

Determinants of Trade Balance in Gulf Cooperation Council (GCC) Member Countries

Original Article

Kholilatul Khusni^{1*}, Sunaryati²

¹Diponegoro University, Indonesia

²Sunan Kalijaga Islamic State University, Indonesia

Email: ¹⁾ kholilatulkhusni@gmail.com, ²⁾ sunaryati@uin-suka.ac.id

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Abstract

The study aims to analyze the effect of inflation, exchange rate, foreign direct investment, GDP per capita and energy consumption on the trade balance of GCC member countries. Secondary panel data from 2002-2021 from GCC member countries is utilized in this research. The data is sourced from the publications of the World Bank, Trade Map, and OIC Statistics Sesric. The analytical approach employed is the fixed-effects model in panel data regression with a SUR cross-section weighted method. The findings suggest that inflation has a detrimental impact on the trade balance, while the exchange rate, Foreign Capital Receipts, and GDP per capita show a notable positive influence. On the other hand, energy consumption is found to have a positive effect on the trade balance but is not statistically significant.

Keywords: Inflation, Exchange Rate, Foreign Direct Investment, GDP Per Capita

1. Introduction

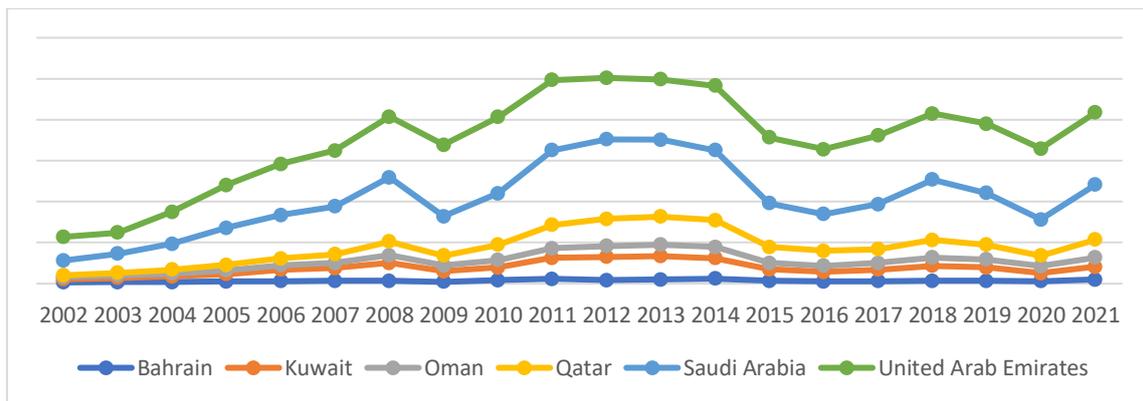
A country's economic activity is directly or indirectly influenced by the dynamics of change at both the regional and global levels, which culminate in the integration of the country's economy. Based on Mankiw (2012) explanation, the description and measurement of a country's economic growth rate is an indicator of the success of a country's development prospects. As explained by Schumacher (2013) an increase in a country's standard of living can be done through international trade. Economic indicators can also be seen from the performance of international trade through the trade balance conditions of each country (S. Ginting & Fransisca, 2014). A trade balance is called a deficit if total exports are less than total imports. In the meantime, when the total value of goods imported is lower than the total value of goods exported, it is referred to as a trade surplus (Mankiw, 2006a).

The definition of export according to Tandelilin (2010) is the efforts made by foreign companies to buy products from within the country for certain purposes. The definition of import according to Benny (2013) is efforts made by domestic companies to buy products from other countries based on international trade provisions.

Companies can contribute to boosting the country's economy and creating more job opportunities by actively engaging in international trade through both exports and imports (Salim, 2023). However, not all international trade activities are profitable but some are detrimental depending on economic growth, population, size and geographical conditions (Pertiwi et al., 2019).



