



## ANALYSIS OF THE FACTORS AFFECTING THE TRADE BALANCE OF EGYPT

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### Abstract

This study investigates the determinants of the trade balance in Egypt over the period 1991–2020. Trade balance is an important indicator of a country's macroeconomic performance and international competitiveness, reflecting the difference between exports and imports. Despite extensive research on trade balance determinants, limited studies have focused specifically on Egypt. Using the Ordinary Least Squares (OLS) regression approach, this paper examines the impact of several macroeconomic variables, including exchange rates, inflation, money supply, tariffs, government consumption, personal remittances, Gross National Income (GNI), and Foreign Direct Investment (FDI), on Egypt's trade balance. The empirical findings reveal that only Gross National Income and Foreign Direct Investment have a statistically significant influence on the trade balance. GNI exhibits a negative relationship with the trade balance, while FDI significantly affects trade dynamics. In contrast, exchange rates, inflation, money supply, tariffs, remittances, and government consumption were found to have no significant impact. The study contributes to the literature on Egypt's external sector and highlights the need for further research on the role of domestic and foreign income in shaping trade balance performance.

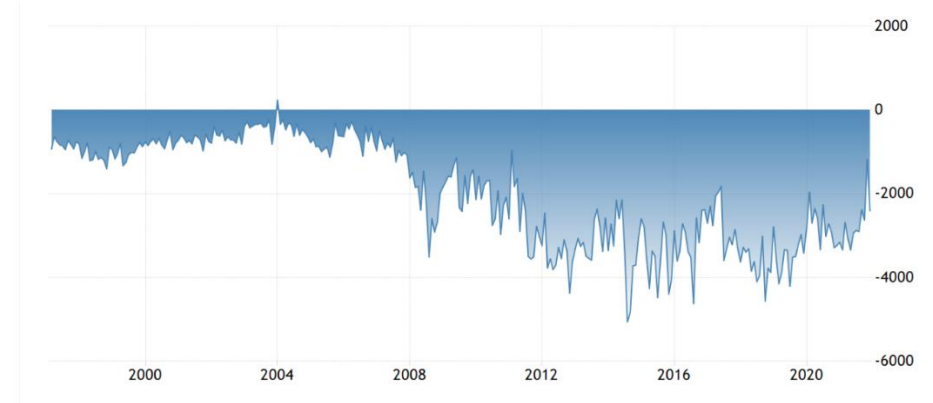
**Keywords:** Trade Balance, Egypt, Foreign Direct Investment, Gross National Income, Exchange Rate, Inflation, Ordinary Least Squares (OLS), International Trade, Macroeconomic Determinants.

### Introduction

The analysis of trade balances for various economies has been a subject of plenty of research work since it is considered to be an important indicator of macroeconomic stability and competitiveness that can be used to evaluate a country's relationship with other countries. The countries that engage in international trade regardless of their level of development face the problem of a negative trade balance or trade deficit, which



occurs as a result of imports exceeding the exports in the country, or trade surplus if exports exceed imports. As a developing country, Egypt recorded a balance of trade deficit equivalent to 2410 USD Million in December of 2021. That scenario can be well observed from Figure 1 below which shows that the trade balance continued to remain unfavorable starting from the year 2004. Accordingly, in the recent years, questions have been raised about the factors that can affect the balance of trade in Egyptian Economy. Therefore, the primary objective of this paper is to investigate the determinants which have a significant impact on the trade balance of Egypt by using the ordinary least squares (OLS) regression analysis for data spanning from 1991 to 2020.



**Figure 1.** Egypt's balance of trade. (Trading Economics, 2021).

Following the introduction, the structure of the paper is as follows. The second section presents a review of existing literature regarding the macroeconomic variables influencing trade. Next, both the data used in the analysis and the methodology of the research are shown. In the subsequent part, the results and discussion of the empirical analysis are demonstrated. The last part of the paper contains conclusions drawn from the conducted research.

