The Report is about the seminar on the determinants of Terms of Trade and its impacts considering the historical evidences in Pakistan Economy.
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1. Introduction

During the past few decades, the focus on Trade and Trade Policies has been remarkably augmented. Countries are significantly considering the determinants of trade gain before designing Trade policies. Declination in Terms of Trade (ToT) is one of the significant factors to elaborate the increasing income gap between trading countries. Unsustainable prices of export good is one of the reason for the weakness faced by several developing economies, which is due to the heavy dependence on commodity exports, whose prices are more volatile than manufactured goods. These are undesired fluctuations as they increase instability in the growth of output (GDP). In the light of quite a few studies, on an average, changes in the terms of trade can be the reason of 50% of the GDP instability, in the developing countries.

Growth economists found a deep impact of Terms of Trade changes on the overall economic growth, and the relationship between them is determined by the economic structure of the country. *Income* terms of trade instability show strong long run relationships with output; both are negatively related with each other. An increase in terms of trade may result in trust building and therefore result in the levels of investment and thus rapid economic growth. Now the subject of discussion, what are the factors which determine the Terms of Trade are.

2. ToT - Basic Concept

Overall gain between countries is dependent on many resources of income through value exchanges, cumulatively. Few of them are foreign remittance, Trade (Export vs. Imports), etc. We are evaluating Gains through Trade only. The notion of the Terms of Trade was introduced by J. S. Mill, on the principal of act utilitarianism, with the motive to determine the distribution of gains between the trading countries. The Terms of Trade were comprehended as a quantifiable relation between the commodities traded between two countries. Later, this basic economic indicator and its application, to determine gains from trade, were variously defined, and evolved to the various modern forms of Terms of Trade determination. Of such definitions, two are considered significant and easily quantifiable measures for gain which have been prominently applied in several empirical studies:

- **Barter Terms of Trade (Net and Gross)**

  Net *barter* terms of trade show relationships between the prices at which a country sells its exports and the prices it pays for its imports. If the prices of a country’s exports rise relative to the prices of its imports, it shows that there is a significant increase in the Terms of Trade, because it now receives more imports for each unit of goods exported. Therefore, the net *barter* terms of trade expressed in a formulation, can be written as:

  $$\text{Barter TOT} = \left[ \frac{\text{Unit Value Index of Exports}}{\text{Unit Value Index of Imports}} \right] \times 100$$

  The indices are analyzed with a certain year as a base. A sudden deterioration in the country’s terms of trade can cause rising trade deficit if the country largely depends on foreign exchange earned by its primary exports to pay for the import of its manufactured goods and capital equipment.
The formulation only compares the prices of exports and imports. Changes in this ratio alone does not represent the exports as capacity to import, to determine that the country’s economy would be better or worse, because mathematically, there is no effect of any variable of actual amount of exports. Under the law of demand, the world demand for our exports will go down with the rise in price of our exports; it is likely that the country may even end up with lesser export receipts than before despite higher export prices (Often this can evident in case the demand elasticity is greater than unity).

- **Income Terms of Trade**
To determine implications in terms of exports as capacity to import, therefore, requires major modification in the above formula. This has been done by replacing the *Barter ToT* by an *Income ToT*, which clearly takes into account the actual export volume that can change with the change in price of exports. The formulation takes the form:

\[
\text{Income ToT} = \left[ \frac{\text{Unit Value Index of Exports}}{\text{Unit Value Index of Imports}} \right] \times Q_x
\]

Where \( Q_x \) refers to actual quantity of exports in real terms.

The above formula represent no matter the country would end up with net gain or net loss as a result of changes in terms of trade, but will depend on the elasticity of demand for its exports, instead of the price levels only. In broader terms, it depends on Marshall Lerner Condition that states that if foreign demand for exports and domestic demand for imports are relatively elastic \([i.e., PED_x + PED_m > 1]\) then an increase in terms of trade will worsen the trade balance.

Sometimes elasticity of demand fluctuates or changes over time. But the short term demand is often inelastic, as it requires a certain period to change consuming patterns; therefore in the longer term demand becomes more elastic. We often see a “J” Curve effect where an improvement in terms of trade worsens trade balance in short term but improves in long term.

To figure out how and what factors determine Terms of Trade in Pakistan Economy, and what is the impact of ToT on the total Economy, we analyze some historical evidences.

