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Analysis of the effect of economic integration on the increase of gross domestic product in ASEAN countries

Ade Darmawan[1] Marselina[2]

[1,2]Faculty of Economics and Business, University of Lampung
Jl. Prof Dr. Ir. Sumantri Brojonegoro No.1, Kota Bandar Lampung, Lampung 35141

Abstract

This study aims to explore the impact of the implementation of the ASEAN Economic Community (AEC) on the increase of Gross Domestic Product (GDP) in ASEAN member countries. The main focus of this study is on key variables including foreign direct investment, import-export ratio, labor productivity, and government debt. The AEC, which came into effect at the end of 2015, is expected to strengthen economic integration in the region by facilitating the flow of goods, services, and investment. The method used in this study is regression analysis to identify the relationship between these variables and GDP during the post-MEA period (2016-2022). The results of the analysis show that foreign direct investment and labor productivity have a significant positive influence on the increase of GDP in ASEAN countries. On the other hand, the import-export ratio shows a negative impact that needs to be watched closely, while government debt does not show a significant effect in this context. The findings provide important insights for policymakers in formulating more effective economic strategies to maximize the benefits of the AEC, as well as addressing the challenges posed by instability in trade ratios and debt management.

Keywords*: GDP, FDI, Integration Economic, Labor Productivity*

INTRODUCTION

Integration is a description of the combination or unification of several components, elements, or systems into a larger unit and can be coordinated in various contexts. Integration means combining data, technology, organization, and concepts to work together so that it can be more efficient or easier to achieve goals. But in general, integration is an interrelated relationship between elements to improve overall

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performance or functionality. Economic integration in one region or regionalism is actually not a new thing, but the growth of regionalism has existed since the 19th century, according to (Mansfield & Milner, 1999) regionalism is divided into 4 waves, where the first wave occurred in the second half of the 19th century which began in the European region, then the second wave was during the first world war which can be seen in the emergence of trade blocs in WWI, then the third wave of regionalism during WWII where at this stage regionalism did not only occur in Europe but had expanded to several regions and countries in America, while the fourth regionalism occurred after the cold war until now.

The integration process that is currently occurring is growing even further than the phenomenon of regionalism itself, in 2024 the WTO recorded at least the number of economic integration and trade blocs totaling 371 RTAs (regional trade agreements) with almost all countries listed in the World Trade Organization having joined regional relations. If traced in the Asia-Pacific region, economic integration with 11 members who are members of the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP), the Latin American region with the formation of the Pacific alliance to various countries known as NAFTA. However, in fact, the integration that occurred in several regions such as in America did not necessarily provide benefits, based on research from (Registya, 2021) in his writing stated that NAFTA had a negative impact on the American economy, it was seen from the factor of reduced employment figures and America experienced a trade deficit, so the decision at that time when led by Donald Trump was to renegotiate NAFTA, the decision was new because if you look at the conditions before joining NAFTA America had a trade surplus of around $1.7 billion. While looking at the European Union, the integration process that has been built since the milestone of the region is increasingly leading to its best conditions, but ironically from 28 total EU member states 20 countries have shown a slowdown in their economic growth since joining the European Union, the 8 countries that experienced significant growth turned out to be Eastern European countries that had just joined after the fall of communism. This can then be seen in the response from the UK which decided to leave the active membership of the European Union integration which since 1973 or for 40 years the UK has been part of the European Union, the British decision known as the Brexit phenomenon is the reason that the British economy is not well stimulated after joining the European Union. Meanwhile, the concentration of regionalism does not occur in Europe and America alone, but has entered various other regions such as those in the African region or known as the African Continental Free Trade Area (AfCFTA). Regionalism has also entered and developed in

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Southeast Asia, where one form of economic integration that is currently taking place is ASEAN under the AEC framework.

