet.v7i1.30434>
- Bekele, D. T., & Haile, M. T. (2020). The Impact of Macroeconomic Factors on Manufacturing Sector Value Added in Ethiopia: An Application of Bounds Testing Approach to Cointegration. *Journal of Economics, Business, & Accountancy Ventura*, 23(1), 96–107. <https://doi.org/10.14414/jebav.v23i1.2164>
- Callen, T. (2020). Gross Domestic Product: An Economy's All. International Monetary Fund.
- Chen, B., & Lin, J. Y. (2021). Development strategy, resource misallocation and economic performance. *Structural Change and Economic Dynamics*, 59, 612–634. <https://doi.org/10.1016/j.strueco.2021.10.003>
- Culham, J. (2020). Revisiting the concept of liquidity in liquidity preference. *Cambridge Journal of Economics*, 44(3), 491–505. <https://doi.org/10.1093/cje/bez057>
- Davis, J. S., Fujiwara, I., Huang, K. X. D., & Wang, J. (2021). Foreign exchange reserves as a tool for capital account management. *Journal of Monetary Economics*, 117(xxxx), 473–488. <https://doi.org/10.1016/j.jmoneco.2020.02.006>
- Dhina, A. P., & Wasiaturrehman. (2018). Determinant of Indonesian Manufacturing Output. *Journal of Developing Economies*, 3(1), 61. <https://doi.org/10.20473/jde.v3i1.8686>
- George-Anokwuru, C. C., & Bosco, I. (2020). Influence of Interest Rate on Industrial Output in Nigeria. *Journal of Economics and Management Sciences*, 3(2), p21. <https://doi.org/10.30560/jems.v3n2p21>
- Gnawali, L. (2019). Money supply and economic growth of Nepal. *International Journal of Economics, Business and Management Research*, 3(09), 133–149. [https://www.ijebmr.com/uploads/pdf/archivepdf/2020/IJEBMR\\_442.pdf](https://www.ijebmr.com/uploads/pdf/archivepdf/2020/IJEBMR_442.pdf)
- Hammed, Y. S. (2020). Monetary Policy Shocks and Manufacturing Output in Nigeria (1981–2018). *Advanced Journal of Social Science*, 7(1), 27–37. <https://doi.org/10.21467/ajss.7.1.27-37>
- Isaac, O. M., Akyuz, M., & Jiya, N. S. (2019). Effect of Interest Rate on The Growth of Manufacturing Sector in Nigeria *Sosyal Araştırmalar ve Davranış Bilimleri Dergisi Journal of Social Research and Behavioral Sciences*. December.
- Malisa, N., & Karsinah, K. (2019). Analysis of Exchange Rate Pass-Through in Indonesia with VECM Approach. *Efficient: Indonesian Journal of Development Economics*, 2(2), 424–435. <https://doi.org/10.15294/efficient.v2i2.30802>
- Mazher, M. A., & Dahlan, J. (2020). Determining Factor for Malaysian Money Demand Function. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 4(03), 79–90. <https://doi.org/10.29040/ijebav.v4i03.1091>
- Muryani, & Chiputyani, L. (2019). The Analysis of Manufacturing Sector in Indonesia. *KnE Social Sciences*, 3(13), 1200. <https://doi.org/10.18502/kss.v3i13.4277>
- Mustafa, I., & Jeffrey, E. O. (2021). Impact of Bank Deposit on Manufacturing Sector Output: The Case of Nigeria. *The International Journal of Business & Management*, 9(4), 272–277.

- <https://doi.org/10.24940/theijbm/2021/v9/i4/bm2104-027>
- Odebode, A., & Aras, O. N. (2019). The Impact of Globalization on Manufacturing Output: The Case of Nigeria. *Journal of Management, Economics, and Industrial Organization*, September, 60–77. <https://doi.org/10.31039/jomeino.2019.3.3.5>
- Okafor, T., Adegbite, E., & Abiola, B. (2018). Exchange rate fluctuations, inflation and industrial output growth in Nigeria. *International Journal of Supply Chain Management*, 7(5), 118–128.
- Olamade, O. (2019). Monetary Policy and the Real Economy: A Study of the Manufacturing and Services Sectors in Nigeria. *Journal of Economics, Management and Trade*, 25(1), 1–13. <https://doi.org/10.9734/jemt/2019/v25i130187>
- Onakoya, A. B., Ogundajo, G. O., & Johnson, B. S. (2017). Monetary Policy and the Sustainability of the Manufacturing Sector in Nigeria. *Review of Innovation and Competitiveness*, 3(4), 71–88. <https://doi.org/10.32728/ric.2018.34/4>
- Osakwe, A. C., Ibenta, S. N. O., & Ezeabasili, V. N. (2019). Monetary Policy and the Performance of the Manufacturing Sector in Nigeria (1986-2017). *International Journal of Academic Research in Business and Social Sciences*, 9(2), 399–413. <https://doi.org/10.6007/ijarbss/v9-i2/5553>
- Otokini, T.-A., Felicia O., O., Lawrence Uchenna, O., & Jeremiah O., E. (2018). Impact of Exchange Rate Deregulation on manufacturing Sector Performance in Nigeria. *International Journal of Environment, Agriculture and Biotechnology*, 3(3), 994–1001. <https://doi.org/10.22161/ijeab/3.3.36>
- Ozigbo, S. (2021). INTEREST RATE DYNAMICS AND ITS IMPACT ON THE PERFORMANCE OF THE MANUFACTURING SUB-SECTOR IN NIGERIA. April.
- Roser, M. (2013). Economic Growth. Our World in Data.
- Tan, C. T., Mohamed, A., Habibullah, M. S., & Chin, L. (2020). The Impacts of Monetary and Fiscal Policies on Economic Growth in Malaysia, Singapore and Thailand. *South Asian Journal of Macroeconomics and Public Finance*, 9(1), 114–130. <https://doi.org/10.1177/2277978720906066>
- The Fed. (2017). What is the difference between monetary policy and fiscal policy, and how are they related? Board of Governors of the Federal Reserve System.
- Todaro, M. P., & Smith, S. C. (2006). *Economic Development*. Addition Wesley Longman, Inc.
- Xia, X. (2021). Unemployment, Inflation and Impact of GDP in India. *Proceedings of the 6th International Conference on Financial Innovation and Economic Development (ICFIED 2021)*, 166(Icfied), 641–647. <https://doi.org/10.2991/aebmr.k.210319.118>