Determinant of Balance of Trade: Case Study of Pakistan

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Abstract
The core object behind this study is to explore the long run as well as short run determinant of trade deficit with reference to Pakistan by using Johansen co integration approach and Error correction model (ECM). The finding of this study suggests that foreign income, foreign direct investment, domestic household consumption and real effective exchange rate are significantly affect the trade deficit. To highlight the short run dynamics VECM (Vector Error correction model) was used. The result of VECM pointed out that there is disequilibrium in the short run which will be adjusted within one year.

Keyword: Deficit Balance of trade

I. Introduction
Pakistan is facing a continual trade deficit during globalization era which is totally ambiguous. Persistence deficit balance of trade is very dangerous for an economy like Pakistan and policy makers and economists are needed to take steps towards this issue. Historically there are only two fiscal years in which Pakistan’s balance of trade is surplus. In 1951-52 Pakistan earned foreign exchange through export of raw jute and secondly in the fiscal year 1972-73 when the Bhutto government imposes high tariff on import of luxury items and devalued the Pakistan rupee to give the export bonus for local exporter.

Various economics strategies, reforms and policies were adopted to resolve the issue but all is vein. This research focuses on policy recommendation to resolve this dilemma and to point out the impact of the increase in income of the foreign trading partners on Pakistan balance of trade.

Global trade trends and policies have great influence on international trade, economic activity and growth. The aim of trade policies was to stimulate domestic output, protection to domestic industries, consumer protection and promotion of export etc.

Pakistan needs various economics policies to enhance the balance of trade and boosts the economics activity and development included i.e. tariff structure, exchange rates, import control, export taxation, foreign exchange allocation system. Pakistan needs to make and adjust external trade policies looking at external policies and issue but nothing is done in these regards and the trade gap widen with course of time and it is prime research question to the researcher “what to do?” In this regard.

After a brief introduction of this research sequence is as: section 2 historically focuses Pakistan’s balance of trade. Section 3 literature review. Section 4 theoretical modeling and data sources. Section 5 result of our study. Section 6 conclusion. Section 7 policy recommendation.
II. Historical Review of Pakistan’s Balance of Trade

Pakistan got independence in 1947. Since the independence the balance of trade was on deficit instead of two fiscal years 1951-52 and 1972-73. The major component of import was crude oil. The oil price increased impact on the balance of trade adversely and the deficit was fulfilled by external capital account borrowing that cause to raise external debt burden as a result of external borrowing 40 to 45 percent budget expenditure goes to the debt servicing and little amount remains for public sector development program.

Pakistan external debts amount reaches to $45 billion and would reach at $52 billion after IMF loan and this is an increasing trends as yet. Extensive portion of our reserve is used for debts servicing. CPI (consumer price index) is running at near 25 percent and almost 45 percent of population living below the poverty line. Therefore, Pakistan needs to make and design the policy of liberalization; deregulation and privatization instead of contain imports.

Given diagram represents the trend of trade deficit which shows a trend of trade deficit. Data consists of past five years from 2003 to 2008.

Exhibit No. 1 Balance of trade

![Graph showing the trend of trade deficit from 2003-04 to 2007-08](image-url)

Table 1: Export and Import of Pakistan

<table>
<thead>
<tr>
<th>Year</th>
<th>Export (FOB $ Bn)</th>
<th>Change (%)</th>
<th>Year</th>
<th>Import (FOB $ Bn)</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>9.2</td>
<td>-</td>
<td>2000-01</td>
<td>10.7</td>
<td>0</td>
</tr>
<tr>
<td>2001-02</td>
<td>9.1</td>
<td>-0.7</td>
<td>2001-02</td>
<td>10.3</td>
<td>-3.6</td>
</tr>
<tr>
<td>2002-03</td>
<td>11.2</td>
<td>22.2</td>
<td>2002-03</td>
<td>12.2</td>
<td>18.2</td>
</tr>
<tr>
<td>2003-04</td>
<td>12.3</td>
<td>10.3</td>
<td>2003-04</td>
<td>15.6</td>
<td>27.6</td>
</tr>
<tr>
<td>2004-05</td>
<td>14.4</td>
<td>16.9</td>
<td>2004-05</td>
<td>20.6</td>
<td>32.1</td>
</tr>
<tr>
<td>2005-06</td>
<td>16.5</td>
<td>14.3</td>
<td>2005-06</td>
<td>28.6</td>
<td>38.8</td>
</tr>
<tr>
<td>2006-07</td>
<td>17</td>
<td>3.2</td>
<td>2006-07</td>
<td>30.5</td>
<td>6.9</td>
</tr>
<tr>
<td>2007-08</td>
<td>19.2</td>
<td>13.2</td>
<td>2007-08</td>
<td>40</td>
<td>30.9</td>
</tr>
<tr>
<td>2008-09</td>
<td>17.8</td>
<td>-6.7</td>
<td>2008-09</td>
<td>34.8</td>
<td>-13</td>
</tr>
</tbody>
</table>