### 3. Factors Determining Terms of Trade (ToT)
Some of the internal factor involved in determining the ToT, are Nature of Export goods, Sectors of Exports, Cost of Productivity and efficiency of production, Nature of imports, elasticity of supply etc. While some external factors involved are international competition in the sector, elasticity of demand, importing country’s regulations and import tariffs and other external price level determinants like foreign exchange rates.

- **Price Volatility – Export of Agricultural goods**
Major share of trading goods, in export portfolio of Pakistan, is export agricultural goods like cotton and rice etc. Where price levels of these goods, fluctuate heavily in the international market, due to prices volatility. For example, if there is huge production, any year, the price levels goes down as these goods
cannot be stored and they must be exported even at lower prices. Accordingly the terms of trade goes against under Pakistan.

- **Desire for Industrialization:**
  Pakistan has a strong desire and potential to industrialize, as soon as possible. For this purpose raw material, machinery, bulldozers and automobiles are major imports of these countries. The developed countries having monopolies, sell such products at higher price. It means what is sold by under-developed countries have to be sold at lower prices and what is purchased by under-developed countries have to be purchased at higher prices. In such situation terms of trade is going against developing countries.

- **Exchange Rate**
  Exchange rate variation is also symbiotic with the Terms of Trade. A remarkable depreciation in the value of the currency in terms of the exchange rate would result in a fall in export prices and a rise in the cost of imports. This can worsens the terms of trade index up to the level of the size of economy. On the contrary, the lower exchange rate restores competitiveness for a country since, demand for exports increases and import demand from domestic consumers may decrease.

- **Nature of Exports/Imports Goods**
  Nature of Exports and imports may not directly affect the Terms of Trade, but it is the only connection in various factors determining it. If there are growing substitutes of the export goods of a country in the international market, the demand will go down. The Nature of Export and Import Goods determines the elasticity of demand and supply, which is the main factor for the fluctuations. If the demand and supply is consistent, it guarantees the smoothness of the growth of the respective economy.

- **Low Income and Price Elasticity of Demand**
  Income and price Elasticity of demand for the exports of Pakistan are very low in the international market. Income elasticity of demand is low because the foreigners are not badly in need of these export goods from Pakistan. Therefore even at lower prices these kinds of exports don’t increase. Moreover there are a variety of substitutes against the exports of under-developed countries as the case of polyester against cotton etc.

  Whereas spending the major Share of the income on the luxuries, is a growing trend in Pakistan, which undoubtedly helped to industrialize economy up to some extent, but inevitably deteriorated the terms of trade and the Balance of Trade. This shows lower income elasticity of demand for the goods import. Thus when we have the poor income and price Elasticity of demand the terms of trade deteriorates.

  The demand for commodity is price inelastic mainly because only a small portion of income is spent for commodity and few substitutes are available. Thus, when the price of the commodity changes, it does not significantly change the consumption of it. Moreover, the demand for the commodity exports of developed countries is unstable because of business cycle fluctuations in developed countries. The supply of commodity exports of DCs is price inelastic because of internal rigidities and inflexibilities in resource used in most DCs. Supplies are unstable or shifting because of weather conditions and so forth. [Salvatore (2004)]
• **International Recession**
In 1973 Arabs increased the prices of oil from $3 to $11 per barrel. Afterwards the prices of oil went on increasing. Primarily this resulted in international inflation, and secondarily in the decrease of demand for big automobiles and machinery consuming more fuel. With this the unemployment spread. More particularly in late 70’s and in early 80’s the recession clutched US and other European economies. Their incomes fell and they reduced the demand of their imports. Consequently, the exports from under-developed countries decreased along with fall in their prices. Again the event of 11th September 2001 also led to create recession in US.

Moreover when price fell in Europe and US due to recession, the wages and profits should also have come down. But because of ‘Ratchet Effect’ the wages and profit did not come down. The Western producers had no alternative except to make the prices of their goods inelastic and maintain their profits by charging higher prices for their products from poor countries. In this way the terms of trade went against under-developed countries.

• **Technical Progress**
Technical Progress is one of the main factors, which help in maintaining monopolistic competition in the international markets. Japan, US, and European countries have had a great technical progress. They are well emerged, in inventions and innovation. They are developing round about techniques of production, particularly which could reduce the requirements of raw material. As 35% cotton and 65% of polyester is being used in the production of shirts. The nylon is being used in the production of tyres. In such situation the prices of exports from under-developed countries are falling with terms of trade going against them.