### Literature review

A growing body of empirical studies have attempted to investigate the determinants of the trade balance. A variety of macroeconomic variables have been shown in the empirical literature to explain the trade balance dynamics. These include the exchange rate, tariffs, national income, government spending, money supply, inflation, remittances, and foreign direct investment.

Exchange rates are a very important factor impacting a country's trade balance. Yol and Baharumshah (2007) investigated the bilateral trade balances of ten African nations. They discovered that depreciation of the real exchange rate improves trade balances in the countries such as Egypt, Kenya, Nigeria, Tunisia, and Uganda.



Correspondingly, Igue and Ogunleye (2014) also supported that currency devaluation leads to an improvement in Nigeria's trade balance. However, in the case of Ghana, Anning et al. (2015) found out that it leads to a worsening of the balance of trade. Waliullah et al. (2010) and Mohammad & Hussain (2010) used ARDL Co integration and OLS regression analysis, respectively, to study the determinants of Pakistan's trade balance from 1970 to 2008, and discovered a steady relationship between trade balance and exchange rates. The results of the exchange rate confirmed the Marshal Lerner condition, with a depreciation that was positively associated with trade balance. Singh (2004), on the other hand, uses the error correction model (ECM) to examine the effects of exchange rates on India's trade balance between 1975 and 1996. According to the analysis, the impact of currency rates on India's trade balance is insignificant.

Bhatta (2013) and Dahal (2014) employed the ECM in the Asia region to analyze the influence of remittance inflows on trade imbalance in Nepal using a monthly database from 1995 to 2011. The cointegration test revealed a correlation between remittances and the trade deficit. Dahal (2014) identified two types of negative effects of remittance inflows on international trade: decreased export competitiveness due to exchange rate appreciation and discouragement of the tradable sector due to high prices of non-tradable products due to a decline in labor supply. Additionally, Olubiyi (2014) conducted the research to investigate the causal connection between remittance, exports, imports, and trade in Nigeria from 1980 to 2012. The quantitative finding indicated that remittances had a negative influence on the Nigerian economy's trade balance. Besides, Farzanegan and Hassan (2016) also studied the influence of remittances on trade balances in eleven Middle Eastern and North African countries from 1980 to 2013. They discovered that the inflow of remittances had an increasing effect on the trade deficit through generating imported-led consumer expenditures in the economies. Similarly, Okodua and Olayiwola (2013) found a negative relationship of remittance with trade balance in the Sub-Saharan Africa region as well, using a sample of 30 countries from 2002 to 2011, but the results were statistically insignificant in the regressions disabling the authors to draw any conclusions on the impact of remittance inflows on the trade balance of African developing countries.

National income is also one of the drivers for trade balance dynamics (Jhingan, 2006). Increases in national income boost consumer purchasing power thereby increasing the volume of imports which leads to a trade deficit (Majeed and Shah, 2014). However, some emerging countries manage to develop the capacity to direct their national revenue toward improving their trade balance (Gzaw, 2015). These are the countries who have used national income to boost exports, and this is because rising income



encourages domestic production to catch up.

Furceri (2019) estimated the impact of import tariffs on trade balance using a panel of annual data that spans 151 countries over 1963-2014. He discovered that tariffs have relatively minor influence on the trade balance, owing to the fact that they create offsetting exchange rate appreciations. Razin and Svensson (1983), on the other hand, demonstrated that, starting with free trade, a temporary tariff improves the trade balance. The idea underlying their findings is that a temporary tariff raises the relative price of current goods in terms of future goods, causing consumers to shift their spending away from current consumption and toward future consumption, ultimately improving the trade balance.