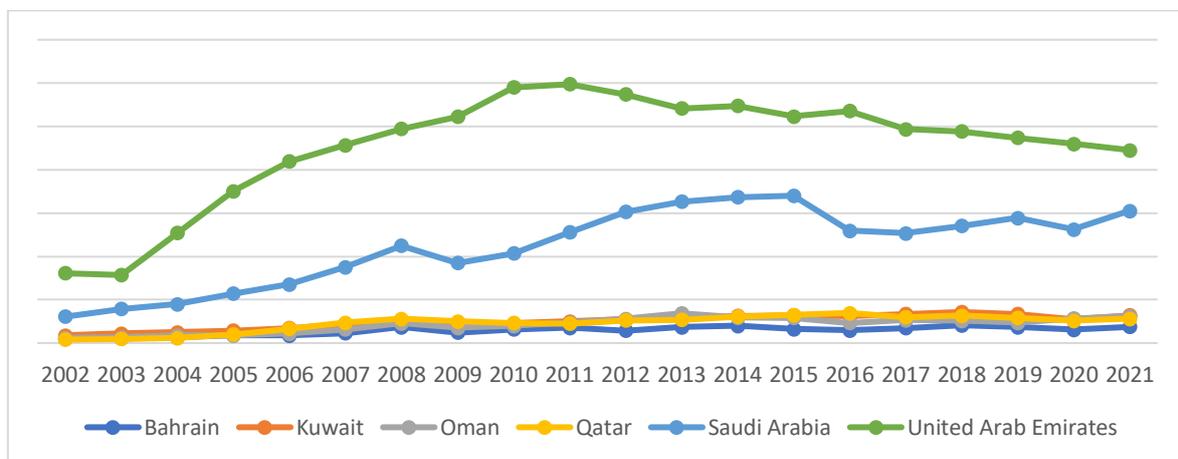
To anticipate international market uncertainty, what needs to be considered is how to increase exports so that the trade balance remains stable even in a surplus condition. As was done by the GCC countries to maintain a positive trade balance. There are six countries in the Persian Gulf that are members of the Cooperation Council for the Arab States of the Gulf (CCASG) or the Gulf Cooperation Council (GCC) which was established on May 25, 1981 in Riyadh Saudi Arabia including the United Arab Emirates, Saudi Arabia, Qatar, Oman, Kuwait and Bahrain. The six joined countries have similarities in terms of free trade perspective, beliefs and culture. In addition, these countries have natural resources in common, namely oil and gas which are produced and exported on the international market (Al-Mawali, 2015). The oil reserves in this GCC member country cover almost half of the world's total oil reserves (Elvina, 2019).



Source: World Bank, data processed, 2022

Figure 1. GCC Member Countries Export chart (Billion USD)

The aim of GCC's contribution to the economy is to establish trade cooperation to realize the integrity of the Islamic Common Market-based economy. The results of Wibowo (2020) research based on empirical data from Muslim countries are mostly still lagging behind in the economic field. Countries that are members of the Gulf Cooperation Council (GCC) have shown significant global trade performance. Member countries of the GCC have offered various types of aid in response to changes in geopolitical conditions and fluctuations in commodity prices and the strength of the US dollar compared to local currencies, all in an effort to boost global trade volume (Al-Mawali, 2015).



Source: World Bank, data processed, 2022

Figure 2. GCC Member Countries Import chart (Billion USD)

The role of the GCC (Gulf Cooperation Council) in free trade is to remove restrictions on trading activities among member countries. These efforts have helped increase intra-GCC trade by 40 times since 2013. Additionally, in 2018, the GCC introduced a common market system to monitor labor and capital mobility to promote further growth. The activities carried out by the GCC indicate that it focuses more on its industry in the field of regional economic integration than on cooperation and in the political, economic and social fields (Al-Mawali, 2015). Based on the explanation of al Said (2009), the stages of activity carried out by the GCC include free trade, custom union, common market and monetary integration.

According to the Phillips curve theory, there is a strong connection between inflation and economic growth. Low levels of inflation are associated with sluggish economic growth, while high inflation typically signals robust economic expansion. Besides that, the link between inflation and economic growth is contained in the law of trade off and economic causality, where the orientation of development or schools of thought developed by the company's leaders including policies in international trade influence the concept of economic development.

Laksono and Saudi (2020) suggests there is a strong correlation between inflation, exchange rates, and trade balance. The high exchange rate and inflation will affect the price equilibrium because these conditions will change the composition of export-import activities. If exports are fewer than imports over a specific timeframe, the trade balance will inevitably decline.

Prices of domestic products are also affected by the exchange rate. Based on Wilya (2014), changes in currency exchange rates cause depreciation and appreciation phenomena. Forms of implementing exchange rate policies as a means of maintaining a higher export position than imports so that the transaction deficit can be reduced. So, it can be said that the exchange rate policy affects trade flows. The indicators used to determine economic activity from implementing exchange rate policies are supply and demand (Mankiw, 2006b).

