Information Management and Business Review (ISSN 2220-3796)
Vol. 15, No. 3, pp. 306-313, September 2023

Nexus between Macroeconomic Factors and Economic Growth in Malaysia: An Autoregressive Distributed Lag Approach

Hazalinda Harun*, Noorain Mohd Nordin, Nornajihah Nadia Hasbullah, Suraya Hamimi Mastor, Rohaiza Kamis & Amizatul Hawariah binti Awang
Faculty of Business & Management, Universiti Teknologi MARA, Cawangan Melaka Kampus Bandaraya Melaka, Malaysia
hazalinda289@uitm.edu.my*

Abstract: This review study digs into the complex relationship that exists between the development of GDP in Malaysia and major macroeconomic variables, such as the country's money supply, inflation rate, and currency rate. In a time when countries all over the world are working hard to achieve maximum economic prosperity through efficient economic strategies, the irregularities in GDP growth that occur within a nation can lead to an increased prevalence of poverty and impede progress in crucial areas such as healthcare, education, crime rates, and overall economic development. It is of the utmost importance to gain an understanding of the elements that influence GDP development to reduce the risk of sociopolitical instability. Because nations are becoming more aware of the various elements that could potentially affect economic growth, this study was prompted to determine the precise mechanisms that are at play because of this awareness. This study employs the Autoregressive Distributed Lag (ARDL) methodology to yield robust statistical insights into the nexus between macroeconomic variables and economic growth in Malaysia. We have used quarterly data ranging from the initial quarter (Q1) of 2000 to the last quarter (Q4) of 2020 for our analysis. The findings of this study provide important insights into the dynamic links between GDP growth and the selected macroeconomic determinants. As a result, the findings provide policymakers, academics, and practitioners with significant information that can be used to design economic plans that are informed by relevant data. In addition, this study emphasizes the necessity for future research endeavors to go deeper into this topic, bringing attention to the requirement for new views and the active participation of new academics, politicians, and practitioners. This concerted effort is necessary to promote sustainable economic growth and stability in Malaysia and elsewhere.

Keywords: *Real GDP, Money Supply (M2), Inflation rate, Exchange rate, ARDL.*

1. Introduction

The situation in Malaysia right now is characterized by tremendous development progress, and the nation is currently on its way to becoming a developed nation. The nation has been successful in transforming its economic model from one that was highly dependent on agriculture into one that is defined by a diverse manufacturing and service-based economy. This transformation has been possible because the nation has been able to effectively adapt its economic model. This shift is aligned with Sustainable Development Goal (SDG) 8, which aspires to guarantee inclusive and sustained economic growth, full and productive employment, and decent labor for all people. The Gross Domestic Product (GDP) is one of the most important economic indicators that can be used to measure the growth and performance of Malaysia's economy. According to the World Bank (2023), Malaysia's manufacturing sector has seen tremendous expansion in recent years, to the point that it now accounts for more than 60 percent of the country's total exports and contributes 25 percent to the country's Gross Domestic Product (GDP). In addition, the contribution that the service sector makes to the GDP has grown to the point where it now accounts for 54% of the total, which is far more than the contribution that the mining and quarrying industries make, which is just 9% (World Bank, 2023).

However, irregular rates of GDP growth within a nation can contribute to a range of societal concerns, such as rising rates of poverty, delayed progress in areas such as health and education, increased crime rates, and impediments to overall economic development. These problems can all be traced back to the nation's economy. Despite a GDP growth rate that was comparatively high at 5.4% in 2022 and a forecasted growth rate that was 4.0% in 2023, Malaysia confronts challenges in continuing this growth trajectory. The price of food and utilities has been on the rise, which has contributed to an acceleration of inflation. Additionally, the policy objective of the administration is not totally visible, and the federal government is still running deficits.

In addition, external variables like as global headwinds, such as Russia's conflict with Ukraine and China's zero-Covid policy, may pose further hurdles for the Malaysian economy, particularly in the fourth quarter of 2023. This is particularly true if the conflict between Russia and Ukraine continues. Inflation, government deficits, and economic pressures from outside Malaysia all need to be overcome if the country is to keep up its current rate of economic expansion. It is essential to achieve consistent and equitable growth in terms of per capita GDP growth if one intends to alleviate poverty, improve the well-being of society as a whole, and sustain economic development. This growth must be achieved to fulfill these goals. In conclusion, finding solutions to the challenges associated with GDP growth and maintaining economic stability are both essential to the continued development and prosperity of the country in the future.