• **Supply of Goods and Market Structure**
The markets of developed countries maintain oligopolistic and monopolistic situations with respect to competition. The big firms have dominated the export sector. Consequently they often limit their output in order to raise the prices of their products. On the other hand, the competitive conditions prevail in the export sectors of countries like Pakistan as a result the prices of export goods are low. Thus when the exports of under-developed countries command lower prices and imports of them have to be purchased at higher prices the terms of trade goes against them.

4. **Impact of Terms of trade on the Economic Growth**
It is evident that the terms of trade is somewhat deteriorating the economic growth of several developing countries like Pakistan. The deterioration in the terms of trade may result in following impacts in the economy

• **Balance of Trade Problems**
Sudden decrease in a country’s terms of trade (e.g., In a country’s main export product, if there is a severe fall in the international price) can cause severe balance of Trade (BoT) problems, if the country depends on the foreign exchange which is earned by the exports to pay for the import, there will be an
elevating BoT deficit. However, if the income and price elasticity of demand for the goods the country produces is lower than this is an indirect Impact from the Balance of trade deficit.

Elevated inconsistency can also negatively influence the economy’s growth through reallocation of both inputs (production processes) and outputs, with a loss in output while reallocation takes place. Present investment may no longer be profitable, to carry on operating and may have to be scrapped which decreases the capital stock significantly. While uncertainty associated with high relative price volatility of both inputs and outputs may reduce investment significantly where enclosed markets are incomplete.

• **Real Income Level – Harberger Laursen Metzler (HLM) hypothesis**
  One of the results of this literature is known as the Harberger-Laursen-Metzler (HLM) hypothesis. According to this hypothesis an improvement in the terms of trade improves a country’s real income level and, since part of that increase will fall on saving, the improvement in the terms of trade improves the trade balance.

### 5. Evidences from Pakistan’s Economy

Pakistan is a member of the World Trade Organization (WTO), and has bilateral and multilateral trade agreements with many nations and international organizations. Fluctuating world demand for its exports, domestic political uncertainty, catastrophes (Natural Disasters), and the impact of occasional droughts on its agricultural production have all contributed to variability in Pakistan’s trade balance. To analyze these factors and the determinants of Terms of Trade, we shall take the evidences from FY94 to FY10, into consideration.

**Brief Description of Pakistan Economy**

• **GDP**
  According to the latest data available for FY10, Pakistan is a country with 172 million (Provisional) populations and a per capita income (in terms of GNP in current market prices) of Rs 89,692 or US $975. The economy is the 26th largest economy in the world in terms of purchasing power, and the 47th largest in absolute dollar terms. The per capita has almost doubled from $526 in FY00. During this period, the GDP in real terms grew, on average, by 5.5 percent per annum, contributed by the sectorial growth rates of 2.8 percent in agriculture, 9 percent in manufacturing, and 6.2 percent in services. In 2005, it was the third fastest growing economy in Asia. Following graph is showing the growth trend from FY94 to FY10.
There is a semi exponential growth evident since FY94, from 1.573 trillion PKR to 14.837 trillion PKR. On the trend, the growth rate of GDP increased during FY99 which reduced during FY00. The sectorial Growth trend is as follows. (There are two estimate for the FY00 as there is a BY shift FY81 to FY91.) The growth rate of the industrial and service sector increases but for agriculture sector it remain the same 2.8%, on average. The increase in the growth of Industrial Sector is significantly because of the growth in manufacturing goods. If we consider the inflation rate 15% on average, then the growth in GDP of 5.5% is relatively low.

- **Inflation**
  In Pakistan the Consumer Price inflation (CPI) was 10% annual on average during the 90s. It was relatively low during the earlier years of 2000s, but it started increasing from FY05 reaching 12% in FY08. Gone even above 25% during FY09 but, during the on-going year of 2012, the inflation is running around
10.1%\(^1\), as on January 2012. It is expected to rise by the end of FY12. The recent double-digit inflation, while definitely causing hardship to the general consumer, is equally affecting the economic activity in the economy due to sharp increases in the prices of raw material especially construction material.