Economic development is influenced by investment activity. Through investment activities, especially Foreign Direct Investment, it can increase domestic product and the number of jobs so that it can reduce the unemployment rate. Then this will increase the quantity of exports and national income in the form of GDP (Gross Domestic Product) (Armanda, 2021). Based on the explanation of Ihsan et al. (2021), the independence of a country in managing the economy can be seen from its FDI and FDI also plays a role in providing training on how to implement modern technology to increase the productivity of a country's economic growth.

Energy plays a crucial role in enhancing economic growth through its impact on production, distribution, and consumption activities. Stern (2004) revealed that utilizing energy is essential for the advancement of the economy through industrialization and the accumulation of development capital. It serves as both a complementary and alternative method for generating outputs in the economy. It can be said in other terms that energy is an input resource that sustains and enhances other inputs to go through various processes that produce output.

The trade balance of GCC member countries is influenced by various macroeconomic factors, including inflation, exchange rates, GDP per capita, foreign capital inflows, and other macroeconomic variables. Nonetheless, in-depth research is needed to examine the level of macroeconomic influence on the trade balance of GCC member countries. The outcomes are anticipated to serve as a guide for stakeholders advocating for a trade surplus in the GCC member nations.

2. Literature Review

2.1. Trade Balance

The trade balance is a summary that contains or contains records of all import-export transactions of a nation. A deficit is declared in the trade balance if the number of exports is below imports and a surplus is declared if exports of products exceed imports of their products. The trade balance is considered even when a nation's exports match its imports in quantity (Pujoalwanto, 2014).

The trade balance is a breakdown of profits and losses for a certain period, which shows the difference between the amount of a nation's import-export transactions in a period (Murdo & Affan, 2021). A positive nation's trade balance means that the nation has exports that exceed imports in monetary terms. There are excess sales which simultaneously, a deficit in trade indicates that the value of imports exceeds the value of exports in terms of money. This creates a shortfall in sales. A balanced exchange rate is essential for international trade between exporting and importing countries (Siregar, 2020).

The trade balance can be influenced by various factors such as the actual exchange rate, domestic income, and foreign income. When foreign income rises, there is a greater demand for domestic goods. Export growth affects the growth of the trade balance. The similarity of these conditions applies to domestic income, if domestic income increases, this causes additional income to be spent on imports. The increase in imports causes a decrease in the trade balance (A. M. Ginting, 2013).

2.2. Inflation

Inflation according to Lipsey et al. (1995) presented in the form of an average increase overall cost levels, and sometimes the increase is continuous and continuous. During a specific time frame, there are various economic indicators that are utilized to gauge the inflation rate, namely the Consumer Price Index, the Wholesale Price Index, and the Implicit Price Index.

The Consumer Price Index is a comparative or measure of cost in a period against the cost of the basic period by the commodity desired by the customer, where the cost of the commodity is influenced by production prices, value of goods and value of money, population income, the number of requests for a product, regulations that are implemented government, as well as economic, political, social growth, as well as sales to foreign countries (import-export) (Kurniawan & Budhi, 2015). According to Mankiw (2012) CPI (Consumer Price Index) is a parameter commonly used in describing cost fluctuations. CPI is in the form of data by measuring the average fluctuation in costs borne by customers in paying for a number of products.

The IHPB reveals the prices received by producers at different production stages. Economic activities are spread across all areas, not limited to just a few cities. Economists rely on the IHI, or GDP deflator, to gauge inflation accurately.

2.3. Exchange Rate

The rate of exchange refers to the value of one country's money compared to another country's money (Pilbeam, 2006). Krugman and Obstfel (2005), on the other hand, defines the exchange rate as the value of a country's money is determined in comparison to other currencies. Exchange rates show how much one currency is worth in comparison to another. Exchange rates on the market can affect non-fundamental and fundamental aspects. Fundamental aspects are described in macroeconomic variables in the form of economic development, import-export, inflation rate (Krugman & Obstfel, 2005).

In long term, the exchange rate is influenced by four factors: the relative prices of goods, restrictions on trade, consumer preferences for local products, and productivity levels (Case & Fair, 2001). If a nation's cost levels rise (relative to cost levels abroad), that country's currency can weaken over a long period. When trade barriers rise, a nation's currency appreciates over a long period of time. An increase in the desire for exports leads to a long-term strengthening of the currency, while an increase in demand for imports results in a long-term weakening of the currency. When a nation's productivity rises, that nation's currency appreciates.