Source: Annual report State bank of Pakistan (2008-09)
III. Review Literature
Himarios (1989) and Bahmani-Oskooe, (2001) found the strong association between balance of trade and real effective exchange rate but most of the studies show weak statistical correlation among macroeconomics variables and balance of trade. Rahman 1997, Mahdavi and Sohrabian 1993-1994, Greenwood 1984 and Mustafa 1996, and a number of the researchers explain the changes in real effective exchange rate which would affect the balance of trade positively in some nation but it is not consistent for all nations. It can conclude that the direction between balance of trade and real effective exchange rate is uncertain.

Lardy 1996 and Zhang 1999 and LIU 2001 had worked on foreign direct investment and balance of trade with reference to china. The study pointed out that FDI affects expansion of export and economic growth in china significantly. Panel data was used to find out the result for the period of 1987-1999 simultaneously pooled least square method was applied. Tse (1997) carried out the result that FDI positively impacts provincial and regional manufacturing, export growth in China. Especially in coastal region and central region of China. Liew (2003) had a study on the ASEAN (Association of South East Asian Nations) found that balance of trade affected in those nations who change real effective exchange rate not in nominal effective exchange rate.

Duasa (2007) had a research work on the short run and long run correlations among the balance of trade, exchange rate, income and money supply in case of Malaysia. Monetary absorption approach was used instead conventional absorption approach to find out the elasticity of exchange on balance of trade.

IV. Theoretical Frame Work and Modeling
Pakistan’s foreign trade can be categorized by its trade deficit, because its export consists primary goods and raw materials on the other hand import consists of capital goods, industrial goods, oil, luxury items etc.

Consequence
Balance of trade can be defined as export less imports of visible goods. Contrary trade deficit can be define import is greater then export. Balance of trade plays a vital role in national income accounting.

Composition
Balance of trade can be explained by nation and by product. The deficit balance of trade may be due one product or one commodity. If these attentiveness is a huge then a focused economics policy (industrial policy and trade policy) may improve balance of trade or decline balance of trade deficit. On the other hand if the deficit arrives from trading partners then dialogue based compromises and proactiveness may rapidly avoid the deficit of balance of trade.

Determinants
All the factors which impacts disproportionately on exports and imports may impact balance of trade. Price and non-price (Quality, promotion, packing etc) competitiveness play a vital role and also applicable. If external forces decline the prices of export it causes improvement in the balance of trade by means of volume of trade. In this scenario balance of trade can be improved by real deprecation / devaluation of domestic currency. This phenomenon may cause a real decline in the price of goods and services which may attract the foreigner to import more (increase export demand) on the contrary this deprecation may cause decline in imported goods and services due to the high prices. At a result of this real depreciation balance of trade may improve. We assume the sum of export and import is highly elastic with respect to real depreciation. This mechanism is known as Marshall Lerner condition and J curve phenomena.
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Impact on Other Variables

Balance of trade is a key component of national income accounting. Surplus balance of trade gets better the GNP while the deficit of balance of trade decreases GNP. While the Balance of trade impacts significantly then the size of multiplier is near to one (consumption multiplier, export and import multiplier, Investment multiplier etc) according to the traditional Keynesian approach.

Technically, explained that balance of payment influences the total volume and composition of current account, capital account and net financial flows. Long term deficit balance of trade leads to increase in foreign debt burden. If we have long term deficit in balance of trade which causes to foreign debts burden as a result market mechanism become unstable and currency can be depreciated and finally a decline in economic growth.

Long-term Trends

To contract the gap with developed and wealthy countries the poor courtiers ought to augment much quicker then the said countries. Typically they are closing their trading partner. Obviously this approach may cause deficit balance of trade which put at risk the growth with substitute phase of “go and stop.

Trade Cycle Behavior

Analyzing the trade cycle the direction of balance of trade is anti-cyclical (inversely) during the expansion periods and it is found deficit while in the phase of recession it is found surplus.