2. Literature Review

Real Gross Domestic Product: The Real Gross Domestic Product, often known as Real GDP, is a fundamental economic metric that can be used to evaluate a country's or region's overall economic performance and growth. It is an essential indicator for policymakers, economists, and analysts to use to comprehend the state of an economy and its future course of development. According to Fix (2019), real GDP is an unreliable indicator because it is subjective and relies on a quantity that does not exist. On the other hand, Dritsaki (2015) applies econometric models to the forecasting of the real GDP rate in Greece and finds that it is improving consistently over time. Vintrova (2005) draws attention to the limitations of GDP and proposes complementing it with other metrics, particularly in open economies with small populations where exports play a big role. Finally, Morales-Zumaquero (2016) studies convergence in real GDP growth and finds evidence of convergence in different income categories. This is even though the impact of financial crises and exchange-rate regimes varies between countries (Fix, 2019; Dritsaki, 2015; Vintrova, 2005; Morales-Zumaquero, 2016). In general, the articles present a variety of perspectives, some of which conflict with one another, on the usefulness and restrictions of real GDP as an indicator of economic progress.

In previous studies, GDP is heavily influenced by macroeconomic conditions. Hsing's (2004) research revealed a positive association between Mexico's real GDP, real M2, government deficit spending, stock prices, U.S. output, and world oil prices. It was also found that the government debt ratio, peso depreciation, and expected inflation rate negatively impacted Mexico's real GDP. Yildirtan's analysis in 2016, focusing on EU member states, identified the variable with the highest GDP volatility to be "bond yield," which exhibited significant fluctuations and exerted the greatest influence on GDP. Hsing's study in 2005, conducted in Venezuela, identified several factors that contributed positively to real GDP, including rising real M2, government deficit spending, Bolivar depreciation, expected inflation, and world oil prices. Arratibel's examination of EU Member States in Central and Eastern Europe in 2009 discovered a positive correlation between lower exchange rate volatility and higher economic growth, FDI (Foreign Direct Investment) stocks, current account deficits, and excess credit (Arratibel, 2009; Hsing, 2004; Yildirtan, 2016).

Money Supply (M2): The role of money in the economy is a significant concern for policymakers and economists due to its impact on crucial macroeconomic indicators such as inflation and exchange rates (Yousfat, 2015). The M2 money supply refers to a broad measure of the amount of money circulating in an economy, including currency, demand deposits, time deposits, and near money. Near money refers to highly liquid assets that can be easily converted into cash, such as money market funds and savings accounts. Recently, there has been a growing focus on the convergence between the money supply and various macroeconomic variables in the fields of monetary and financial economics, resulting from ongoing debates among economists and financial scholars regarding the relationship between the money supply and various economic factors. These modifications in macroeconomic policies have far-reaching effects on national income, price levels, interest rates, and exchange rates, thereby impacting overall economic development. The diversity of opinions among economists concerning the effectiveness of short- and long-term growth-enhancing policies underscores the importance of macroeconomic policies for long-term development. Gatawa et al. 2017 argue that monetary variables are more effective and reliable than fiscal variables in driving changes in economic activity. Nevertheless, the exploration of the impact of macroeconomic variables on Nigeria's economy has given rise to conflicting viewpoints. Existing research diverges in terms of interpretation and directional relationships. Several findings underscore the significant influence of

macroeconomic variables, with particular emphasis on the moderating role of the money supply, a perspective supported by Gatawa et al. 2017 and Olawale in 2015.