Southeast Asia is one of the regions that has strength in economic development, the region whose majority consists of developing countries continues to prioritize forms of cooperation between countries, the ASEAN Organization as a region that continues to support cooperation in various fields, especially in terms of facilitating economic activities, security, political integration, educational, social and cultural integration. In 2015 the Association of Nations in the Southeast Asian region then created an agreement in the form of economic integration among member countries, known as the Asean Economic Community (AEC), the Asean Economic Community (AEC) is a form of economic and business integration as one of the ASEAN pillars to create a single production-based market in the Southeast Asian region. However, the integration process that occurs in Southeast Asia is quite slow when compared to other regions such as in Europe which only takes 20 years to create an integration, while Southeast Asia takes 48 years from the birth of ASEAN in forming cooperative relations between countries. In addition, the AEC agreement is also expected to be able to gather economic activities in ASEAN to allow the flow of goods and services, investment and labor to be fulfilled. This means that there are no restrictions for every country in the Southeast Asian region incorporated in ASEAN to obtain their basic needs. The AEC itself was formed based on four main pillars, namely: making ASEAN as a single market, ASEAN as a production center, creating a balanced economic growth center and making a competitive economic region. The creation of AEC is an anticipation in the face of increasingly fierce globalization competition, the presence of AEC is one solution for every country in the Southeast Asian region to improve its economy.

AEC has a positive impact on countries in the Southeast Asian region, it can be seen in various aspects, especially in the fields of trade, investment, and employment. In terms of trade, AEC will be a very good opportunity for each country because trade barriers will be reduced or even no longer exist, which will have an impact on increasing exports and thus increasing GDP in ASEAN countries. In terms of investment, AEC can create a favorable environment for foreign direct investment (FDI) to stimulate economic growth through technology development, human resource development, job creation and easier global market access. In terms of employment, with the existence of AEC, job opportunities are increasingly open because of the large number of jobs with different skills needs, access to travel abroad is also easier, making it easier for every resident in ASEAN to find work without constraints, each workforce can work freely in ASEAN

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member countries based on their abilities and expertise. The strengthening of such cooperation in ASEAN achievements can be seen from the realization of one of the objectives of the AEC, namely creating a balanced economic growth center, these efforts can be seen from the conditions before and after the implementation of the AEC itself, the integration has spurred better economic growth in ASEAN countries. Where economic growth before the AEC in ASEAN countries strengthened with a percentage of 5% driven from the manufacturing and service sectors. Then ASEAN became an attraction for the entry of foreign direct investment from East Asian countries, on the other hand, trade conditions that occur through export and import activities show an increase in both internal and external relations where intra ASEAN trade is relatively lower when compared to external conditions seen from the export conditions of manufactured goods and commodities. also encouraged by the economic agreement established through the FTA (Free Trade Agreement) agreement which states that ASEAN can establish cooperative relations with major countries including China, Japan and South Korea. The condition is getting better when seen from the aftermath of the AEC where the percentage of economic growth is getting stronger above 6% in ASEAN countries, even some countries such as Laos and Myanmar experienced a significant increase in economic growth. While the value of foreign direct investment that moves in ASEAN is also getting stronger, even ASEAN is the main destination for investors to invest their capital in ASEAN where Singapore, Indonesia, Vietnam and Malaysia are the countries with the highest investment levels in ASEAN. From trade, the agreement after the enactment of the AEC is growing, one of which is the Regional Comprehensive Economic Partnership (RCEP) agreement formed so that each country in ASEAN can expand its free trade network with major countries and Europe. Based on the Asian Development Bank report, Economic Integration which continues to be strengthened in order to increase competitiveness has succeeded in realizing ASEAN as the center of economic growth, even the ADB report states that by 2022 economic growth in ASEAN can reach USD 3.36 trillion more. However, although the AEC provides significant benefits for economic growth and other fields, there are also challenges that need to be addressed such as the problem of development disparities, economic inequality between member countries, social problems and also including public welfare that need to be addressed.