V. Data & Methodology

To find the long run association among the variables we have used Johansen co integration test (1996). For analysis the short run dynamics of the study we have used VECM (vector error correction model). In this study we have used the data for the period of 1975 to 2008. All the variables are taken in natural log form as:

Data Types (Secondary) and Sources

1. TD (Exports-Imports) Economic Survey of Pakistan,
2. Household consumption expenditure (IFS-IMF) various issues,
3. Foreign Direct Investment (IFS-IMF) various issues,
4. Real exchange rate (IFS-IMF) various issues
5. Foreign Income or income from the rest of the world (IFS-IMF) various issues
6. GDP (gross domestic product) IFS-IMF various issues

Model Specification

\[ BOT = \alpha + \beta_1 REER + \beta_2 FDI + \beta_3 DC + \beta_4 Yw + \epsilon \]

where,

BOT: Balance of Trade
Yw: Foreign Income
DC: Domestic Consumption
FDI: Foreign Direct Investment
REER: Real Effective Exchange Rate
Theoretical Relation among the Variables

Yw: Denotes foreign income, determined by average of GDP’s of UK, USA, France, India, Kuwait, UAE, France, Germany and India.
DC: Denotes domestic consumption increases
REER: Denotes Real Effective Exchange Rate and inflation (ppp)
FDI: Denotes Foreign Direct investment

VI. Result Analysis

Study in the mentioned subject of econometrics indicates that various macroeconomics variables data are found non stationary. The finding was drawn from regression (integrated in different order) proceeds non sense or spurious regression. Thus it is essential to analysis the stationary of the data before drawn the long run association among the variables.

Table 2: Augmented Dicky Fuller test / Unit root test (all the variables in natural log)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level (with intercept and trend)</th>
<th>First Difference (with intercept and trend)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB (trade deficit)</td>
<td>-3.2568 (0)</td>
<td>-4.63425* (2)</td>
</tr>
<tr>
<td>Yw (Foreign Income)</td>
<td>-2.2144 (1)</td>
<td>-4.27541* (1)</td>
</tr>
<tr>
<td>HC (House Hold Consumption)</td>
<td>-1.8897 (0)</td>
<td>-4.72084* (4)</td>
</tr>
<tr>
<td>FDI (foreign direct investment)</td>
<td>-0.2566 (2)</td>
<td>-3.24498* (1)</td>
</tr>
<tr>
<td>REER (real effective exchange rate)</td>
<td>-2.3336 (3)</td>
<td>-7.04578* (0)</td>
</tr>
</tbody>
</table>

* Significant at 5 % level

Table no.1 highlighted the finding of ADF (Augmented dicky fuller) test / unit root test. The impacts of result shows that the non stationary in all variables at level. Here equation is used to check stationary in the data with trend and intercept. Here null hypothesis means non stationary in the data and alternative hypothesis means stationary in the data. All the given variables are non stationary at level. Analyzing the stationary in the data at level consequently checking stationary at first difference the result indicates that all the variables are stationary at first difference. The value in parenthesis shows the lag length of different variables. All the given variables are integrated at order one.

Table 3: Johansen Co integration test (Maximum trace value)

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Alternative Hypothesis</th>
<th>Maximum Trace statistics</th>
<th>Critical value at 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>r=0</td>
<td>r=1</td>
<td>120.886*</td>
<td>88.8038</td>
</tr>
<tr>
<td>r=1</td>
<td>r=2</td>
<td>67.99299*</td>
<td>63.8761</td>
</tr>
<tr>
<td>r=2</td>
<td>r=3</td>
<td>37.64353</td>
<td>42.91525</td>
</tr>
<tr>
<td>r=3</td>
<td>r=4</td>
<td>15.85919</td>
<td>25.87211</td>
</tr>
<tr>
<td>r=4</td>
<td>r=5</td>
<td>6.760108</td>
<td>12.51798</td>
</tr>
</tbody>
</table>

* Significant at 5 % level

Table no.3 highlighted the outcomes of Johnsen co integration approach (1996) the result indicates that two vector are co integrated among the five vectors according to maximum trace value. With the help of Shewariz and Akike information Criterion optimal 2 lag length would be selected. The result shows that there are long run association among the variables.

Table 4: First vector of normalized equation (all the variables in natural log)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Yw</th>
<th>DC</th>
<th>FDI</th>
<th>REER</th>
</tr>
</thead>
<tbody>
<tr>
<td>coefficient</td>
<td>0.2547*</td>
<td>-0.3897*</td>
<td>0.5789*</td>
<td>1.2547*</td>
</tr>
<tr>
<td>t value</td>
<td>2.365</td>
<td>2.364</td>
<td>4.258</td>
<td>3.647</td>
</tr>
</tbody>
</table>

* Significant at 5 % level
The given coefficient shows foreign income is positively impact on balance of trade as foreign income increases, on the other hand balance of trade deficit lessen because it may positively impact on export. Coefficient of House holds spending is found negative correlation and significant as house holds consumption increases that may cause to increase the balance of trade. Variable of FDI shows positive impact on balance of trade as FDI flows increase which may motivate the multinational corporation to produce import substitution domestically and it can reduce import and a positive impact on balance of trade. Finally coefficient of real effective exchange rate is shows impact positively as real exchange rate depreciates it may increase the balance of trade towards the surplus.