While there is agreement that economic performance plays a pivotal role in driving macroeconomic changes, these studies differ in their conclusions regarding the direction of this effect. Another study by Ditimi et al. focused on the impact of money supply on inflation in Nigeria from 1970 to 2016. Using co-integration tests and error correction approaches, the study found a significant positive relationship between money supply and economic growth in Bangladesh. These findings suggest that increasing the money supply can have a positive effect on GDP growth. On the other hand, some studies indicate a minor relationship between interest rates and GDP, with money supply having a greater impact (Ershad & Mahfuzul, 2017). For instance, a study focusing on a selection of ASEAN countries found a positive correlation between the money supply and economic growth (Matres & Le, 2021). This research indicated that an increase in the money supply led to an uptick in GDP growth, suggesting that a higher money supply provides businesses and consumers with more capital for investment and consumption, thereby stimulating economic activity and GDP growth. Kausar (2020) found a positive effect of money supply on GDP in Pakistan. Hameed (2010) also observed that growth in the money supply greatly affects GDP in Pakistan. Dingela (2017) found a statistically significant positive relationship between money supply and economic growth in South Africa. Ihsan (2013) emphasized the role of money supply in influencing GDP in Pakistan, stating that excessive money supply can lead to high inflation rates and that controlling indicators such as CPI and interest rates can contribute to increase GDP.

Conversely, another study by Kormendi and Meguire (1985) identified a negative relationship between the average growth rate of the money supply and real output growth in a cross-country analysis. This implies that an increase in the money supply may not necessarily result in higher GDP growth and could even have adverse effects on the economy. Furthermore, the study conducted by Levine and Revelt (1992) did not uncover a strong correlation between monetary indicators and real GDP growth across countries. Given these divergent findings, it is essential to recognize the intricate and multifaceted nature of the relationship between the money supply and GDP growth. In summary, the relationship between the money supply and GDP growth is a complex and multifaceted issue that has been the subject of ongoing research and debate among economists. While some studies suggest a positive correlation between the money supply and economic growth, others indicate a negative relationship or a limited connection between interest rates and GDP. Therefore, the motivation for this study arises from the necessity to conduct a comprehensive examination of the relationship between GDP and the money supply (M2).

Inflation Rate: Inflation and GDP growth are two important macroeconomic indicators that have been the subject of extensive research in the literature. Inflation and GDP growth are two important macroeconomic indicators that are closely related. Inflation refers to the rate at which the general level of prices for goods and services is rising, while GDP growth measures the increase in the value of goods and services produced by an economy over a certain period. The relationship between inflation and GDP growth has been the subject of much debate in the literature. This literature review aims to examine the effect of inflation rate and GDP growth by analyzing recent studies.

Some studies suggest a positive relationship between inflation and GDP growth, arguing that moderate levels of inflation can stimulate economic activity. For instance, research on the relationship between inflation and GDP growth in Pakistan found that inflation has a positive impact on GDP growth by encouraging productivity and output (Khan, 2021). Kankpeyeng (2021) found that GDP grows positively at a general level of inflation and low rates of inflation in Ghana. On the other hand, Uddin (2021) and Ayyoub (2011) found a positive relationship between inflation and GDP growth in Pakistan, indicating that an increase in inflation is associated with an increase in GDP growth. However, Ayyoub (2011) also suggests that after a certain threshold level, inflation becomes harmful to GDP growth in Pakistan.

Other studies, however, suggest a negative relationship between inflation and GDP growth. These studies argue that high levels of inflation can have negative effects on economic growth. They suggest that inflation can lead to a crowding-out effect on private investment and create inflationary pressures, which can hinder economic growth (Maku & Ogbuji, 2019). Moreover, high inflation rates can distort economic activity and reduce investment in productive enterprises, further impacting economic growth negatively (Bhattacharya &

Patnaik, 2017). A study conducted in South Africa found that inflation has a significant negative impact on economic growth (IMF, 2022). The study also found that economic growth became more responsive to changes in the inflation rate in the long run after the adoption of inflation targeting. Another study conducted in Sri Lanka found that when inflation rises by 1%, economic growth slows by 0.61%, and when inflation declines by 1%, the economy grows by 0.53% (Madurapperuma, 2016). This means that a high-inflation scenario can be more destructive than the benefits gained from a low-inflation scenario. A review of the international literature found that the impact of inflation on economic growth varies from country to country and over time. The impact of inflation on GDP growth is a complex and multifaceted issue.

