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Navigating Economic Growth: The Role of Twin Deficits in APEC Member Economies

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Abstract

This research examines how the twin deficits (budget deficit and trade balance) influence economic growth in APEC members. Economic growth serves in place of the variable that is dependent, with the budget deficit and balance of trade as the variables that are independent. The 15 APEC member economies that are covered by the panel data was employed in this inquiry for the years 2018–2021. Throughout the investigation, panel data regression was adopted and the Common Effect Model (CEM) was decided on. As shown by its findings, the budget deficit significantly and favorably affects economic growth, whereas the trade balance has no appreciable effect. Both balance of trade and budget shortfall have a notable effect on growth of the economy concurrently.

Keywords: Balance of trade, budget deficit, economic growth, twin deficit.

INTRODUCTION

Economic growth holds an important role in reaching the welfare of society and measuring the performance of an economy. Economic growth is one of the main criteria for analyzing economic development that occurs in a region (Mega et al., 2021). The process of raising a nation's overall and per capita income, as well as population growth and fundamental adjustments to its economic structure, is known as economic development (Emalia & Farida, 2018). Issues related to economic growth have always been the focus of macroeconomic analysis, such as the continuous sluggishness of economic growth that hurts the economy. Consequently, economic growth will remain relevant and can determine economic policy in the future (Wahyudi, 2024). This is because a country will always prepare various strategies or policies and maximize its potential to increase its economic growth.

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In macroeconomic studies, there is an important concept known as the twin deficit hypothesis, which is one of the main topics in economic policy analysis. This hypothesis describes a situation where two types of deficits, involving budgetary and trade balance shortfalls, appear around the same time or in very close time periods. According to (Mankiw, 2019) twin deficits refer to the condition when a country's government experiences a tightness in the budget, which is concurrent with a deficit in the trade balance, or an imbalance between export and import. The twin deficit hypothesis was first experimented on the US economy during the eighties, during which period, the country experienced a budget deficit and a trade balance deficit concurrently. This phenomena triggered economists to further research the link between the two types of deficits and their impact on the economy as a whole.

Developing appropriate policies requires government assistance in the endeavor to attain steady economic expansion. According to (Ridwan & Nawir, 2021), the government use fiscal policy as one of its tools to promote economic growth by controlling revenue and expenditure. The government would often pursue an expansionary fiscal strategy, generally referred to as a budget deficit, in situations where the anticipated spending exceeds the available funds. This is so because one factor that significantly influences a nation's economic performance is its government spending (Kara & Yuliawan, 2023).

Apart from the involvement of the government, the economic activities of a nation are influenced by the economic activities of other nations as documented in current account, including imports and exports, which constitute elements of the nation's overall income (Frisca & Sitorus, 2019). This means that a key factor in determining a nation's economic growth is overseas trade, as shown in exports and imports. An essential tool for assessing a nation's competitiveness and degree of economic integration in the global economy is its trade balance, which measures the difference between imports and exports. As stated by (Blanchard & Johnson, 2017), a trade balance deficit results when import demand exceeds export supply. Economic growth is therefore significantly impacted by the trade balance's situation, whether it is in surplus or deficit.

Asia-Pacific is one of the regions that pays attention to its economic growth, which is proven by the formation of APEC which serves as one of the economic cooperation bases around the Asia-Pacific zone. Asia-Pacific Economic Cooperation, or APEC, exists a forum for collaboration between its 21 member economies that provides facilities for economic growth, trade, investment, and capacity building & communities was founded surrounding 1989 and operates in the region known as Asia-Pacific. APEC is one of the

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most important regional forums in the Asia-Pacific, which includes the largest economies in particular the US, China, and Japan. According to data sourced from (APEC Secretariat, 2021), APEC member economies contribute more than 60% to global Gross Domestic Product (GDP) and account for nearly 50% of total international trade. Due to such significant contributions, the study of economic dynamics in the region can provide valuable insights into the global economy as a whole.

LITERATUR REVIEW

Twin Deficit Hypothesis

Twin deficits, which are conditions when deficits in the trade balance and the budget occur at almost the same time, have a consequences for economic expansion. According to its paradigm, in the short term there is no deficit that can really harms the economy, even the budget deficit can contribute to stabilizing the level of output in the last few years. However, if budget deficit and trade deficit are adopted over a long time period, it will be very harmful to the economy.

