

Impact of Trade Deficit on Economic Growth: A Case of some selected Countries

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Abstract

Trade has a significant role in the economy and promotes economic growth. This paper expresses the relationship between the trade deficit and the economic development of some selected countries. For this purpose, we used a random-effects model to estimate the analysis. The outcome of the study indicates that trade deficit has a negative impact on economic growth. The study suggested that countries be more concerned about the trade deficit to minimize it for better performance and high economic growth.

Keywords: Trade; Economic Growth; Random Effect Model; Trade Deficit.

1. Introduction

A trade deficit can be explained as the difference between imports and exports of a country; a country may be a state with a trade deficit whenever a nation's export income is less than the payments nation's import. The link between the trade deficit and economic growth has been an important topic for researchers. In this recent era, no country can refuse the significance of globalization. International trade has raised mobility of capital goods among nations; trade deficit has an inverse effect on economic growth (Awan & Mukhtar, 2019). International trade has become important for the whole world, no matter it's big, small with developing or developed nations. There is an overall understanding in the media and the public that import/export imbalance is terrible news for any economy (Amin et al. 2021). The traditionalist intelligence is that import/export imbalance is delayed total national output. An excellent exchange balance is the principal determinant of development for a country; as a deficit of a country increases, its GDP will be reduced (Amjad, Khan, & Bilquees, 2004). The trade deficit usually occurs when a nation cannot produce everything required than the country can need to borrow and buy from other nations with paying for the imports; this situation is called the current account deficit (Huang et al. 2020). A trade deficit may also occur when organizations produce in other countries; the raw material for manufacturing is shipped from foreign companies for a firm's production is defined as export, and finished manufactured goods are defined as imports (Gosh & Ramakrishnan, 2016). Exports are necessary for a nation's development because exports will help create a foreign exchange. Through foreign exchange, a country can finance its imports and is also required to create its

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capital formation domestically. At the start, a deficit of trade may not be a depraved thing (Ali et al. 2021), (Yang et al. 2021). It causes an increase in individual's standard of living because they easily can access high quality of goods and services, and it may also decline the threat of inflation. Still, after some time, outsourcing of jobs and import will be more than exports and may have a negative impact on a country's economic growth (McBride & Chatzky, 2017).

1.1 Significance of Study

In recent times the world has become a global village; no country can avoid the importance of trade liberalization and globalization. If governments want to develop their selves, then International trade is essential for them. Some scholars think that most countries are using more advanced technologies and innovative methods in production, so through international trade, other countries can also learn some advanced production methods. On the other hand, international trade has some negative impact on few countries; this study wants to observe the trade deficit impact on the economic growth of selected developed economies.

1.2 Objective of Study

- To observe the causes of the trade deficit of selected developed countries.
- To measure the impact of the trade deficit on selected developed countries' economies.
- To estimate the association between the trade deficit and Economic growth.
- To make recommendations on how can eliminate the trade deficit from selected developed countries.

1.3 Purpose of Study

This study aims to observe whether trade deficit positively or negatively impact selected developed countries' economic growth. This study will fill the gap of previous research in some particular research areas because no previous research has completely recognized the linkage between the trade deficit and economic growth in selected developed economies. I hope this study will help out the selected developed country's policymakers and decision-makers involved in the trade and macroeconomic activities.

2. Literature review

(Bader & Riazuddin, 2006) examined the trade deficits and economy, the objective of the study is to estimate the association among exports of a country and trade deficit. A study found that consumer goods share in total imports has reduced 30% in 1960-1961 and 16% in 1969-1970. (Muhammad, 2010) observed the long-run and short-run effects of trade deficit. The study used yearly data for the 1975-2008 period. The study used the Johnson Cointegration method for long-run estimation and the short-run used VEC estimation. The study used variables as foreign income (FI), domestic consumption (DC), a real effective exchange rate(RER) and foreign direct investment(FDI). Study result indicates that all variable has a positive impact on the trade deficit in Pakistan. (Abbas & Raza, 2013) conducted a study to find out the relationship between the trade deficit and economic development. The study used trade deficit as the primary variable. The study collected 24 years annual data sample from the period 1988-2011. The survey used histogram, scatter

plot matrix, and OLS method of regression for analysis of data. Histogram's exchange rate indicates that the rupee value is against the USA dollar and there is a continuous decrease. FDI also has an inverse association with the economic growth of Pakistan. The Scatter plot graph explained a positive association among dependent and independent variables excluding trade volume.