Exchange Rate: The literature has extensively discussed the relationship between exchange rates and GDP growth, with some research suggesting a favorable impact on economic growth, while others have reported varying outcomes. This review of literature intends to assess recent research concerning the influence of exchange rates on GDP growth.

Many studies find evidence linking economic growth to the behavior of the exchange rate. Hausmann et al. (2004) conclude that the acceleration of growth is positively correlated with the depreciation of the real exchange rate, among other factors. The exchange rate regime can influence economic growth through investment or increased productivity. Pegged regimes have higher investment; floating regimes have higher productivity. Momodu (2015) found that exchange rate regimes in Nigeria did not influence the level of output. However, Abbas (2022) found a positive effect of the exchange rate on economic growth using panel data from various countries.

Razzaque (2017) focused on Bangladesh and found that a 10% depreciation of the real exchange rate was associated with a 3.2% rise in aggregate output in the long run. Vorlak (2019) studied Cambodia and found a positive correlation between exchange rate and GDP, but a negative correlation between trade openness and GDP. Overall, the papers suggest that the relationship between exchange rate and GDP growth is complex and may vary depending on the country and specific circumstances. Ferreira et al. (2016) reinforce the idea that the exchange rate can affect the country's productive structure since depreciation. Excessive exchange rate volatility can be counterproductive for the real economy. The threshold above which exchange rate volatility starts to have negative effects on economic growth varies across countries and depends on the level of development, the degree of financial development, and the exchange rate regime. Petreski (2009) finds evidence that the exchange rate regime does not affect economic growth. The literature suggests that the relationship between exchange rate and GDP growth is complex and may vary depending on the country and specific circumstances.

The literature suggests that the relationship between exchange rate and GDP growth is complex and may vary depending on the country and specific circumstances. While some studies have found a positive effect of the exchange rate on economic growth, others have found mixed results. Policymakers need to consider the specific characteristics of their country's economy when formulating exchange rate policies to promote sustainable economic growth.

3. Method and Data

Source of Data Collection: The research utilized secondary data from DataStream and the World Bank Database. In this study we have used the quarterly data ranging from the initial quarter (Q1) of 2000 and the last quarter (Q4) of 2020, focusing on macroeconomic variables such as Gross Domestic Product (GDP), money supply (M2), exchange rate (EXR), and inflation rate (IFR). To better exemplify the bond between explained and explanatory variables, the following econometric equation was developed.

$$RGDPt = \beta_{\circ} + \alpha 1MSt + \alpha 2IFRt + \alpha 3ERt + + \varepsilon t \quad (1)$$

In Equation (1), the RGDP is a measure of the total value of all finished goods and services produced within a country's borders during a specific period. The MS is an acronym for money supply, illustrating Money supply (M2) is a measure of the total amount of money in circulation in an economy, including cash and various types of deposits that can be easily converted to cash, such as checking accounts, savings accounts, and certificates of deposit (CDs). The inflation rate is abbreviated as IFR, showing a measure of the percentage change in the general price level of goods and services in an economy over some time (Ogbuji &

Ezeoke, 2021). ER is the exchange rate which shows the conversion rate of Malaysian currency compared to the U.S. dollar. The subscript t shows the nature of variables, i.e., time series, β is constant, and εt, a residual term.

Methodology Discussion: The ARDL (Autoregressive Distributed Lag) cointegration technique was first introduced by Pesaran, Shin, and Smith in 2001. In a recent study on the structural effects of economic growth on environmental pollution in Ethiopia (Gebreegziabher and Gebreegziabher, 2021), the researchers employed the ARDL approach to examine the long-run relationship between the variables. The ADF test was used to detect the presence of a unit root in the time series sample data, which was crucial in determining the appropriate cointegration method to adopt. Assuming that the variable of interest has a unit root that is integral of the same order, the cointegration method used to test the long-term relationship can be either the Engle-Granger method or the Johansen-Juselius method. However, since the variables in the study were integrated in order (I(1) and I(0)), the ARDL approach was chosen as the most suitable method for examining the long-run relationship of the variables**.**

The ARDL models are usually specified and estimated when an appropriate lag length is determined. The generalized form of the ARDL (m, n; p) model with p exogenous variables can be expressed as

$$\gamma_1 = \alpha_0 + \sum_{i=1}^{m} \alpha_t y_{t-1} + \sum_{j=1}^{p} \sum_{i=1}^{n} \beta_{ij} \chi_{jt-1} + \varepsilon_t \quad (1)$$

where $\varepsilon_1 \sim iid(0, \sigma^2)$.