Budget Deficit

Keynes claimed that the shortfall in the budget has an important role as an instrument of economic growth. The studies that support the Keynes paradigm are (Awolaja & Esefo, 2020), which found that budget shortfall and economic expansion are positively correlated, especially in the short term.

Balance of Trade

Mercantilists who believe that a country's wealth and power can be achieved by exporting a larger amount than imports, which means a trade balance surplus. Numerous studies have examined the connection across the trade balance and the nation's growth. (Blavasciunaite et al., 2020) found that trade balances have a detrimental affect on growth, meaning that rises in trade deficits will impede growth and vice versa.

METHODOLOGY

This research employs panel data that incorporates both time series and cross-section datasets. The fifteen economies that make up the APEC members— the United States, Australia, Chile, the Philippines, Indonesia, Japan, Canada, South Korea, Malaysia, Mexico, Peru, Russia, New Zealand, Singapore, and Thailand—are the subject of the analysis. The study makes reference to the time series data spanning from 2018 to

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2021. The World Bank, another source of secondary data, represents a provider of data. This research's variables—economic growth, budget deficit, and trade balance—will be examined using Eviews10.

In the present research, panel data regression was the methodology employed. The best model across model of common effects (CEM), model of fixed effects (FEM), and model of random effects (REM) is chosen using a model specification scrutiny, which consists of the Chow, Hausman, and LM inspections. Testing its selected model's regression is the next step. Then, the classical assumption tests are run, which comprise examinations for normality, multicollinearity, autocorrelation, and heteroscedasticity. Inspections for t-statistic and F-statistic are then used to validate the hypothesis. Analyzing the coefficient of determination is the final phase.

This study utilized a panel data regression model, which is structured in the following manner:

$$EGit = \beta_0 + \beta_1 BD_{it} + \beta_2 BOT_{it} + \varepsilon_{it}$$

Where:

EG	: Economic Growth
BD	: Budget Deficit
BOT	: Balance of Trade
β0	: Constanta
β1, β2	: Regression coefficients
ε	: Error term
i	: Individual number (*a cross-section*)
t	: Period (*a time-series*)

RESULT AND DISCUSSION

Model Specifications Test

1) Chow Test

The alternative option between the FEM and CEM models is made using the Chow test. Alternatively, a FEM should be the model of choice if any probability isn't as much as α = 0.05.

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Table 1. The Chow Test's Summary

Affects Examine	Statistic	d.f.	Prob.
The F cross-section	0.435630	(14,43)	0.9533
Chi-square in cross section	7.958089	14	0.8915

Source: Data Processing Results with Eviews 10

These findings demonstrate that a Cross-section Chi-square likelihood is 0.8915 > α = 0.05, clarifying that the CEM was chosen as the model of choice. In other words, the LM test is used to conduct additional testing.

2) LM Test

One way to distinguish between the CEM and REM models is to perform the LM test. Since the Breusch-Pagan likelihood score < α = 0.05, the chosen model is REM instead.

Table 2. The LM Test's Summary

None (no rand. effect) Substitute	Cross-section Single-sided	Period Single-sided	Both
BP	3.758604	135.0159	138.7745
	(0.0525)	(0.0000)	(0.0000)
Honda	-1.938712	11.61964	6.845447
	(0.9737)	(0.0000)	(0.0000)
King-Wu	-1.938712	11.61964	9.730226
	(0.9737)	(0.0000)	(0.0000)
GHM	--	--	135.0159
	--	--	(0.0000)

Source: Data Processing Results with Eviews 10

Taking view of the examination's insights, CEM remains a chosen model since its probability statistic for Breusch-Pagan is 0.0525, exceeding α = 0.05.

Estimation of Panel Data Regression

With reference to its findings of examination for model specification, the accepted model is CEM.

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Table 3. Regression Results of the CEM

Variable	Coeff.	Std. Error	t-Stat.	Prob.
C	3.413660	0.833456	4.095788	0.0001
BD	0.452154	0.153986	2.936340	0.0048
BOT	-0.075489	0.068897	-1.095686	0.2778
R^2	0.131719			
Adj. R^2	0.101253			
F-stat.	4.323463			
Prob(F-stat.)	0.017858			

Source: Data Processing Results with Eviews 10

$$Eg_{it} = 3.413660 + 0.452154_{it} - 0.075489_{it} + \varepsilon_{it}$$

This equation allows for the following interpretation of the study's panel data estimation results:

1. The constant's coefficient value of 3.413660 means that the economic growth of APEC members is 3.19% if the variables that are independent have been changed to 0 for it.
2. Based on the BD coefficient score of 0.452154, economic growth in APEC member nations is expected to improve by 0.45% with a 1% increase in budget deficit.
3. The value for the coefficient of BOT, which is -0.075489, indicates that economic growth will fall by -0.07% for each 1% increase in the trade balance deficit among APEC countries.