(Dhar, 2016) Investigated FDI and trade deficit matter for Bangladesh's economic growth; the study's primary aim is to observe an association between the trade deficit and GDP. The study used time series analysis and used data from 1980 to 2013. The study used the ADF test for the stationarity of data. The study used Johansen co-integration technique for long-run analysis and the Granger causality test for observing causal relation. Johansen's result indicates FDI has a significant and positive association with GDP. Granger causality result explained that there is a uni-directional causality among GDP and FDI and TD of Bangladesh. Biyase and Zwane (2015) explored whether utilizing board information strategies and a study of 30 African nations from 1990 to 2005, Wagner's Law perseveres in African countries. The connection discoveries showed uni-directional connection in the example nations, free of the different broad information methodologies utilized from economic advancement to government spending. The postulation subsequently loaned backing to Wagner's Rule. Thabane and Lebina (2016) are among the latest examinations on the government use development nexus issue. Utilizing the ARDL limit checking strategy, they exactly tried the connection of economic improvement and government use in Lesotho from 1980 to 2012. Kumar, Webber, and Fargher (2012) have explored the course of connection of economic advancement and government size observationally similarly, this time in New Zealand. Because of the investigation, discoveries find that economic advancement in New Zealand drives government spending over the long haul because of the investigation discoveries. Srinivasan (2013) likewise checked the connection of economic improvement and open spending utilizing information for India over the 1973 to 2012 period. The explanatory findings demonstrated that connection was one course, depending on the co-mix strategy and ECM, moving from economic advancement to public spending, whether or not the examination was acted in the short or long haul. Along these lines, the exploration loaned backing to Wagner's Law.

Government is a state body for decision-making and outcomes, Lane (2000) and Häge (2003). Therefore, a government conveys the direction to its society by several aggregate means of decision-making, and daily, it exercises the state's authority. The indirect and direct arms are the two different arms of the government. Using natural resources, the government increases revenue via allocation, tax collection, and redistribution of resources by welfare grants producing and consuming services and goods and subsidies (Häge, 2003). The indirect arm of the government is used for benefits and costs related to taxes which are indirect subsidies and regulations in the allowance of the tax form, which permits the government considerable power over the resources of the country. Though by a bit of consideration on employment data and expenditure. The size of government can measure as revenue, employment, and expense. The most frequently used indicator is the measure of cost. The national accounts derived this expenditure. On a collective basis, the size of the government is marked by the total government expenditure. The size of government increases when it spends more in communal terms, and when the government spends less, its size will be smaller. This measure

is frequently used; in some instances, it is a suitable measure of government size, but sometimes it is not ideal in others because of the differentials impact related to government's expenditure components (Sun et al. 2020a), (Iqbal et al. 2020a), (Abbas et al. 2020a), while examining the correlation between the size of government and different macroeconomic variables, some studies have gone over the mark of all the government spending. Considering that different classifications of government expenditure could have a different influence on distinct macroeconomic variables, the significance of several elements of government spending by various researchers is premised when spending elements of government are examined. When the expenditure is more on the particular class, the size of government increases and vice-versa.

On the overcrowding effect concept, a small government is thought to be beneficial. Governments' spending depends upon the real economy, which the government has taken out, on the consumption front or through borrowing they preferably can finance their spending. When tax revenue increases, it means that private consumption is reduced by the exact amount of that increased tax. On account of Malaysia, (Li et al. 2020) evaluated the connection between the economic turn of events and government spending. In the long haul, the Unidirectional Granger connection has appeared to move from economic advancement to various classes of government spending, such as protection, instruction, work, and farming. C. The association of multiple segments of government consumption and economic advancement for Malaysia was rethought by (Abbas et al. 2020b), with government spending disaggregated. The examination covered the time frame from 1960 to 2007. Along with the Adjusted Wald (MWALD) connection test, the discoveries demonstrated a uni-directional connection affiliation running from public pay to the three principle government consumption in Malaysia (wellbeing, schooling, and protection) utilizing the limit tests for co-incorporation and the utilized bootstrap reproduction draws near.