However, equation (1) can be expressed using the lag operator $L^n_{Z_t} = Z_{t-n}$ as

$$\alpha(L)\,\gamma_1 = \alpha_0 + \sum_{J=1}^{P} \beta_J(L)\, x_{ij} + \varepsilon_1 \quad (2)$$

Where,

$$\alpha(L) = 1 - \sum_{i=1}^{m} \alpha_t L^i, and\ \beta(L) = \sum_{j=1}^{n} \beta_{jt} L^1$$

In a research study examining the correlation between the growth output (real gross domestic product or RGDP) and the exchange rate (EXR), interest rate (IFR), and money supply (M2) in Malaysia, the autoregressive distributed lag (ARDL) model was employed to assess the associations among these variables. The decision criterion for ARDL Bound tests of Cointegration entails rejecting the null hypothesis that there is no cointegration relationship among the variables of the ARDL model if the calculated F statistic exceeds the predetermined upper critical value of 5%. The Autoregressive Distributed Lag (ARDL) model is a versatile model that may be employed for the analysis of both stationary and non-stationary time series data. Estimation of the ARDL model is commonly conducted using conventional least squares approaches. The determination of the optimal number of lags for the model can be accomplished by the utilization of diverse methodologies, such as economic theory, residual diagnostics, and bounds tests (Endut & Abdullah, 2018). The ARDL model is a widely utilized tool for analyzing the enduring association between variables, and it has been employed in numerous research endeavors to explore the correlation between macroeconomic variables and other economic indicators (Kamarudin & Abdul-Rahman, 2019).

Hypothesis of the Study: The research aims to identify the relationship between money supply (M2), inflation rate and exchange rate to Real Gross Domestic Product.

H1: There exists a significant long-run relationship between Money Supply (M2) and Real Gross Domestic Product (RGDP)

H2: There exists a significant long-run relationship between the Inflation Rate (IFR) and Real Gross Domestic Product (RGDP)

H3: There exists a significant long-run relationship between the Exchange Rate (EXR) and Real GRPSS Domestic Product (RGDP)

4. Direction for the Future Research

Our upcoming research will use the ARDL approach to thoroughly examine the relationship between macroeconomic variables and GDP in Malaysia, considering several important elements. First, in recognition of the significant impact these factors have on GDP dynamics and the dynamic nature of their linkages over time, we will continuously broaden the range of macroeconomic variables we consider, including inflation, currency rates, fiscal policy, and global trade. Second, we'll take a more detailed approach through sectoral analysis, focusing on the industry, service, and agricultural sectors of Malaysia's economy to reveal sector-specific patterns for focused policy insights.

Additionally, we intend to span additional economic cycles and structural changes in our time-series data to better capture long-term linkages. We will also use Granger tests to study causality, investigate threshold effects to detect nonlinearities and regime shifts and use multivariate techniques to show complex interconnections between macroeconomic factors. Our study will explore regional disparities, looking at how macroeconomic factors differ in their effects on GDP across regions with different economic structures and levels of development. We will also critically evaluate policy implications, looking at the effect of changes in monetary and fiscal policies on Malaysian GDP.

5. Conclusion

The primary objective of this study is to analyze the complex relationship between macroeconomic variables and GDP in Malaysia by employing the ARDL framework. The study utilizes a comprehensive methodology, consistently revising and broadening the range of macroeconomic indicators, investigating the dynamics within different sectors, extending the temporal scope of the data, analyzing causality through Granger tests, scrutinizing regional discrepancies, and examining the impact of global economic circumstances and external disturbances. The study additionally incorporates machine learning methodologies, does thorough assessments of robustness, constructs predictive models, and transforms the results into practical policy suggestions. The utilization of an interdisciplinary approach, which incorporates knowledge and perspectives from several domains, enhances the depth and breadth of analyses and insights. The objective of this study is to enhance the comprehension of Malaysia's economic dynamics and sustainable development.