2.4. Foreign Direct Investment

FDI (Foreign Direct Investment) is an investment originating from foreign or foreign parties. FDI is similar to foreign investment known as PMA (Hindrayani, 2013). FDI is composed of outward and inward. Investment from multiple nations flowing into the country is referred to as inward investment, whereas investment in foreign countries is known as outward investment (Nurina Devi, 2014).

In general, it is hoped that direct foreign investment that enters the country can optimize productivity so that it can affect the nation's income growth in the form of increasing gross domestic product (GDP) and exports (Armanda, 2021). According to Krugman what is meant by Foreign Direct Investment (FDI) is international capital movements are characterized by corporations from one nation forming new businesses or enlarging existing businesses in foreign nations.

According to Feldstein (2000) the flow of Foreign Direct Investment (FDI) has several advantages, namely: (1) Investing in different ventures helps reduce the risk associated with owning capital by spreading out the investments; (2) The melding of capital markets on a global scale can lead to improved diversity in the establishment of corporate governance, accounting regulations, and legal standards; and (3) The ability of governments to implement misguided policies is constrained by the free movement of capital on a global scale.

2.5. GDP per Capita

The GDP per capita is a measure of the average income earned by individuals in a country over a specific time period. It reflects the amount of money that people have available to spend on goods and services (Mankiw, 2006b). In fact, the economic activity of a nation certainly has a correlation with per capita income to show that public purchases are the motor in driving the nation's economy (Murady et al., 2022).

According to Lembang and Pratomo (2013), GDP per capita describes the purchasing power of the public. GDP per capita has a positive effect on exports of exporting nations. This means that the per capita expenditure of partner nations has an impact on the country's exports. This condition is in line with Setiyawati et al. (2017) where he explained that the greater the per capita income of a nation, the greater the ability to trade with other nations, especially in terms of imports. If the GDP per capita of partner countries increases, Indonesia can optimize its exports.

2.6. Energy Consumption

In economic analysis, energy is one of the priorities in the field of economic and social development. Erkan et al. (2010) conducted a study in 2010 to explore the correlation between energy consumption and export levels in Turkey. Although Turkey has various sources of energy, coal and gasoline reserves, along with its high dependence on energy, it is found that the continuous use of energy as a basic input during the production process makes a positive contribution to the level of exports in Turkey, causing a trade balance deficit during a crisis economy.

Nguyen et al. (2020) found in their research that energy consumption has a negative relationship to the East Asian trade balance, where high levels of energy consumption cause a decrease or deficit in the East Asia trade balance. The reason for this is the rise in energy consumption surpassing the available energy resources, leading to an increase in energy imports from foreign nations, resulting in a decline in the trade balance. Increasing energy consumption in a country leads to a rise in imports, resulting in an impact on net exports or a negative trade balance due to the higher value of imports compared to exports.

2.7. Analysis Model

This research paper introduced an analytical framework that illustrates the connections between various factors. The factors under study were separated into two categories, with the independent variables listed on the left side. These independent variables included Inflation, exchange rate, foreign direct investment, GDP per Capita, and Energy Consumption. On the other hand, the dependent variable focused on in this analysis was the trade balance.

2.8. Hypothesis

Referring to the background described above, the hypothesis can be drawn as follows:

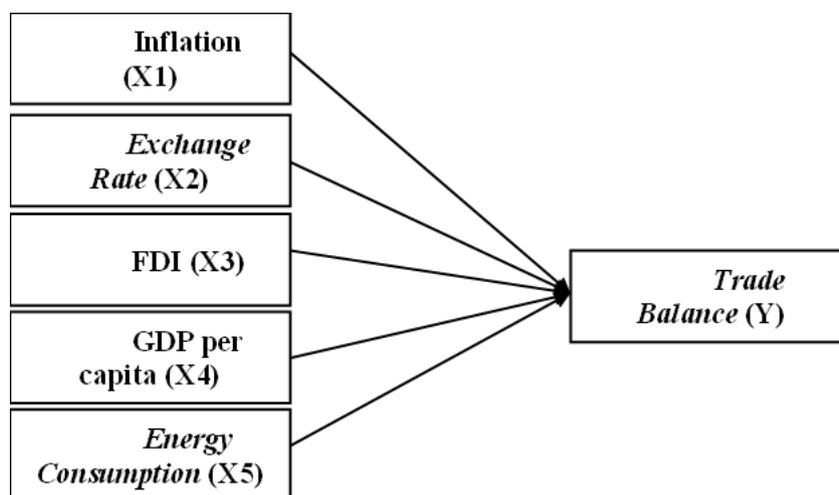


Figure 3. Research Framework

- H1: Inflation has a significant effect on trade balance
- H2: Exchange Rate has a significant effect on trade balance
- H3: Foreign Direct Investment has a significant effect on trade balance
- H4: GDP per Capita has a significant effect on trade balance
- H5: Energy Consumption has a significant effect on trade balance

3. Methods

The study aimed to measure objective facts systematically using secondary data. The author used data on the trade balance of GCC countries as the dependent variable. The independent variables included inflation, exchange rate, foreign investment, GDP per capita, and energy consumption.