METODOLOGY

This research is a type of quantitative descriptive analysis research, with the dependent variable used is gross domestic product and the independent variables are

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foreign direct investment, export-import ratio, government debt and labor productivity. The data used is data on 7 ASEAN countries for the period after AEC 2016-2022. The type of data used in this study is secondary data in the form of panel data sourced from the world bank. In this study, the analysis method used is panel data analysis with the analytical tool used, namely eviews 10 regression models in this study are as follows

$$\mathbf{Log(GDP) = \beta 0 + \beta 1 log(FDI) + \beta 2TB + \beta 3UP + \beta 4\ (PTK) + \varepsilon i}$$

Log(GDP) : Gross Domestic Product (billion)
Log (FDI) : Foreign Direct Investment (billion)
TB : Import Export Ratio (Percent)
UP : Government Debt (Percent)
Log (PT) : Labor Productivity (Billion)

Table 1 Example of table description

Variabel	Symbol	Unit	Source
Gross Domestic Product	GDP	Billion	*World Bank*
Foreign Direct Investment Import Export Ratio Debt Government	FDI TB UP	Billion Persen Persen	*World Bank* *World Bank* *Trade Economic*
Labor Productivity	PT	Billion	*World Bank*

RESULTS AND DISCUSSION

Analysis Descriptive

Descriptive statistical analysis is one of the methods used to determine the description of the data used in the study. The results of the descriptive statistical analysis method are in the form of the N value which is the sample value in the study, which consists of the average (Mean), the minimum value (Min) or the lowest value in the research sample, and the Maximum value (Max) or the highest value in the research sample and its standard deviation. The output produced in this study is descriptive statistics on the comparison of economic growth after the implementation of the AEC in

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7 ASEAN countries (Indonesia, Singapore, Malaysia, Phillipines, Thailand, Vietnam and Cambodia) in 2016-2022.

Where the variables used in this study consist of foreign direct investment, export-import ratio, government debt and labor productivity used to analyze related to how the condition of economic growth as seen from the value of gross domestic product that occurred in ASEAN through 7 countries as a research sample after the enactment of AEC. How these results provide an overview can be seen in the descriptive explanation of the table below:

Tabel 2. Analysis Descriptive

	GDP	FDI	TB	UP	PTK
Mean	433.16	24.05	138.42	55.93	54369.79
Median	366.14	12.60	123.99	41.80	26123.92
Maximum	1319.10	140.84	332.98	167.80	220619.70
Minimum	20.02	2.48	32.97	28.00	8060.06
Std. Dev.	309.39	34.16	86.44	33.69	63327.86

1. Gross Domestic Product

Gross Domestic Product is an increase in the value and also the amount of production of goods and services produced by a country within a certain period of time. Increased economic growth indicates that a country has succeeded in economic development and indicates an improvement in the economy for the better. When viewed from the value of GDP fluctuations in ASEAN after the implementation of AEC has increased, this increase is a form of AEC sustainability in supporting and opening the four pillars of AEC stated in its blueprint, namely making ASEAN competitive, innovative and dynamic, then encouraging a unified and fully integrated economic force, increasing connectivity and cooperation, and making ASEAN a strong, inclusive economic base, in order to accelerate economic integration in ASEAN and outside ASEAN.

2. Foreign Direct Investment

Foreign direct investment is a form of investment made by companies located abroad to assist in the development process of a company in another country. The opportunities generated by the influx of foreign direct investment funds affect the progress and economic development of a country. As the purpose of the AEC is to facilitate the

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flow of foreign direct investment so that if seen both from the average value of experiencing differences even the highest value of investment increased significantly after the implementation of the AEC, as ASEAN cooperation in the form of AEC is under the investment cooperation forum in ASEAN which aims to coordinate and oversee investment. Countries with the highest level of foreign direct investment are Singapore, Indonesia, Malaysia, Philippines, Thailand and Brunei with an average increase of 97.6%. The positive impact of foreign direct investment on the economy makes AEC a priority in conducting cooperative relations.

3. Export Import Ratio

A country's involvement in cooperative relations through export and import activities is an important key in the economic fundamentals of a country. Export activities generated by a country have an influence in increasing foreign exchange reserves, where these results can be used to improve the economic sector and national development. The influx of foreign products that flood the market affects the local industry, on the other hand imports can also help a country in meeting needs that are not available in the country. A high import value indicates that the country will experience a trade deficit or in other words can affect the fundamentals and stability of the economy, it is because the value of imports is also influenced by the exchange rate, currency and incoming foreign exchange reserves. As the export-import ratio used in this variable describes the relationship that occurs through international trade as a measure of gross domestic product formation. Some countries such as Indonesia have established a budget deficit policy in their economic system, but the application of budget deficits must still be controlled as macroeconomic stability and economic growth. Based on export-import ratio data conducted by 7 ASEAN countries, these countries tend to experience a decline, but it does not mean that when a country experiences a deficit condition the country has a bad economic condition but some of these countries show their activity in international trade.