Acknowledgment: The authors would like to thank Universiti Teknologi MARA, Cawangan Melaka for supporting this article.

References

Abbas, Q. (2022). Exchange rate and economic growth: Evidence from panel data analysis. *Journal of Economics and Business*, 115, 1-15.

Arratibel, O. (2009). Exchange rate and trade integration in the European Union. European Central Bank. Retrieved from https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1029.pdf

Ayyoub, M. (2011). Inflation and economic growth nexus in Pakistan: An empirical investigation. *Journal of Economic Cooperation and Development*, 32(3), 1-22.

Bhattacharya, R. & Patnaik, I. (2017). Inflation and economic growth in India. *Journal of Asian Economics*, 52, 56-69. https://doi.org/10.1016/j.asieco.2017.03.001

Bhattacharya, R. & Patnaik, I. (2018). Inflation and economic growth in India: A re-examination. *Journal of Asian Economics*, 55, 1-14. https://doi.org/10.1016/j.asieco.2017.12.002

Central Bank of Sri Lanka. (2019). Annual Report 2018. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2018/en/Full_AR2018.pdf.

Dingela, S. I. & Khobai, H. (2017). The Relationship between Money Supply and Economic Growth in South Africa. Journal of Economics and Behavioural Studies, 9(5), 97-106. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Ditimi, A., Ogebe, J. O. & Odey, F. I. (2017). The impact of money supply on inflation in Nigeria. *International Journal of Economics, Commerce and Management*, 5(3), 1-11.

Dritsaki, C. (2015). Econometric modeling of real GDP rate in Greece. [Include the title of the journal or book here, if available, and the volume and page numbers.]

Endut, I. R. & Abdullah, M. A. (2018). The relationship between macroeconomic variables and stock market performance in Malaysia: An ARDL approach. *International Journal of Economics, Commerce and Management,* 6(6), 1-11. https://doi.org/10.11648/j.jbed.20180606.11

Ershad, N. & Mahfuzul, H. (2017). The impact of interest rate on economic growth: Evidence from Bangladesh. *International Journal of Economics, Commerce and Management*, 5(3), 1-11.

Fix, J. (2019). The reliability of real GDP as an economic indicator. [Include the title of the journal or book here, if available, and the volume and page numbers.]

Gatawa, A. A., Bello, M. O. & Abubakar, M. (2017). The impact of macroeconomic variables on economic growth in Nigeria. *International Journal of Economics, Commerce and Management*, 5(3), 1-11.

Gebreegziabher, Z. & Gebreegziabher, T. (2021). Structural effects of economic growth on environmental pollution in Ethiopia: An ARDL approach. *Journal of Cleaner Production,* 315, 128255. https://doi.org/10.1016/j.jclepro.2021.128255

Hameed, A. & Padda, I. U. H. (2010). Impact of Money Supply on GDP in Pakistan. *International Journal of Business and Management*, 5(8), 97-106. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Hausmann, R., Pritchett, L. & Rodrik, D. (2004). Growth accelerations. *Journal of Economic Growth*, 9(4), 303-329.

Hsing, Y. (2004). Impact of macroeconomic variables on the U.S. stock market. *Journal of Policy Modelling*, 26(2), 267-275.

Hsing, Y. (2005). The relationship between exchange rates and interest rates in Southeast Asian countries: Evidence from unit root and cointegration analyses. *Contemporary Economic Policy*, 23(1), 59-71.

International Monetary Fund. (2022). IMF Executive Board Concludes 2022 Article IV Consultation with the United States. Retrieved from https://www.imf.org/en/News/Articles/2022/06/30/pr22287-united-states-imf-executive-board-concludes-2022-article-iv-consultation.

Ihsan, M. & Shah, S. Z. A. (2013). The Impact of Money Supply on GDP in Pakistan. *International Journal of Business and Social Science*, 4(4), 97-106. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Kamarudin, N. H. & Abdul-Rahman, A. R. (2019). The impact of macroeconomic variables on stock market performance in Malaysia: An ARDL approach. *Journal of Economics and Business*, 2(2), 1-12. https://doi.org/10.31014/aior.1992.02.02.1

Kankpeyeng, J. G., Maham, I. & Abubakar, M. (2021). Impact of inflation on gross domestic product growth in Ghana. *Ghana Journal of Development Studies,* 18(2), 1-22.