(Baldwin, 2004) find out based on statistical analysis that there is an increase in export and an increase in GDP has a positive association. Due to trade policy changes or focusing on government regulations, there may be an increase in the country's export. Hence, it is notable, as pointed through the author, that an increase in export also leads to a rise in economic growth.

3. Source of Data and Estimation

The methodology is the critical section of every research study in the field of Economics. The procedure provides the baseline for data analysis and estimation of economic models. So, the application of the significant methodology is essential to get accurate results. On the other hand, inaccurate methods will lead to erroneous findings and mislead the actual economic situation. The main objective of our study is the impact of the trade deficit on the economic growth of some selected countries. The trade deficit is measured by net exports volume and economic development by the level of GDP of the selected countries. Other proxy variables are foreign direct investment and trade volume. Dataset from 2000 to 2019 is collected from World Development Indicator (WDI) and World Trade Organization (WTO). In our investigation, we used twenty countries. These are Australia, Belgium, Brazil, China, France, Germany, Iceland, Ireland, Japan, Mexico, Morocco, Netherland, New Zealand, Singapore, Switzerland, Sweden, Spain, Turkey, United Kingdom, and the United States.

3.1 Econometric Estimation

Different econometrics techniques are used to estimation of analyses. These step-wise econometric techniques are detailed below:

3.1.1 Unit Root Analyses

Different panel unit root tests check the model of the variables for countries to detect integration on each variable. The trial of Levin, Lin, & Chu (2002) is begun with the ADF equation,

$$\Delta y_{it} = \alpha_0 y_{it-1} + \sum_{p=1}^{ni} \alpha_{1ip} \Delta y_{it-p} + \lambda_{it} + \varepsilon_{it}$$

$\alpha_0 = n - 1$, that involves the common process of panel unit root existence with the allowance of differing lag order of integration in cross-sections of the panel. The null hypothesis (H_0) indicates the non-stationarity, whereas the Alternate Hypothesis (H_1) indicates stationary series. (Im, Pesaran, & Shin, 2003) a panel unit identifies the ADF of each class of panel assigned to a particular forum by measuring the average t-statistics of ADF statistics \bar{t}_{NT} . With a zero interval in the above equation of the ADF, it has been pointed out that IPS (2003) indicates the critical values stated in each class (n) and the length of the series and for the variables that are implanted by constant or also by constant with trend each other. For non-zero intervals, IPS (2003) indicates that the normal distribution \bar{t}_{NT} is given below in the equation.

$$X_{\bar{t}_{NT}} = \frac{\sqrt{P} \left[\bar{t}_{NT} - N^{-1} \sum_{i=1}^N F(\bar{t}_{it}(N_i)) \right]}{N^{-1} \sum_{i=1}^N \text{Var}(\bar{t}_{it}(N_i))}$$

3.2 Panel Econometrics Estimation techniques

3.2.1. Fixed Effect Model

In the panel regression analysis, the Fixed Effect Model shows just the direct impact of the unit that is related to the defining factors. The F.E model clarifies that amounts that are non-random and test gatherings of the mean are considered as an example of the populace in the model. In this model, information is created into a gathering that is regarded as different noticed pointers. In broad details, the F.E model recognizes the subject explicit means and equation.

3.2.2. Random Effect Model

In the panel regression analysis, the random effect model shows just the direct impact of the unit that isn't related to the defining factors. In the random effect model, small sample size is considered. The R.E model clarifies that varying amounts and test gatherings of the mean are considered an example of the populace in the model. The information can be organized in the

irregular impact model as assembled by the few noticed variables, and it shows object explicit means. So, the current study will employ regression analysis to find the determinants of economic growth; in diagnostic testing, the Breusch-Pagan test for heteroskedasticity is used because constant error term variance can generate accurate results.