Table 5:  Error Correction Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>D(YW)</th>
<th>D(RER)</th>
<th>D(HC)</th>
<th>D(FDI)</th>
<th>C</th>
<th>ECM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>1.546756</td>
<td>2.365805</td>
<td>-3.95306</td>
<td>0.566236</td>
<td>-41.9586</td>
<td>-0.752459</td>
</tr>
<tr>
<td>Std. Error</td>
<td>0.357609</td>
<td>11.51858</td>
<td>1.166076</td>
<td>0.267988</td>
<td>187.0118</td>
<td>0.24278</td>
</tr>
<tr>
<td>t-Statistic</td>
<td>4.325267</td>
<td>0.20539</td>
<td>-3.39006</td>
<td>2.112913</td>
<td>-0.22436</td>
<td>-4.22025</td>
</tr>
<tr>
<td>Prob.</td>
<td>0.0003</td>
<td>0.8392</td>
<td>0.0026</td>
<td>0.0462</td>
<td>0.8245</td>
<td>0.0004</td>
</tr>
</tbody>
</table>

The results of ECM shows short run dynamics in the model and it has a very quick adjustment as coefficient of error correction suggests by the table no. 5

VII. Conclusion
Findings of this study as well as previous study show that the variables are taken as determinants accordingly. House holds expenditure, real effective exchange rate and foreign direct investment and foreign income are the major component of balance of trade deficit.

VIII. Policy Recommendation
Waqar Ahmed and Rashid Amjad () have given basis and theoretical back ground for the trade policy with reference to Pakistan in their book “Management of Pakistan Economy” focus on two important points.First import and local production. Further define that Pakistan should import capital goods and machinery to support domestic production capacity secondly defined that value added goods should be exported instead of primary goods and raw materials.

TDAP (trade development authority of Pakistan) suggested following measure which should be taken to accelerate our export in international market. Pakistan export largely (75 percent approximately) depends upon textile products, agriculture product like rice, raw cotton, leather goods, sports goods etc. Pakistan should needs to diversify its export to other products like chemicals items, electronics items and other consumer and capitals goods. Far East and other countries (like Japan, south Korea, Taiwan, Hong Kong, Malaysia etc.) recently increase their export of textile products that created more competition in international market which cause to deteriorate Pakistan’s terms of trade. Mentioned countries gradually shifted their export from primary goods to capital or value added goods that may be a role model for Pakistan to adopt.

Year 2002 FDI (Foreign Direct Investment) played vital role to promote export. Foreign investors incorporated to supply management network (include marketing and distribution) of their host country which was very helpful to search the new markets across the countries. China’s textile industry is an apparent example in this regards. FDI played key role to improve and expansion of China’s textile industries and now china has a comparative advantage in this sector. In case of Pakistan FDI came in these sectors i.e. oil, gas, financial, telecommunication and media sectors. The benefits of FDI in export sector can only be helpful in term of technology transfer, skill improvement of the domestic labor and market management.
The government policies may be significant to boost export. Providing social and physical infrastructure to the local producers and exporters like roads, railroads, electricity, law order and consistent economics policies etc.

European Union imposed antidumping duties on import which adversely affects Pakistan’s exports. It is suggested that diplomatic channels should be used to take more concession in this regards. Existence of WTO (World Trade Order) and FTA (Free Trade Agreement) may provide opportunity to have an access to new markets so Pakistan should develop and design such a policy and strategies to get benefit from these organization and agreement respectively.

It was observed that per capita productivity of textile sector in Pakistan is very low. If compare with other countries of the region (China and India). So it is required to enhance education facilities, skills development program, on job training and innovation in the field of export relating.

It was evaluated that cost of production in Pakistan is very high compare to other countries of the region (Bangladesh, India, China, Malaysia etc.) due to high price of electricity, high rate of interest, high rate of taxes etc. Generally this is a real threat to Pakistan’s export and specifically to textile export.

Different regional countries like Bangladesh, china, India, focus on subsidization on their export sector which is also a challenge to Pakistan export sector, so Pakistan needs to make a policy to cater the challenges.

SME (small and medium enterprises) are also playing a significant role in Pakistan’s export along with facing problem and challenges of different kinds, so it is suggested to the government should focus on the measures to sort out the problems and challenges. The above mention policy and recommendation may be very useful to increase Pakistan exports and lessen the balance of trade deficit.
References


[22] World Development Indicators various issue, 2008-09.