The panel data regression model in this study was estimated using three approaches, namely: (1) the common effect model (CEM) approach; (2) the fixed effect model (FEM) approach; and, (3) the random effect model (REM) approach. The CEM model assumes that there is no effect of unit cross section and time series on the regression model, and is estimated

using the OLS method. The FEM model believes that variations in unit cross sections can be addressed by differences in intercepts, and to incorporate these differences in intercepts, the least square dummy variable method is employed for estimation. On the other hand, the Random Effects Model assumes that variations between cross-sectional units are managed through an error component model, estimated using the Generalized Least Square method (Wau et al., 2022).

Table 1. Definition of Operational Variable

No	Variable	Indicator	Data Source
1	Trade Balance	Trade Balance (Million US\$)	https://trademap.org/
2	Inflation	Inflation (CPI Growth, percentage)	https://data.worldbank.org/
3	Exchange rate	Reel effective exchange rate	https://data.worldbank.org/
4	Foreign Direct Investment	Foreign Direct Investment Inflow (Million US\$)	https://data.worldbank.org/
5	GDP per Capita	GDP per Capita (US\$)	https://data.worldbank.org/
6	Energy Consumption	Energy Consumption (Million Ton)	https://sesric.org/

Source: Author 2022, Processed Data

The study focused on countries belonging to the Gulf Cooperation Council (GCC). The GCC was selected as the sample for this study due to the abundance of data available on the SESric website for analysis. The countries included in the sample for this research have secondary data on various economic indicators such as trade balance, inflation, exchange rate, foreign direct investment, GDP per capita, and energy consumption in data.worldbank.org, trademap.org and sesric.org as many as 6 countries. These countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates.

When formulated, the following equation was put forward:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e_{it}$$

Where:

Y = Trade Balance; X1= Inflation; X2= Exchange Rate; X3=Foreign Direct Investment; X4= GDP per Capita; X5 = Energy Consumption

4. Results and Discussion

4.1. Research Results

4.1.1. Descriptive Statistics

Before being analyzed further, the research data that has been collected first undergoes descriptive analysis based on each variable. Table 2 illustrates a summary of the findings from the descriptive analysis. The number of observations in this study was 120, consisting of 6 cross section units and 20 time series units. On average, the trade balance variable for GCC member countries in a 20-year time interval is USD 463,677.38 with a standard deviation of USD 525,627.41 This high standard deviation value indicates the gap in per capita income among GCC member countries. During that period the highest trade balance was USD 236.176.692 experienced by Saudi Arabia in 2011, and the lowest trade balance was USD - 6.243.836 experienced by Bahrain in 2018.

Inflation growth in each GCC member country was relatively stable during the observation period. The GCC member country with the highest inflation growth was Qatar in 2008 and the lowest inflation growth was Qatar in 2009. The exchange rate of the domestic currency in USD dollars among GCC member countries also showed a fairly stable value during the observation period. The GCC member country with the highest domestic currency exchange rate was Bahrain in 2002 amounting to 136.73 USD. While the lowest domestic currency exchange rate was Kuwait in 2008.

The highest foreign investment that entered a GCC member country was Saudi Arabia in 2008 of 394,558,639.29 USD and the lowest was Qatar in 2019. The highest GDP per capita was Qatar in 2012 and the lowest was Oman in 2002.