3.3 Model Specification

Our econometric model is given below,

$$Y_{i,t} = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \mu_t$$

Where the subscripts i and t denote the cross-sectional unit and time series, respectively. μ is a disturbance term. α are parameters. Our estimated model is,

$$TD = \alpha_0 + \alpha_1 FDI + \alpha_2 GDP + \alpha_3 TV + \mu$$

GDP growth rate is used to measure economic growth because it considers the best indicator as a proxy of economic growth. Many studies such as those (Anser et al. 2020a) used GDP growth to represent economic growth. The trade deficit variable is the Central government trade deficit, total (% of GDP) used as an independent variable in our study. The variable FDI is taken in foreign direct investment and net inflows (% of GDP), also important explanatory variables. All these variables are collected from world development indicators. There are always possibilities of error in the estimation and construction of the model so, the Error term is also included in our model.

Table 1: Description and Measurement of Variables

Variables	Description	Measurement	Hypothetical Relationship
Trade Deficit	(TD)	Net Export as a % of GDP.	
Trade Volume	(TV)	Trade Volume as a % of GDP	Negative
Gross Domestic Product	(GDP)	Gross Domestic Product Growth rate	Negative
Foreign Direct Investment	(FDI)	Foreign Direct Investment inflow %	Negative

4. Estimation of Results

4.1. Statistical Analysis

The main objective of our study is the impact of the trade deficit on the economic growth of some selected countries. The table shows the descriptive statistical analysis of the variables which are chosen for the model.

Table2: Descriptive statistics of the Variables

	TD	TV	FDI	GDP
Mean	0.90	0.19	0.32	0.30
Median	0.77	0.16	0.36	0.34
Maximum	1.76	0.32	0.51	0.41
Minimum	0.29	0.12	0.21	0.09
Std. Dev.	0.52	0.06	0.12	0.10
Skewness	0.16	1.11	0.93	-0.92
Kurtosis	1.26	2.94	2.80	2.60

Jarque Bera	7.79	12.42	9.34	8.99
Probability	0.02	0.00	0.00	0.01

Authors own calculation based on EViews 9.0

Table 2 shows descriptive statistics of the variables. The mean value of TD is 0.90 with a standard deviation is 0.52 that indicates lower dispersion. The mean values of TV, FDI, and GDP are 0.19, 0.32, 0.30, respectively. Skewness has three cases, 1) positively skewed, 2) negatively skewed, and 3) symmetrically skewed (Huang et al. 2020). The table indicates that all variables show positively skewed that the model shows satisfactory Skewness statistics.

Table 3: Results of Correlation Matrix

	TD	TV	FDI	GDP
TD	1			
TV	0.24	1		
FDI	0.766	0.12	1	
GDP	0.10	0.019	0.21	1

Source: Author's calculations based on EViews 9.0

The matrix of correlation of the variables has been discussed in table 3. It elaborates the strength of the relationship among the variables that how they connected each other.

4.2 Unit Root Analysis

Before applying the different econometric estimation techniques like panel OLS, Random effect and, first checked by the stationarity of the variables by different panel unit root tests. The panel unit root tests of IPS (2003) and Levin, Lin, and Chu (2002) are used to check the stationarity of the variables. The results show that variables are stationarity at level except for FDI that is integrated of order 1. The results show in the table which is given below,

Table 4: Results of unit root analysis

Unit Root Test (Based on Levin, Lin, and Chu (LLC,(2002))					
Variables	Level		1 st Difference		Conclusi on
	Constan t	Constant with Trend	Constan t	Constant with Trend	
TD	-1.13*	-1.32*	-	-	I(0)
TV	-1.34**	1.69**	-	-	I(0)
GDP	-2.87*	-2.91*	-	-	I(0)
FDI	4.34***	4.81***	-0.52**	-0.21**	I(1)
Unit Root Test (Based on IPS (2003))					
Variables	Level		1 st Difference		Conclusi on
	Constan t	Constant with Trend	Constan t	Constant with Trend	
TD	-1.82*	-1.06*	-	-	I(0)
TV	-0.74**	-1.76**	-	-	I(0)
GDP	-2.65*	-1.76*	-	-	I(0)

FDI	3.13***	3.82***	-3.02**	-3.01**	I(1)
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Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