Saruni (2007) conducted an OLS regression analysis on data from 1970 to 2002 in Tanzania and indicated that government spending and FDI have a favorable impact on the country's trade balance. Furthermore, Shawa and Shen (2013) discovered that FDI has a positive influence on Tanzania's trade, whereas government spending and inflation have a negative impact. Moreover, Nienga (2010) contributes to the discussion by investigating the determinants of trade balance in Kenya. The author reveals government spending and money supply as the main significant factors that affect Kenya's trade balance during the period 1920 to 2010. Using the OLS technique, the study finds that these factors have a negative impact on Kenya's trade balance, whereas in Ghana, Akoto and Sakyi (2019) discovered that government spending is negatively and significantly related to the trade balance, whereas money supply has a positive and significant relationship with the trade balance. Furthermore, Ousseini et al. (2017) analyzed the key factors of West African Economic and Monetary Union trade balance for the period 1980–2013 and discovered a negative and considerable influence of money supply and positive effects of inflation and FDI on the trade balance. Sarbapiya (2012) employed OLS to observe the trade behavior for India over the period of 1973 to 2011. As a result, FDI was found to have a significant positive impact on trade balance while inflation and exchange rate exert negative effects.

### **Methodology**

The research approach used for this study is quantitative. The annual (secondary) time series data used for this empirical study were derived from the “World Development Indicators”, which is believed to be a reliable data source. Meanwhile, the empirical analysis for the case of Egypt involves the period of 30 years covering the period between from 1991 to 2020. The choice of this period has been done according to the availability of the data.



As the primary purpose of the study is to examine the determinants of trade balance in Egypt, “net trade in goods and services” was selected as the dependent variable throughout the process of the regression analysis. Based on what was found out in the literature review, 8 independent variables were chosen to observe their individual correlation with the trade balance of Egypt. To be more precise, “Broad money (% of gdp)” was used as the measurement of money supply while “General government final consumption expenditure (annual % growth)” represented government expenditure. In the meantime, “Inflation - consumer prices (annual %)” , “foreign direct investment – net inflows (% of gdp)” and “personal remittances received (% of gdp)” were utilized to measure inflation, FDI and personal remittances respectively. Furthermore, “Tariff rate-applied simple mean, primary products (%)” was used as the indicator of tariff rate while “official exchange rate (LCU per US, period average)” was chosen as the measurement of exchange rate. Last but not least, in order to measure gross national income, “Adjusted net national income (annual % growth)” was used. It is also important to mention that the variables measured in US dollars, such as net trade and official exchange rate, were converted into percentages in order for the following regression analysis to yield accurate results.

Due to exogenous and indigenous variables having a linear relationship, the following equation is to be employed in our empirical study:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6 + \beta_7x_7 + \beta_8x_8 + E$$

where x1 – money supply, x2- government expenditure, x3-inflation, x4-gross national income, x5- FDI, x6- personal remittances, x7- official exchange rate and x8- tariff rate.

In order to determine the correlation between trade balance and each of the independent variables in the case of Egypt, this particular study employed “simple linear regression” model, whose results will be demonstrated and interpreted in the next section of the paper.

### Results and Discussion

nettrade	Coef.	Std. Err.	t	P> t	[95% Interval]	Conf.
<i>broadmoneyofgdp</i>	- .0128831	.0471056	- 0.27	0.787	- .1114763	.0857101
<i>generalgovernmentfinalconsumption</i>	.4531924	.229655	1.97	0.063	- .0274812	.9338659



<i>inflationconsumerpricesannual</i>	- .1603993	.0811102	- 1.98	0.063	- .3301648	.0093662
<i>adjustednetnationalincomeannualg</i>	- .4490998	.1674384	- 2.68	0.015	- .7995523	- .0986472
<i>personalremittancesreceiveofgdp</i>	.1746585	.1315163	1.33	0.200	- .1006084	.4499254
<i>foreigndirectinvestmentnetflow</i>	.5770652	.2029423	2.84	0.010	.1523022	1.001828
<i>officialexchange rate</i>	- 1.169726	2.468998	- 0.47	0.641	- 6.337399	3.997946
<i>tariff rate applied</i>	- .0492278	.0355887	- 1.38	0.183	- .1237157	.0252601
<i>_cons</i>	1.748796	4.123657	0.42	0.676	- 6.882118	10.37971

**Figure 2.** Ordinary Least Squares (OLS) regression results. (The World Bank, 2020).

This part of the paper provides the empirical results generated through a simple linear regression model, followed by detailed interpretations on the relationship between net trade and each of the eight dependent variables. Based on 28 observations under 95% confidence interval, the independent variables whose “p” values being equal or less than 0.05 were considered statistically significant.