- **Foreign Trade**

  In foreign trade, Pakistan is moving ahead in terms of quantity, as well as in its economic categorization. Looking at trade numbers since 1980-81 onwards, it shows that merchandise exports (fob) which averaged 9.8% of GDP during the FY81 picked up to 13% during the FY91. On the contrary, imports (fob) declined from 18.7% to 17.4% during the same period. This has been helpful in reducing the size of the trade deficit from 8.9% of GDP (PKR 278,196 m) in the FY81 to 4.4% of GDP in the FY98 (PKR 2,677,656 m). In the latest FY10, exports amounted to $19.5 billion compared to imports of $34.7 billion, leaving a Balance of Trade deficit of $15.1 billion.

  \[
  \text{Table 1: Balance of Trade} \\
  \begin{array}{cccccc}
  \hline
  \text{Period} & \text{Exports} & \text{Re-exports} & \text{Imports} & \text{Re-Imports} & \text{Balance of Trade} \\
  \text{FY 81} & 2,957.5 & 28.9 & 5,408.5 & 0.4 & -2,422.5 \\
  \text{FY 98} & 8,627.7 & 76.3 & 10,118.0 & 4.6 & -1,418.6 \\
  \text{FY 08} & 19,052.3 & 727.4 & 39,965.5 & 10.9 & -20,196.7 \\
  \text{FY 10} & 19,290.0 & 257.0 & 34,710.0 & - & -15,163.0 \\
  \hline
  \end{array}
  \]

  Source: Federal Bureau of Statistics

  Viewed in historical perspective, the composition of exports from Pakistan has improved significantly over the past 3 decades. Exports fell 2.5% and imports dropped 20% in FY98, but by FY00 they were back on the upswing, growing at 8.3% and 19%, respectively.

  At present, major items of Pakistan’s exports pertain to cotton yarn, cotton cloth, knitwear, bed wear, ready-made garments, rice, leather manufactures, footwear, surgical goods, and cement.

\(^1\) Sources: www.tradingeconomics.com
One of the leading reasons of Pakistan still lagging behind in this sector is the narrow export base, and heavy dependence on textiles and clothing, which account for more than a half of the total exports. Apart from developing new export groups as well as increasing number of exportable items under them, there is a need for improving the quality of exports and hence the value-added component of exports.

Compared to the level of exports in Pakistan, the value of imports is much higher which poses a problem of import financing. For example, for FY10, against the export level of $19.5 billion, the import value amounted to $34.7 billion. The ratio therefore is only 58% implying that 42% of imports need to be financed from other sources than exports earnings. Major imports include petroleum crude and products, (sometimes) wheat, tea, palm oil, machinery, iron and steel, and transport equipment. In more recent years, the growth in imports increased substantially owing to unprecedented rise in oil and food prices.
6. Terms of Trade – Pakistan

To study the determinant of terms of trade and its impact on the growth of economy, historical economic data from FY81 and FY90, FY91, FY10 can be relevant, but before that a graphical analysis can be done on the trend from FY94 to FY10, will give an idea about the relationship in between GDP, Exchange Rate, Workers’ Remittances, Balance of Payments (minus Liabilities “Capital”, Error and Omission and Exceptional Financing), Balance of Trade, with the net Barter Terms of Trade.

Consider following Graphs showing the respective trends of GDP, Exchange Rate, BoP, BoT and ToT.

In the following trends of GDP there is a strong evidence of the exponential Growth in GDP, while in the Exchange rate graph demonstrates a stable trend from FY02 to FY08, until FY09, there is an abrupt increase of PKR 16 per unit Dollar. This was the resultant of heavy Government borrowing from central bank. During FY12, unit dollar equates PKR 92.

During FY02 and FY03 Workers’ Remittances inflow increased significantly up to $ 4.3 billion, which can be a result of the increase in economical uncertainty after 9/11. This inflow sudden reduced from $ 4.3 billion to $ 3.7 billion during FY04, which can be assumed to be a result of International recession. But this inflow kept on growing and it is $ 8.9 billion during FY10.
Figure 5: GDP 'MP' Trend

- GDP 'MP' (million PKR)

Figure 6: Exchange Rate of Unit USD

- Exchange Rate for Unit USD
Now the graph of Balance of Trade shows a relatively stable trend during FY94 to FY03 which was a deficit $1.42 billion during FY98, then the deficit increase further and it was $20.1 billion in FY08 and then $15 billion in FY10.

Comparing BoT trend with net barter ToT, demonstrate a graphical correlation, which can be considered to be a leading relationship of barter ToT with BoT. Therefore the deterioration of BoT can be considered as a trickledown effect of the deterioration of Barter ToT, which may ultimately hurt the Balance of Payment. During FY98 Barter ToT, was 123.51 which deteriorated to 56.94.