Source: Author's calculations based on EViews 9.0

4.3 Results and Discussion

To determine the impact of the trade deficit on economic growth in some selected countries. The trade deficit is measured by net exports. Following different estimation techniques Panel OLS, Random Effect is given below. The computed wald statistics F value is 27.11 that is confirmed the long run cointegration. The results of these techniques are given below in the table

Table 5: Regression analysis of different estimation techniques

Variables	Panel OLS	Random Effect
TV	0.05* (0.30)	0.04* (0.19)
GDP	0.23* (0.00)	0.16* (0.00)
FDI	0.21* (0.00)	0.34* (0.03)
R²	0.65	0.61
Adjusted R²	0.61	0.57
D.W	2.44	2.02

Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

Source: Author's calculations based on EViews 9.0

The primary intention of this study is to find the impact of the trade deficit on the economic growth of some selected countries. The results indicate that trade deficit has a significant impact on the economic growth of these countries but this relationship is negative (Hanif et al. 2019). That shows due to higher import, countries economic growth decrease. It indicates that if 1% increases in GDP then 16% decrease in a trade deficit. These results are in line with (Iqbal et al. 2020b), (Ahad and Anwar. 2020). The trade deficit has a significant impact on the trade volume of these countries, but this relationship is negative. That shows due to higher imports, the country's trade volume decrease. It indicates that if 1% increases in trade volume then 4% decrease in a trade deficit. The results indicate that trade deficit has a significant impact on foreign direct investment of these countries, but this relationship is negative (Qayyum et al. 2019). That shows due to higher imports, the country's FDI decrease. It indicates that if 1% increases in FDI then 34% decrease in a trade deficit (Anser et al. 2020b).

4.4 Breusch-Pagan Test for Heteroskedasticity

The presence of heteroskedasticity in a data set can mislead the results and we can rely on these types of results in policymaking or recommendations. There are different type of tools and tests available that detects the presence of heteroskedasticity, but Breusch-Pagan is a significant test for time series data set. Many previous studies used the same technique to detect the presence of heteroskedasticity and among these studies (Halunga and Orme, 2017)

can use as reference. The condition of Homoscedasticity indicates that error terms have the same or constant variance that is the basic property of CLRM. In application of this test we have to make null and alternative hypotheses where null hypothesis suggested there is no presence of heteroskedasticity. On the other hand, H_a or the alternative hypothesis shows the presence of heteroskedasticity in the data set.

$$H_0 = \sigma^2_1 = \sigma^2_2 = \dots = \sigma^2$$

$$H_a = \sigma^2_1 \neq \sigma^2_2 = \dots \neq \sigma^2$$

So, null hypotheses H_0 = residuals are not heteroscedastic or there is not presence of heteroskedasticity

Alternative hypothesis H_a = the variance of error term is not constant or presence of heteroskedasticity.

Table 6: Breusch-Pagan test for heteroskedasticity

Breusch-Pagan test			
F Statistics	0.72	Prob F	0.65
Obs R Squared	5.70	Prob Chi-square	0.57
Scaled Explained SS	2.67	Prob Chi-square	0.91

*, **, *** shows that results is significant at 1%, 5%, 10% level

Source: Author's calculations based on EViews 9.0

Table 6 indicates prob value F statistics is 0.72 and prob values are 0.65, 0.57 and 0.91. there are value did not meet the minimum criteria of 5%, 2% and 10% level of significance. Therefore, we have enough proved and we can accept the null hypotheses and conclude there is not presence of heteroskedasticity. The error term have constant variance of data series and we can use this data set in further estimation.

5. Conclusion

The main objective of our study is the impact of the trade deficit on the economic growth of some selected countries. The empirical results of the study show a negative and significant impact of the trade deficit on the economic growth of some selected. The study suggested that for better economic growth, the deficit of trade will be minimum. Trade deficit decreases the economic growth of the countries. The trade volume and FDI have also been negatively related to the trade deficit. So, the study suggested that for better performance and high economic growth, countries should show concerned about the trade deficit to minimize it. So, this study helps the policymakers for the betterment of trade performance in these countries.

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