Table 2. The Result of Descriptive Analysis

	Trade Balance	Inflation	Exchange Rate	Foreign Direct Investment	GD Per Capita	Energy Consumption
Mean	46367738	2.688581	35.18309	4.52E+09	32343.36	38.19354
Median	30291850	2.250428	3.670900	1.51E+09	24916.57	18.15500
Maximum	2.36E+08	15.05015	136.2281	3.95E+10	85075.99	171.7900
Minimum	-6243836	-4.863278	0.268828	-2.81E+09	8626.965	3.320000
Std. Dev.	52562741	3.359584	49.16512	7.21E+09	17835.96	46.83117
Probability	0.000000	0.000000	0.000021	0.000000	0.000000	0.000000
Observations	120	120	120	120	120	120

Source: Eviews 12, Processed Data, 2022

The panel data regression model was used to analyze the research data presented in Table 2. The results of model estimation using the common effect, fixed effect and random effect approaches are as presented in Table 3. Before being analyzed further, the estimation results of the model are then chosen as the best model estimation approach through model specification testing.

Table 3. The Result of Model Estimation Approach

Variable	Model Estimation Approach		
	Common Effect	Fixed Effect	Random Effect
C	-18566920**	-30881024***	-18566920***
Inflation	0.6552	0.0602	0.6298
Exchange Rate	0.6975	0.5387	0.6748
Foreign Direct Investment	0.0000***	0.0000***	0.0000***
GDP per Capita	0.0000***	0.0000***	0.0000***
Energy Consumption	0.0000***	0.6733	0.0000***
R-Squared	0.700713	0.754469	0.700713
F-Statistic	53.38101***	33.49356***	53.38101***

Remark *) Significant on $\alpha = 10\%$; **) Significant on $\alpha = 5\%$; ***) Significant on $\alpha = 1\%$.

Dependent Variable: Log(GE).

Estimation Method: Panel Least Square.

Source: Eviews 12, Processed Data, 2022

4.1.2. Model Specification Test

The results of the model estimation as presented in Table 3 will choose one of the three existing approaches through the model specification test where the results are shown in Table 4. The results of the model specification test show that based on the Chow test the test statistic

value is 23.757606 with a p-value of 0.0002. Because the p-value of Chow's test is less than alpha 1 percent, the decision taken is to reject the null hypothesis. In other words, the fixed effect model is the best model used in this study. Furthermore, the results of the Hausman test obtained a test statistic value of 23.864251 with a p-value of 0.002. Because the p-value of the The rejection of the null hypothesis was based on the Hausman test result showing less than 1 percent alpha. This indicates that the fixed effect model is the most suitable for this research. Both the Chow test and Hausman test confirmed the superiority of the fixed effect model in this study, hence it was established as the most optimal model to use.

Table 4. The Result of Model Specification Test

Testing Criteria	Chow Test	Hausman Test
Statistic Value	23.757606	23.864251
P-value	0.0002	0.0002

Source: Eviews 12, Processed Data, 2022

4.1.3. Classic Assumption Test

The fixed effect model selected in this study was further tested with classical assumptions before being analyzed in depth. The results of testing the classical assumptions as presented in Table 5 and Table 6 are as follows.

Table 5. The Result of Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2723259.	6141491.	-0.443420	0.6583
Inflation	404307.8	447018.9	0.904454	0.3677
Exchange Rate	-88104.42	122734.3	-0.717847	0.4744
Foreign Direct Investment	0.000237	0.000259	0.916239	0.3616
GDP per Capita	-39.66306	175.9097	-0.225474	0.8220
Energy Consumption	563000.9	122631.2	4.591010	0.2671

Source: Eviews 12, Processed Data, 2022

The significance level of the residual value in the fixed effect model estimation exceeds 0.05, indicating that there is no issue of heteroscedasticity in the FEM regression model used in this study. In addition, in table 5 the estimated value of the correlation coefficient between the independent variables used in this study in the FEM model is not more than 70%. Therefore, the FEM model used does not indicate multicollinearity problems.

Table 5. The Result of Multicollinearity Test

	Inflation	Exchange Rate	Foreign Direct Investment	GDP per Capita	Energy Consumption
Inflation	1	-0.105104	0.179157	0.23023	-0.040285
Exchange Rate	-0.105104	1	0.204825	-0.442685	0.443129
Foreign Direct Investment	0.179157	0.204825	1	-0.062712	0.542597
GDP per Capita	0.23023	-0.442685	-0.062712	1	-0.210693
Energy Consumption	-0.040285	0.443129	0.542597	-0.210693	1

Source: Eviews 12, Processed Data, 2022

Based on the following table 6, the DW value can be found to be 1.006094, this value will be compared with the significance table value of 5%, with a total sample of 120 (n) and a number of independent variables 5 (k = 5), then a du value of 1.7896 is obtained, and the DL value of 1.006094 is smaller than the upper limit (du) which is 1.6164 and less than (4-du) or $4 - 1.7896 = 2.2104$. So, it can be concluded that there is autocorrelation.