Table 2: Indices of Unit Value of Exports and Imports

<table>
<thead>
<tr>
<th>Exports/Imports</th>
<th>(1975-76=100)</th>
<th>(1990-91=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY81</td>
<td>FY98</td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Groups</td>
<td>176.07</td>
<td>245.62</td>
</tr>
<tr>
<td>Food and live Animals</td>
<td>197.4</td>
<td>203.2</td>
</tr>
<tr>
<td>Beverages and Tobacco</td>
<td>127.74</td>
<td>143.35</td>
</tr>
<tr>
<td>Crude Material Inedible Except Fuels</td>
<td>182.32</td>
<td>186.45</td>
</tr>
<tr>
<td>Mineral Fuels and Lubricants</td>
<td>282.78</td>
<td>176.62</td>
</tr>
<tr>
<td>Chemicals</td>
<td>182.65</td>
<td>257.86</td>
</tr>
<tr>
<td>Manufactured Goods</td>
<td>158.33</td>
<td>267.89</td>
</tr>
<tr>
<td>Machinery and Transport Equipments</td>
<td>267.98</td>
<td>227.85</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>168.24</td>
<td>246.64</td>
</tr>
</tbody>
</table>

**Imports**
Now if we analyze the Indices of Unit Value of Exports and Import, the average indices of manufactured goods have been growing at a stable rate, whereas the indices for other groups were fluctuating big numbers.
Three kinds of elements have been identified in the study:

2. Computation of ‘export as capacity to import’ or income terms of trade.
3. Terms of trade effect computed in absolute as well as in ratio to GDP terms.

An attempt has been made to determine whether there had been any consistent long-term trend in Pakistan’s terms of trade. For this purpose, linked series of index numbers of terms of trade for the period FY94 to FY08 have been used. Primary data (price indices of exports and imports, and their values in real terms) is taken from Pakistan’s Economic Survey. The rest of the data has been arithmetically generated. An examination of the series reveals, however, no distinct trend—either upward or downward—during the period taken as a whole. Segment wise analysis gives a slightly different picture. As may be seen after comparing the trend of barter and income ToT, Pakistan’ net barter terms of trade remained favorable only for few years, particularly in FY98 and FY99. For other years, it showed significant worsening behavior. The index with 100 for FY91 declined to 55 by FY08 and then to 56 by FY10. On the average, it remained 85 during the years under question.

Table 3: Consolidated Data from FY94 - FY10

<table>
<thead>
<tr>
<th>BY 1990-91 = 100</th>
<th>GDP (MP)</th>
<th>GNP (MP)</th>
<th>Balance of Trade</th>
<th>Terms of Trade</th>
<th>Income TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY94</td>
<td>1,573,097</td>
<td>1,577,085</td>
<td>-1,725.8</td>
<td>101.26</td>
<td>5</td>
</tr>
<tr>
<td>FY95</td>
<td>1,865,922</td>
<td>1,879,965</td>
<td>-2,224.9</td>
<td>102.67</td>
<td>111</td>
</tr>
<tr>
<td>FY96</td>
<td>2,120,173</td>
<td>2,113,037</td>
<td>-3,063.2</td>
<td>99.94</td>
<td>115</td>
</tr>
<tr>
<td>FY97</td>
<td>2,428,312</td>
<td>2,408,962</td>
<td>-3,522.1</td>
<td>101.56</td>
<td>117</td>
</tr>
<tr>
<td>FY98</td>
<td>2,677,656</td>
<td>2,653,292</td>
<td>-1,418.6</td>
<td>123.51</td>
<td>136</td>
</tr>
<tr>
<td>FY99</td>
<td>2,938,379</td>
<td>2,912,832</td>
<td>-1,596.5</td>
<td>115.71</td>
<td>126</td>
</tr>
<tr>
<td>FY00</td>
<td>3,826,111</td>
<td>3,778,155</td>
<td>-1,691.8</td>
<td>97.97</td>
<td>124</td>
</tr>
<tr>
<td>FY</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Change</td>
<td>Growth Rate</td>
<td>Rank</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>FY01</td>
<td>4,209,873</td>
<td>4,155,391</td>
<td>-4,476.0</td>
<td>90.96</td>
<td>131</td>
</tr>
<tr>
<td>FY02</td>
<td>4,452,654</td>
<td>4,476,319</td>
<td>-1,145.9</td>
<td>90.83</td>
<td>136</td>
</tr>
<tr>
<td>FY03</td>
<td>4,875,648</td>
<td>5,027,460</td>
<td>-1,015.5</td>
<td>82.07</td>
<td>152</td>
</tr>
<tr>
<td>FY04</td>
<td>5,640,580</td>
<td>5,765,058</td>
<td>-2,876.9</td>
<td>78.68</td>
<td>144</td>
</tr>
<tr>
<td>FY05</td>
<td>6,499,782</td>
<td>6,634,243</td>
<td>-6,183.8</td>
<td>73.81</td>
<td>157</td>
</tr>
<tr>
<td>FY06</td>
<td>7,623,205</td>
<td>7,773,106</td>
<td>-12,010.9</td>
<td>65.07</td>
<td>155</td>
</tr>
<tr>
<td>FY07</td>
<td>8,673,010</td>
<td>8,830,640</td>
<td>-13,405.8</td>
<td>62.74</td>
<td>150</td>
</tr>
<tr>
<td>FY08</td>
<td>10,242,799</td>
<td>10,451,715</td>
<td>-20,196.7</td>
<td>55.88</td>
<td>137</td>
</tr>
<tr>
<td>FY09</td>
<td>12,739,336</td>
<td>13,083,827</td>
<td>-16,891.2</td>
<td>57.58</td>
<td>113</td>
</tr>
<tr>
<td>FY10</td>
<td>14,668,428</td>
<td>15,239,043</td>
<td>-15,163.0</td>
<td>56.94</td>
<td>75</td>
</tr>
</tbody>
</table>
However, the *income* terms of trade index remained below 100 only for FY94 and FY10. For all other years, it was greater than 100, with 123 as an average during the period. Somehow Income ToT demonstrates a favorable trend for Pakistan. Terms of trade effect was estimated to be negative barring for 5 years. For the 17 years sample period, it averaged Rs -33.3 billion per annum.