Inspection Classic Assumptions

1) Normality Test

The normalcy exam objective's to find out ascertain whether or not a regression being utilized is regularly distributed. A regularly distributed set of data is indicated if the statistical probability value is greater than α = 0.05, and inversely.

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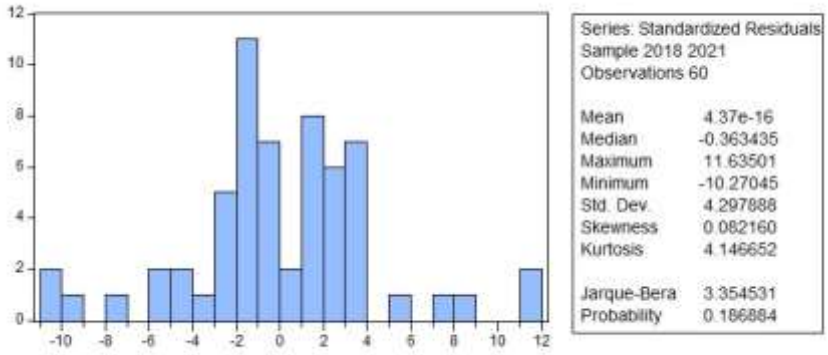


Figure 1. The Normality Test's Summary
Source: Data Processing Results with Eviews 10

It may be inferred from the preceding normality test findings considering the probability score is 0.186884 > α = 0.05, its spread seems normal levels.

2) **Multicollinearity Test.**

The multicollinearity examination applies as an assessment of whether the study's independent variables reveal any association with one another. If each separate variable's correlation score isn't greater 0.85, then multicollinearity is not an issue.

Table 4. The Multicollinearity Test's Summary

	BD	**BOT**
BD	1.000000	0.421806
BOT	0.421806	1.000000

Source: Data Processing Results with Eviews 10

The outcomes of the multicollinearity test indicate that multicollinearity does not exist because the correlation of each variable that's independent score is 0.421806 < 0.85.

3) **Autocorrelation Test**

In order to ascertain whether a connection exists between two disturbance variables, the autocorrelation test is used. The run test can also be used to perform the autocorrelation test. There isn't an autocorrelation issue if the statistical probability value exceeds α = 0.05, and conversely.

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Table 5. The Autocorrelation Test's Summary

R1	29.00000
R2	0.625326

Source: Data Processing Results with Eviews 10

After analyzing the run test results, it is evident that there is no autocorrelation issue because the probability measured by R2 is 0.625326 > α = 0.05.

4) **Heteroscedasticity Test**

If an unequal variance is present, it can be ascertained using the heteroscedasticity test. The heteroscedasticity test can also be performed by examining the residual graph. An issue with heteroscedasticity exists if the residual graph crosses the threshold (500 and -500), and the other way around (Napitupulu et al., 2021).

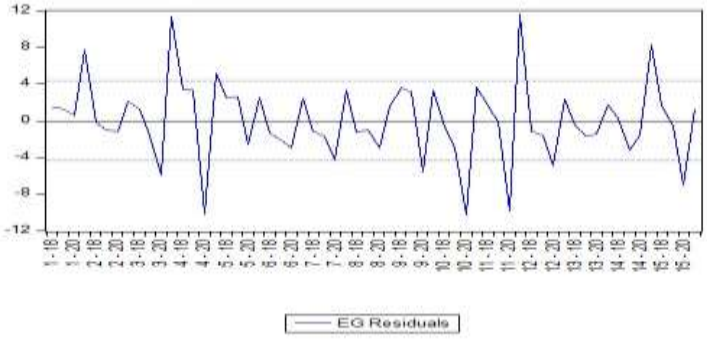


Figure 2. The Heteroscedasticity Test's Summary
Source: Data Processing Results with Eviews 10

As shown by the test findings above, the residual graph does not cross the threshold (500 and -500) and is at (12 and -12). It confirms that the model is heteroscedasticity-free.