4. Debt Government

Debt financing by the government can help the country meet its day-to-day financial needs as well as fund ongoing projects.

5. Labor Productivity

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Labor plays an important role as an economic actor, this role is very important and significant in producing goods and services of a country, how a country can improve the welfare of its people can be seen from the results of labor productivity itself.

Regression Model Test

1. **Chow Test**

The Chow test is used to determine whether the CEM and FEM models will be used to determine the further estimation of the model used. The hypothesis offered is:

H0 : Common Effect Model if the Prob value> α = 0.05
Ha: Fixed Effect Model if the Prob value < α = 0.05

The basis for making decisions on the null hypothesis using the Chow Stat count which will follow the distribution of the F statistic where the degree of freedom (df) is n-1 for the numerator. The following are the results of the Chow test on the model before and after the MEA was enacted

Table 3. Chow Test

Effects Test	Statistic		d.f.	Prob.	
Cross-section F		0.631389	6,38		0.7042
Cross-section Chi-square		4.656525	6		0.5886

Based on the output of the test results from the Chow Test in this study, the F stat probability value is 0.7042 so that the best model chosen in this study is CEM, which means that H0 is accepted and Ha is rejected.

2. **Hausman Test**

The Hausman test is used to determine whether the Fixed Effect or Random Effect model is used to continue the estimation model used. The hypothesis offered is:

H0 : Random Effect model if Prob value> α = 0.05
H1 : Fixed Effect Model if the Prob value < α = 0.05

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The basis for making decisions on the null hypothesis using the Hausman test which follows the F-Stat probability value where the degree of freedom (df) is n-1 for the numerator. The following are the test results based on the Hausman Test:

Table 4. Hausman Test

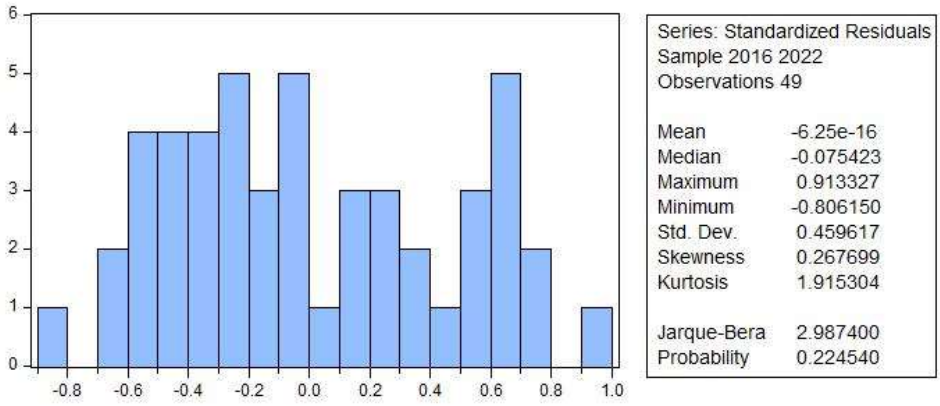
Test Summary	*Chi-Sq. Statistic*		*Chi-Sq. d.f.*	*Prob.*	
Cross-section random		3.782930	4		0.4362

Based on the output of the test results from the Hausman Test in this study, it shows that the F Stat probability value of the two models used is> 0.05 or 0.4362, so based on the provisions in the study, the best model chosen in this study is REM, which means that H0 is accepted and Ha is rejected.