The openness of Pakistan’s economy to international trade in terms of total trade to gross domestic product (GDP) decreased over time. As expected, the worsening of the terms of trade leads to a substantial decrease in GDP Growth in all the respective years. As a ratio to GDP, the effect averaged -2.3%.

Export prices in Rupee terms for Pakistan increased by 250% during the 17 years period from FY98 to FY10, indicating an annual increase of 7.7%. In dollar terms the annual increase was 1.4%, whereas import prices in Rupee terms for Pakistan increased by 532% during the same period, suggesting an annual increase of 11.5%. In dollar terms, the increase was 5%. Points 1 and 2 taken together clearly suggest that the net barter terms of trade for Pakistan deteriorated significantly during the period under review. From an index of 100 in FY91, it fell to 56.94 by FY10. The behavior of the index for individual years, it remained above 100 only for six years and below 100 for the remaining 11 years.

Pertaining to instability in export prices, the evidence has been overwhelmingly suggesting that developing countries are experiencing severe instability.

![Income TOT (BY=1990-91)](image)

**Figure 10: Income Terms of Trade (BY=1990-91)**

### 7. Conclusion

Therefore, following are the conclusions drawn.
• **Impacts of ToT**
  1. Deterioration in either barter ToT or Income ToT, has a negative effect on the total GDP, which is due to the trickledown effect through deficits in Balance of Trade, decrease in National Savings and Investments and ultimately deteriorating Balance of Payments

• **Determinants of ToT**
  2. Exchange Rate has a negative effect on Income ToT, as evident when both are graphically compared. Whereas its effect on Barter Terms of Trade was unclear.
  3. Commodity Goods are low price inelastic, and the price indices are very low. Therefore the exports of such goods cause deteriorating effect on Barter ToT.
  4. Terms of Trade and Trade Balance is highly vulnerable to the global trade situations
  5. Increase in terms of trade may result in trust building and therefore result in the levels of investment and thus rapid economic growth. Now the subject of discussion, what are the factors which determine the Terms of Trade are.
  6. Income and Price elasticity of Demand and Supply have inevitable effect on Terms of Trade

Table 4: Effect of Terms of Trade on GDP

<table>
<thead>
<tr>
<th>Year</th>
<th>Px/Pm in Real Terms</th>
<th>ToT Effect</th>
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<td>FY10</td>
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<td>-185672</td>
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8. **Measures to Improve Terms of Trade**

In Pakistan’s economic set up, regardless of having a significant openness to international trade, the country deals with low augmentation in production and exports, which ultimately results in the vulnerability to harmful fluctuations and shocks in world markets, as is evident, in the case of the terms
of trade fluctuations and the instability in its economic performance. Pakistan’s long run terms of trade pattern is probing the loss in terms of GDP the country which the country had to bear. Following measures can help in preventing deterioration or instability in the terms of trade.

1. Pakistan must develop their export portfolio with a larger share for exporting manufactured and finished goods instead of agricultural and primary goods. This can be done, by Introducing Temporary Land and Taxation reforms to encourage investments in expanding the share of Manufactured and finished goods.