Hypothesis Test

1) T-statistic test

A t-statistic inspection aims to ascertain though the variable that's independent applied in the research investigation has any bearing on the variable that's dependent.

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The research variable is considered to have a significant influence if the statistical likelihood is less than or equal to α = 0.05; otherwise, this is not the case.

Table 6. The T-statistic Test's Summary

Variable	t-stat.	Prob.	Summary
BD	2.936340	0.0048	Significant
BOT	-1.095686	0.2778	No significant

Source: Data Processing Results with Eviews 10

The t-statistic test findings above demonstrate that BD affects the dependent variable significantly, with a probability number of 0.0048 < α = 0.05. In the meantime, BOT's probability score of 0.2778 > α = 0.05 indicates that it has no discernible effect upon the variable that's dependant.

2) F-statistic Test

Research studies employ the F-statistic test as a technique for assessing the simultaneous impacts of separate variables over the variable that depends. It's implied that a major effect is made by research variables if the statistical probability is under α = 0.05, and inversely.

Table 7. The F-statistic Test's Summary

F-Stat.	Prob.	Summary
4.323463	0.017858	Significant

Source: Data Processing Results with Eviews 10

What came out of this f-stat. testing indicates that a variable that's dependant, EG, can be significantly influenced through the separate research variables, BD and BOT, collectively, with a probability value of 0.017858 < α = 0.05.

Analysis of Coefficient of Determination (R^2)

A panel regression procedure results disclose the variables are autonomous, namely trade balance and budget deficit, can account for approximately 13.17% of the study's dependent variable, economic growth. This is indicated by the r-squared value of 0.131719. Notwithstanding, factors beyond the scope of the study account for 86.83% of the remaining percentage.

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Budget Deficit's Effect on Economic Growth

As demonstrated by test outcomes, it is well known that the budget shortfall has an important and beneficial impact on economic expansion. This study's findings align with previous investigation, namely (Awolaja & Esefo, 2020), thereby asserts government expenditure on labor-intensive projects through loan monies managed and invested prudently will boost the economy. The aforementioned outcomes point to 15 APEC members were able to strengthen their economies while having budget deficits. But in order to avoid having a long-term negative impact on the economy due to the buildup of debt, the budget deficit strategy must also be carefully handled.

Balance of Trade's Effect on Economic Growth

Lessons learned from the statistical analysis point out that the balance of trade does not have a significant effect on APEC member economies. However, the negative statistics direction indicates that there is a risk of a trade balance deficit that can harm the economy if the deficit increases. The result of the insignificant negative affect of the trade balance on economic expansion is aligned with (Tho Tran & Thi Cam Nguyen, 2018) which states that the government needs to contribute in facilitating international trade to optimize the positive impact of globalization and minimize its negative impact on overall economic development. The non-significant effect of the trade balance is thought to be because many APEC members, such as the US, Japan, Canada, and South Korea, have diversified economies, so that dependence on export and import is balanced with the contribution of the domestic sector. As a result, growth in the economy is not substantially affected by shifts throughout the trade balance, because there is compensation from the domestic sector or other factors such as internal consumption and investment, in accord with (Allen, 2017) study. These results are also expected because APEC members have different economic structures.

CONCLUSION

A logical inference given the data presented might be that a budget shortfall possesses a favorable and considerable impact toward economic expansion; inversely, the trade balance comes with a downside, insignificant consequences for the nation's economy. That's evidence seems to help verify all of the principal theories that were put forth, which are keynesian theory, mercantilism, and the twin deficit hypothesis. Drawing on this research's insights, alternatives could potentially be planned for how the government might leverage the budget deficit to promote economic expansion. In

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addition, it is also needed to develop strategies to improve export competitiveness. This can be done through improving product quality, skills training for labor, and facilitating access to international markets through better trade agreements. For researchers who wish to further study the same topic, it is recommended to conduct a longitudinal analysis with longer data to see how the connection across budget deficit, trade balance, and economic growth fluctuates over a longer period. Beyond that, it is critical to investigate how other macroeconomic variables, including interest rates and inflation, affect the economic expansion of APEC economies. This analysis can provide a more comprehensive understanding of regional economic dynamics.

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