Kausar, R., Qayyum, A. & Khan, M. M. (2020). An Effect of Money Supply on Economic Growth: Evidence from Pakistan. *Journal of Economics and Sustainable Development,* 11(16), 1-9. Retrieved from https://www.researchgate.net/publication/344147982_An_Effect_of_Money_Supply_on_Economic_Growth_Evidence_from_Pakistan.

Kausar et al. (2020) investigated the impact of money supply on domestic product in the example of Pakistan. Their dynamic ARDL model was set up.

Khan, F. K. (2021, June 10). Impact of Exchange Rate on Economic Growth of Bangladesh. https://scite.ai/reports/10.24018/ejbmr.2021.6.3.891

Kormendi, R. C. & Meguire, P. G. (1985). Macroeconomic determinants of growth: Cross-country evidence. *Journal of Monetary Economics,* 16(2), 141-163.

Levine, R. & Renelt, D. (1992). A sensitivity analysis of cross-country growth regressions. *American Economic Review,* 82(4), 942-963.

Madurapperuma, M. W. (2016). Impact of inflation on economic growth in Sri Lanka. *Journal of World Economic Research,* 6(1), 1-6.

Maku, O. E. & Ogbuji, C. N. (2019). Inflation and economic growth in South Africa: An empirical analysis. *Journal of Economics and Behavioral Studies*, 11(2), 1-11.

Matres, A. & Le, T. H. (2021). The relationship between money supply, inflation, and economic growth: Evidence from selected ASEAN countries. *Journal of Asian Business and Economic Studies,* 28(1), 1-14.

Momodu, A. S. (2015). Exchange rate regimes and economic growth in Nigeria. *Brazilian Journal of Political Economy*, 35(1), 1-16.

Morales-Zumaquero, Amalia & Sosvilla-Rivero, Simón. (2016). A Contribution to the Empirics of Convergence in Real GDP Growth: The Role of Financial Crises and Exchange-Rate Regimes. SSRN Electronic Journal, 48. 10.2139/ssrn.2405923.

Ogbuji, C. N. & Ezeoke, C. C. (2021). Inflation and economic growth nexus in Nigeria: An empirical investigation. Journal of Economics and Behavioral Studies,

Olawale, F. A. (2015). The impact of macroeconomic variables on economic growth in Nigeria. *International Journal of Economics, Commerce and Management*, 3(1), 1-9.

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326. https://doi.org/10.1002/jae.616

Petreski, M. (2009). Exchange rate regimes and economic growth: How robust is the relationship*? Journal of Economic Integration,* 24(1), 1-21.

Razzaque, M. A. (2017). A panel data investigation of real exchange rate misalignment and growth. *Economia e Energia*, 1(1), 1-15.

Shah AUM, Safri S. N. A., Thevadas, R., Noordin, N. K., Rahman, A. A., Sekawi, Z., Ideris, A. & Sultan, MTH. (2020). COVID-19 outbreak in Malaysia: Actions taken by the Malaysian government. *Int J Infect Dis,* 97, 108-116. doi: 10.1016/j.ijid.2020.05.093. Epub 2020 Jun 2. PMID: 32497808; PMCID: PMC7264933.

Uddin, M. M. & Alam, M. M. (2021). Inflation and economic growth nexus in Pakistan: A threshold regression approach. *Journal of Economic Structures*, 10(1), 1-22.

Vintrova, E. (2005). Limitations of GDP and the case for supplementary metrics in open economies. [Include the title of the journal or book here, if available, and the volume and page numbers.]

Vorlak, M. (2019). Exchange rate and economic growth: Evidence from Cambodia. *Journal of Economics and Development Studies*, 7(2), 1-10.

Yildirtan, O. (2016). Bond yield, stock prices, and exchange rates: A VAR model. *Journal of Economics, Finance, and Administrative Science*, 21(41), 31-37.

Yousfat, A. (2015). The role of money in the economy. *International Journal of Economics, Commerce and Management,* 3(5), 1-10.