2. To industrialize the economy, the dependencies on the countries own resources must be increase and reduce dependencies on imports, specifically, from those countries, which have an elevated Terms of Trade with Pakistan. Technical sector reforms must be introduced.

3. Population is another internally controllable primary factor, which may ultimately decrease the demand for imports.

4. Devaluing or depreciating Currency as a tool may reduce imports temporarily, but on the longer run, the encouragement to export heavily may result in decreasing and destabilizing the international price levels of the export goods, therefore deteriorating the Terms of Trade. Instead, Import/export Tariff reforms must be introduced, which will also increase government taxes.

5. A Trade alliance between primary goods exporting countries must be made, to Regulate, Monitor and Stabilize the international level of prices of Raw material and Primary Goods.

If the developing countries would adopt such measures as mentioned above their terms of trade will improve.

9. References

2. Fatima (2010)
Countries are significantly considering the determinants of trade gain before designing trade policies. Declination in terms of trade (TOT) is one of the significant factors to elaborate the increasing income gap between trading countries. Unsustainable prices of export good is one of the reasons for the weakness faced by several developing economies, which is due to the heavy dependence on commodity exports, whose prices are more volatile than manufactured goods. These are undesired fluctuations as they increase instability in the growth of output (GDP). In the light of quite a few studies, on average, changes in the terms of trade can be the reason of 50% of the GDP instability in the developing countries. Growth economists found a deep impact of terms of trade changes on the overall economic growth, and the relationship between them is determined by the economic structure of the country.

Income terms of trade instability show strong long run relationships with output; both are negatively related with each other. An increase in terms of trade may result in trust building and therefore result in levels of investment and thus rapid economic growth. Now the subject of discussion, what are the factors which determine the terms of trade are.

Terms of Trade
It shows the average price of a country’s aggregate exports in relation to the average price of its imports.

\[
\text{Terms of Trade (TOT)} = \left( \frac{\text{Index of Unit Value of Exports}}{\text{Index of Unit Value of Imports}} \right) \times 100
\]

Barter Terms of Trade (ToT)
- Net barter terms of trade show relationships between the prices at which a country sells its exports and the prices it pays for its imports. If the prices of a country’s exports rise relative to the prices of its imports, it shows that there is a significant increase in the terms of trade. Because it now receives more imports for each unit of goods exported. Therefore, the net barter terms of trade expressed in a formulation, can be written as:

\[
\text{Barter TOT} = \left( \frac{\text{Unit Value Index of Exports}}{\text{Unit Value Index of Imports}} \right) \times 100
\]

The indices are analyzed with a certain year as a base. A sudden deterioration in the country’s terms of trade can cause rising trade deficit if the country largely depends on foreign exchange earned by its primary exports to pay for the import of its manufactured goods and capital equipment.

- The formulation only compares the prices of exports and imports. Changes in this ratio alone does not represent the exports as capacity to import, to determine that the country’s economy would be better or worse, because mathematically, there is no effect of any variable of actual amount of exports.

Income Terms of Trade (ToT)
- To determine implications in terms of exports as capacity to import, therefore, requires major modification in the above formula. This has been done by replacing the barter ToT by an income ToT, which clearly takes into account the actual export volume that can change with the change in price of exports. The formulation takes the form:

\[
\text{Income TOT} = \left( \frac{\text{Unit Value Index of Exports}}{\text{Unit Value Index of Imports}} \right) \times Q_x
\]

Where Qx refers to actual quantity of exports in real terms.

The above formula represent no matter the country would end up with net gain or net loss as a result of changes in terms of trade, but will depend on the elasticity of demand for its exports, instead of the price levels only.

- Sometimes elasticity of demand fluctuates or changes over time. But the short term demand is often inelastic, as it requires a certain period to change consuming patterns; therefore in the longer term demand becomes more elastic. We often see a “J” curve effect where an improvement in terms of trade worsens trade balance in short term but improves in long term.
Factors Determining Terms of Trade

Terms of Trade

Factors Determining ToT

Some of the internal factors involved in determining the ToT are Nature of Export goods, Sectors of Exports, Cost of Productivity and efficiency of production, Nature of imports, elasticity of supply etc. While some external factors involved are international competition in the sector, elasticity of demand, importing country's regulations and import tariffs and other external price level determinants like foreign exchange rates.