As a solution to overcome this problem, the selected fixed effect model is used which is then estimated using the GLS method using the SUR cross section scale (Wau et al., 2022; Platoni et al., 2020).

Table 6. The Result of Autocorrelation Test

R-Squared	0.754469
Adjusted R-squared	0.731943
Durbin-Watson stat	1.006094
Prob (F-statistic)	0.000000

Source: Eviews 12, Processed Data, 2022

4.1.4. Statistic Test

The results from the panel data regression model using the SUR cross section balanced fixed effect model that has undergone the classical assumption test are displayed in Table 7. From this table it can be stated that the panel data regression model used in this study is very good when measured using the value of the coefficient of determination. The coefficient of determination of this research model is 87.95 percent. This finding is reinforced by the high value of the F statistic, which is 79.55661 and is significant at an alpha of 1 percent. Thus, the trade balance determinant model used in this research is considered to fulfill the goodness of fit. Furthermore, the partial statistical test shows a significant value. First, the coefficient value of the inflation variable is 0.0001 with a partial test statistical value (t test) of -4.056468, which means that this coefficient is significant at an alpha level of 1 percent because the p-value is less than one percent. The coefficient of the exchange rate variable is 0.0096 with a t-test statistical value of 2.637678. The coefficient value of the exchange rate variable is also significant at an alpha of 1 percent because the p-value is less than one percent. Likewise with the foreign direct investment and GDP per capita variables, the coefficient values of these variables are also significant at alpha 1 percent because the p-value is less than one percent. However, the energy consumption variable is not significant at 5 percent alpha because the p-value is more than five percent.

Table 7. The Result of Autocorrelation Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Description
C	-25802775	6360897.	-4.056468	0.0001	Significant Negative
Inflation	-1152640.	280426.6	-4.110309	0.0001	Significant Negative
Exchange Rate	329338.3	124859.2	2.637678	0.0096	Significant Positive
Foreign Direct Investment	0.001138	0.000364	3.130718	0.0022	Significant Positive
GDP per Capita	1695.520	119.4877	14.18991	0.0000	Significant Positive
Energy Consumption	96800.76	132410.0	0.731068	0.4663	Positive not Significant
R-Squared			0.879500		
Adjusted R-Squared			0.868445		
F-statistic			79.55661		

Source: Eviews 12, Processed Data, 2022

4.2. Analysis

According to the statistical tests outlined, it seems that the trade balance of GCC member countries is significantly affected by four independent variables in this study. Inflation has a detrimental effect, whereas the exchange rate, foreign direct investment, and GDP per capita have a beneficial impact.

The negative relationship between inflation and the trade balance is in line with what Nopeline and Siahaan (2020) found, which explains that there is a significant negative correlation between inflation and the trade balance. Rising inflation will slow down the economy and inhibit the productivity of producers in production due to an increase in the inflation rate, which will impact export-import commodities and balance the trade balance. Inflation is closely related to foreign exchange rates. Inflation that occurs or applies usually has a tendency to reduce foreign exchange rates. So that it has an impact on international trade because it can affect domestic prices as well as foreign prices in the implementation of export-import transactions. According to the theory, the performance of exports and imports is so impactful because of other interrelated factors.

The trade balance is impacted positively by the exchange rate. An increase in the trade balance occurs when the real exchange rate depreciates, provided that the Marshall-Lerner conditions are fulfilled, which means that the combined elasticity of exports and imports concerning the real exchange rate surpasses 1. The decrease in the exchange rate has a twofold effect on the trade balance, mainly through adjustments in both quantity and financial value. The Marshall-Lerner principle indicates that changes in quantity will outweigh changes in value, meaning that despite an increase in import costs and a decrease in export revenues, the rise in export quantities and the fall in import quantities will prevail, resulting in an overall improvement in the trade balance. The results of the study are in line with the research of Ati and Asnawi (2018) if the exchange rate has a favorable impact on the trade balance, it can lead to an increase in real exports and a decrease in imports, thereby enhancing the real trade balance through depreciation. Other results conclude that imports are more sensitive to exchange rate depreciation and export values remain positive in the trade balance adjustment process.