The first factor used to determine its impact on trade balance (TB) in Egypt is money supply (MS). According to the result, MS is negatively correlated with trade balance (-1%). Therefore, the results show that increase in money supply leads to trade deficit but according to Akoto and Sakyi (2019) there is a positive and significant relationship between MS and TB which is not consistent with the results obtained by Ousseini et al. (2017) and Nienga (2010). However, the given variable was highly insignificant at almost 8 percent level of significance in the case of Egypt.

Another two determinants are government consumption expenditure (GCE) and inflation rate which were found to have a positive and negative impact on TB with 45% and -16% respectively, but their significance levels are at the margin of statistical significance with 6%. The result of GCE did not have the expected sign as it was stated by many researchers (Shawa and Shen, 2013; Nienga, 2010; Akoto and Sakyi, 2019). However, Saruni (2007) also discovered an improvement in trade balance as a result of increase in government spending in Tanzania. Such a result was explained that there have been reasonable government interventions, such as investment in productive



sectors, undertaken to encourage exports which might be the case for Egypt as well.

From the table above, two variables namely, GNI and FDI are found to be statistically significant in explaining the imbalances of the trade balance in Egypt. The empirical findings of the regression analysis showed that FDI has a positive relationship with trade balance such that 1% increase in FDI yields an average 57 % improvement in net trade since it encourages exports by accumulating capital to foster the production of exportable commodities and facilitating the transfer of new technologies and new products for export. The same result was reached by Sarbapiya (2012), Saruni (2007) and Ousseini et al. (2017). Similarly, national income was found to have a negative correlation with net trade meaning 1% rise in GNI leads to approximately 45 % increase in TB. This could be explained by the fact that increase in income leads to higher imports according to the marginal propensity to import as it was also stated by Majeed and Shah (2014).

Personal remittance (PR) has indicated positive sign but it is statistically insignificant at the 20 percent level. The results suggests that a 1% increase of PR will result in a 17% improvement in trade balance which contradicts to the research results of Bhatta (2013), Dahal (2014), Olubiyi (2014), Farzanegan and Hassan (2016) and others who found out negative association of PR with trade. From a theoretical point, remittances can enhance aggregate demand in the economy, encourage local investment and lead to export of the excess goods. It can also be a source of savings and capital for investment that reduces imports hence improve trade balance which can also be applied to the case of Egypt (Gikunda, 2017).

Unlike the abovementioned independent variables, the other two determinants of trade balance used for the empirical study, namely official exchange rate (ER) and net tariffs, were proved to be statistically insignificant both having negative relationship with trade balance. As regards the exchange rate, a 1% rise in currency rate leads to trade deficit with -116%. However, the study by Yol and Baharumshah (2007), Waliullah et al. (2010) and others proved the opposite, claiming that currency depreciation improves trade balance. In the case of Egypt, the negative relationship can be justified by the fact that if the local currency appreciates the trade deficit might occur because imports become cheaper and exports become less profitable, causing the domestic demand to fall.

## Conclusion

A number of research have been performed on trade balance and its determinants, but few have analyzed it in the case of Egypt. Therefore, the purpose of this study has been



to discover most essential factors that influenced the trade balance in Egypt from 1991 to 2020 using OLS approach. The empirical findings of the study indicate that out of 8 variables tested only 2 were found to have a significant impact on Egyptian trade dynamics. These variables are Gross National Income that has a negative relationship and Foreign Direct Investment. The results show that any changes in money supply, inflation, tariff and exchange rates, personal remittance and government consumption do not have impact on trade balance of Egypt. However, the scope of our analysis has been limited to eight variables due to the lack of reliable data, particularly on domestic and foreign income. Literature gaps have been observed on the impact of domestic and foreign income on Egypt's trade balance as well, and it has presented the need for further development in this area of study.

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