3. Classical Assumption Testing

By using the panel data regression method, this research is carried out through the Random Effect Model approach because based on the provisions through the model suitability test that is accepted is the REM model. The steps in testing the classical assumptions used in this study include, Normality Test and Multicollinearity Test.

a. Normality



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Based on the results of the Jarque-Bera probability output from the model, the value is greater than alpha 0.05 or 0.224540, meaning that the classical assumption of residual normality is met and the data in the study is normally distributed.

b. Multicolinearty Detection

Multicollinearity detection in this study uses tolerance value and variance inflation factor (VIF) value.

The hypothesis offered in this test is:

If the VIF value < 10 or the tolerance value > 0.01, then there is no multicollinearity.

If the VIF value> 10 or tolerance value < 0.01, then there is a multicollinearity problem

Table 5. Multicolinearitys

	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	1.986488	401.1473	NA
LOG(FDI)	0.015242	23.39759	3.284845
TB	2.41E-06	12.87005	3.557770
LOG(PTK)	0.025298	559.3967	4.366522
UP	3.29E-05	28.21244	7.396810

Based on the multicollinearity detection output, the results state that there is no relationship between the independent variables, it is also based on the VIF correlation coefficient value which is not more than 10 so that the model in this study does not contain multicollinearity.

Model Fit Test

To determine the suitability of the model in panel data regression, it can be done using the Common Effect Model, Fixed Effect Model, and Random Effect Model approaches. The following are the results or regression output of the suitability of the model selected in this study is the Random Effect Model, so the multiple linear regression results are presented as follows:

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Dependent Variable: LOG(PDB)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.590044	1.409428	-3.256670	0.0022
LOG(FDI)	0.780114	0.123457	6.318912	0.0000
TB	-0.010634	0.001551	-6.854078	0.0000
LOG(PTK)	1.013521	0.159053	6.372224	0.0000
UP	-0.014334	0.005740	-2.497235	0.0163
R-squared	0.824993	Mean dependent var		5.694824
Adjusted R-squared	0.809084	S.D. dependent var		1.098674
S.E. of regression	0.480054	Sum squared resid		10.13989
F-statistic	51.85480	Durbin-Watson stat		1.099227
Prob(F-statistic)	0.000000			

Based on the results of the table, the regression equation model is obtained as follows:

LOG(GDP) = -4.5900 + 0.7801LOG(FDI) - 0.0106TB + 1.0135LOG(PTK) - 0.0143UP

Based on the estimation results carried out through panel data regression, where in research that discusses the effect of economic integration on increasing gross domestic product in ASEAN countries, where the selected panel regression model is Random Effect which shows that foreign direct investment, labor productivity and government debt have a significant positive effect on gross domestic product, while the import-export ratio variable shows an effect but the regression coefficient shows a negative number.

The equation formed above means that if the value of each independent variable in the regression (foreign direct investment, import-export ratio, government debt and labor productivity) is considered constant or equal to zero, then the value of gross domestic product in 7 ASEAN countries (Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam and Cambodia), the constant value of -4. 5900 if converted into anti natural logarithm the value becomes 0.010 which means that when all independent variables are equal to zero, the amount of economic growth in 7 ASEAN countries is 0.010 billion (USD) or $10,152,858.37. This means that there is an increase in gross domestic product after the implementation of AEC in 7 ASEAN countries.

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Based on testing the coefficient of determination in the study, the results show that the R-Squared value is 0.824993, which means that 82% of the gross domestic product dependent variable after the AEC 2016-2022 is influenced by the independent variables of foreign direct investment, export-import ratio, government debt, and labor productivity while the remaining 18% is explained by other variables not explained in this study.

Foreign Direct Investment

The results of this study are also in accordance with the hypothesis used and the hypothesis is accepted. In line with research conducted by (Joo & Shawl, 2023) which states that Foreign Direct Investment has a significant positive effect on gross domestic product. This means that Foreign Direct Investment is important as a shaper of increasing economic growth so that with the AEC policy, namely by facilitating investment flows in line with increasing gross domestic product in 7 ASEAN countries.

Export Import Ratio

The import-export ratio negatively affects the increase in gross domestic product. One of the efforts that need to be done by improving the country's import-export ratio is to increase production, productivity and exports in order to increase economic growth. Because the worsening of a country's trade conditions can have an influence on economic growth, for example research conducted by (Blavasciunaite et al., 2020) which states that the deterioration of the trade balance reduces the average economic growth and has a greater negative impact on economic growth then the expected effort is trade openness through exports and imports can encourage sustainable economic growth.