Trade balance is significantly influenced in a positive manner by Foreign Direct Investment. Weiss (2005) states that if an increase in FDI can lead to an increase in the capacity and production capabilities of existing countries, the increase in production capacity can lead to an increase in exports. This is in line with Herrmann and Jochem (2005) research which states that FDI entering a country, especially FDI in industrial technology, stimulates increased exports. In addition, research by A. M. Ginting (2015), Kennedy (2013) in Kenya also found similar results if FDI had a positive impact on the trade balance.

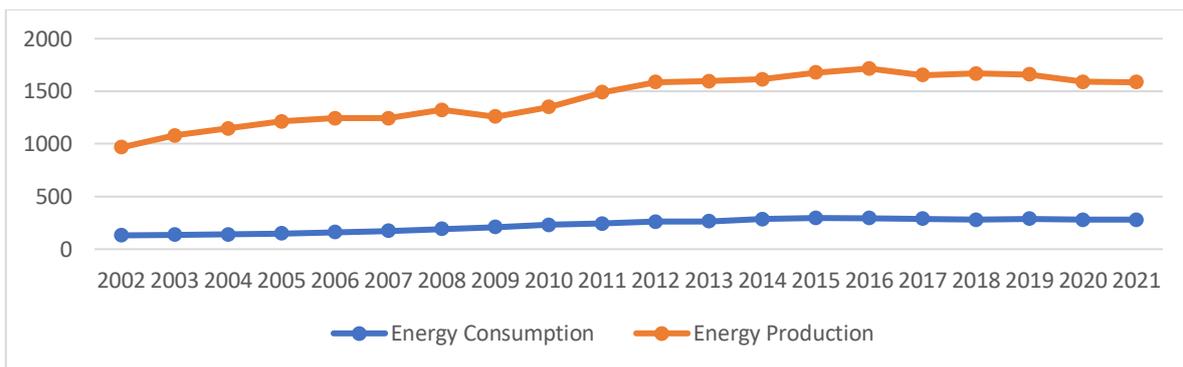
The positive and significant impact of the GDP per capita variable on the trade balance found in research conducted is in line with Boediono's assumption theory (Boediono, 2001) which reveals that the impact of GDP on exports can be explained by a vent for surplus concept known as Adam Smith's statement, which yields output excess production at home results in a surplus from exports directly.

The increase in GDP growth results will inevitably lead to a boost in exports since a larger amount of domestic production will eventually be directed towards exports, indicating a rise in product surplus. Essentially, a rise in exports will consequently lead to an improvement in the trade balance. The research conducted is in line with Ahmad and Geide-Stevenson (2012) statement which revealed that the trade balance in the United States is influenced in a favorable way by the GDP, whereas a decline in Mexican GDP has an adverse effect on the trade balance. In line with the findings of Nopirin (2009) in his thesis, it states that exports of

a country are imports of other countries. This finding is in accordance with research by Nanga (2001) that when people's income increases, when it is used to purchase goods in their own country, import activities decrease which results in an increase in the trade balance.

Furthermore, the energy consumption variable has no significant and positive effect on the balance of trade. This is not in accordance with the research hypothesis which states that energy consumption has a negative impact on the balance of trade. This is because GCC member countries are countries that produce the largest energy in the world, so energy consumption in GCC countries can still be met by domestic production. In other words, the GCC countries do not import energy so that energy consumption in the GCC countries does not have a negative effect on the trade balance. Most of the GCC countries' energy production is exported to various parts of the world.

The findings of this research align with Hanif (2017) in his research on developing countries in Latin America and the Caribbean region which found a positive relationship between energy consumption and the trade balance. This is also supported by data as explained in the following figure that the average total energy consumption of GCC member countries per year is 229 million tons, while the average production is 1203 million tons per year. Only 19 percent of the total energy consumption of the total production of GCC member countries. This reinforces that energy consumption has a positive effect on the trade balance in GCC member countries.



Source: Sesric, data processed, 2022

Figure 4. GCC Member Countries Import chart (Billion USD)

5. Conclusion

The regression model utilized in this research adheres to the criteria for goodness of fit and also adheres to the assumptions required for the estimation method, specifically the fixed effect model approach in panel data regression with SUR cross section weighting. Furthermore, four out of the five independent variables have demonstrated a notable impact on the dependent variable in this study.

The increase in per capita GDP, Foreign Direct Investment and exchange rate depreciation were able to increase the trade balance of GCC member countries. On the other hand, inflation is able to correct the trade balance of GCC member countries. The positive relationship between energy consumption and the trade balance of GCC member countries is due to the fact that GCC countries are the largest energy producers and exporters in the world.

6. References

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