Debt Government

The result of how government debt affects the increase in gross domestic product depends on how capable the country can maintain financial stability and direct more to the verification of the productive base of the economy so that debt financing can affect the increase in gross domestic product in a country. Research conducted by (Yusuf & Mohd, 2021) which states that financing through debt, both in the short and long term, is able to increase Economic Growth, as long as the country is able to maintain financial stability and it is hoped that the country can repay unpaid debt at maturity and direct more to the diversification of the productive base of the economy. Research conducted by (Son, 2023) states that debt financing plays an important role in economic development when

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debt financing is optimized. However, debt management that is not based on prudence will result in the country facing more difficult economic conditions and even dependence (Pengusul, 2021).

Labor Productivity

Based on this explanation, it shows that labor productivity affects gross domestic product in 7 ASEAN countries, this is in accordance with research conducted by (Tung, 2021), based on the results of his research stating that improving the quality of labor is a driving force to increase further economic growth, increasing productivity is a factor that can increase higher output in the economy.

CONCLUSION

Based on the regression analysis results that show that foreign direct investment (FDI) and labor productivity have a positive effect on gross domestic product (GDP) in 7 ASEAN countries, we can conclude several important things.

Foreign Direct Investment (FDI): The increase in FDI indicates that ASEAN countries are attracting more foreign capital, which contributes to economic growth. This could be due to an improved investment climate and policies that favor foreign investment.

Labor Productivity: An increase in labor productivity reflects the efficiency and ability of labor in producing goods and services. This suggests that improved labor skills and training contribute to economic growth.

Export-Import Ratio: The negative effect of export-import ratio on GDP may imply that imbalances in trade (e.g., higher imports than exports) may be hindering economic growth. This suggests the need for strategies to improve export competitiveness.

Government Debt: The negative effect of government debt on GDP suggests that high debt may burden the economy, especially if it is used for consumption instead of productive investment. This points to the importance of prudent debt management.

In the context of the implementation of the ASEAN Economic Community (AEC) 2016-2022, collaboration among ASEAN countries in terms of trade and investment is crucial. Policies that support FDI growth and labor productivity improvement should continue to be prioritized, while strategies to address trade and debt issues should also be in focus to ensure sustainable GDP growth in the region.

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REFERENCES

Blavasciunaite, D., Garsviene, L., & Matuzeviciute, K. (2020). Trade balance effects on economic growth: Evidence from european union countries. Economies, 8(3). https://doi.org/10.3390/ECONOMIES8030054

Joo, B. A., & Shawl, S. (2023). Understanding the Relationship Between Foreign Direct Investment and Economic Growth in BRICS: Panel ARDL Approach. Vikalpa, 48(2), 100–113. https://doi.org/10.1177/02560909231180078

Mansfield, E. D., & Milner, H. V. (1999). The new wave of regionalism. In International Organization (Vol. 53, Issue 3). https://doi.org/10.1162/002081899551002

Pengusul, T. I. M. (2021). Laporan Penelitian Professorship Universitas Lampung. 1–79.

Registya, F. S. O. (2021). Alasan Amerika Serikat Merenegosiasi Nafta (North American Free Trade Agreement) Pada Masa Pemerintahan Presiden Donald Trump. Falya Syifa Olfi Registya, 1(Oct), 117–125.

Son, N. N. (2023). Public debt management and economic growth: A threshold regression approach. Public and Municipal Finance, 12(1), 62–72. https://doi.org/10.21511/pmf.12(1).2023.06

Tung, P. H. (2021). Relationship between Labor and Economic Growth in Vietnam: Practice and Forecast. European Journal of Business and Management Research, 6(4), 289–293. https://doi.org/10.24018/ejbmr.2021.6.4.995

Yusuf, A., & Mohd, S. (2021). The impact of government debt on economic growth in Nigeria. Cogent Economics & Finance, 9(1). https://doi.org/10.1080/23322039.2021.1946249

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