- Price Volatility – Export of Agricultural goods
- Desire for Industrialization
- Nature of Exports/Imports Goods
- Low Income and Price Elasticity of Demand
- International Recession
- Technical Progress
- Supply of Goods and Market Structure

Price Volatility – Export of Agricultural goods

- Major share of trading goods, in export portfolio of Pakistan, is export agricultural goods like cotton and rice etc.
- Where price levels of these goods, fluctuate heavily in the international market, due to prices volatility.
- For example, if there is huge production, any year, the price levels goes down as these goods cannot be stored and they must be exported even at lower prices. Accordingly the terms of trade goes against under Pakistan.

Desire for Industrialization

- Pakistan has a strong desire and potential to industrialize, as soon as possible.
- For this purpose raw material, machinery, bulldozers and automobiles are major imports of these countries. The developed countries having monopolies, sell such products at higher price.
- It means what is sold by under-developed countries have to be sold at lower prices and what is purchased by under-developed countries have to be purchased at higher prices. In such situation terms of trade is going against developing countries.

Exchange Rate

- Exchange rate variation is also symbiotic with the Terms of Trade.
- A remarkable depreciation in the value of the currency in terms of the exchange rate would result in a fall in export prices and a rise in the cost of imports.
- This can worsens the terms of trade index up to the level of the size of economy.
- On the contrary, the lower exchange rate restores competitiveness for a country since, demand for exports increases and import demand from domestic consumers may decrease.

Nature of Exports/Imports Goods

- Nature of Exports and imports may not directly affect the Terms of Trade, but it is the only connection in various factors determining it.
- If there are growing substitutes of the export goods of a country in the international market, the demand will go down.
- The Nature of Export and Import Goods determines the elasticity of demand and supply, which is the main factor for the fluctuations. If the demand and supply is consistent, it guarantees the smoothness of the growth of the respective economy.
**Low Income and Price Elasticity of Demand**

- Income and price elasticity of demand for the exports of Pakistan are very low in the international market. Income elasticity of demand is low because the foreigners are not badly in need of these export goods from Pakistan.
- Therefore even at lower prices these kinds of exports don’t increase. More over there are a variety of substitutes against the exports of under-developed countries as the case of polyester against cotton etc.
- Whereas spending the major share of the income on the luxuries, is a growing trend in Pakistan, which undoubtedly helped to industrialize economy up to some extent, but inevitably deteriorated the terms of trade and the Balance of Trade.
- This shows lower income elasticity of demand for the goods import. Thus when we have the poor income and price Elasticity of demand the terms of trade deteriorates.

**Technical Progress**

- Technical Progress is one of the main factors, which help in maintaining monopolistic competition in the international markets. Japan, US, and European countries have had a great technical progress.
- They are well emerged, in inventions and innovation.
- They are developing round about techniques of production, particularly which could reduce the requirements of raw material.
- As 35% cotton and 65% of polyester is being used in the production of shirts. The nylon is being used in the production of tyres. In such situation the prices of exports from under-developed countries are falling with terms of trade going against them.

**International Recession**

- In 1973 Arabs increased the prices of oil from $3 to $11 per barrel. Afterwards the prices of oil went on increasing. Primarily this resulted in international inflation, and secondarily in the decrease of demand for big automobiles and machinery consuming more fuel. With this the unemployment spread.
- More particularly in late 70’s and in early 80’s the recession clutched US and other European economies. Their incomes fell and they reduced the demand of their imports. Consequently, the exports from under-developed countries decreased along with fall in their prices. Again the event of 11th September 2001 also led to create recession in US.
- Moreover when price fell in Europe and US due to recession, the wages and profits should also have come down. But because of “Ratchet Effect” the wages and profit did not come down.
- The Western producers had no alternative except to make the prices of their goods inelastic and maintain their profits by charging higher prices for their products from poor countries. In this way the terms of trade went against under-developed countries.

**Supply of Goods and Market Structure**

- The markets of developed countries maintain oligopolistic and monopolistic situations with respect to competition. The big firms have dominated the export sector.
- Consequently they often limit their output in order to raise the prices of their products.
- On the other hand, the competitive conditions prevail in the export sectors of countries like Pakistan as a result the prices of export goods are low.
- Thus when the exports of under-developed countries command lower prices and imports of them have to be purchased at higher prices the terms of trade goes against them.

**Balance of Trade Problems**

- Sudden decrease in a country’s terms of trade (e.g., in a country’s main export product, if there is a severe fall in the international price) can cause severe balance of Trade (BoT) problems, if the country depends on the foreign exchange which is earned by the exports to pay for the import, there will be an elevating BoT deficit.
- However, if the income and price elasticity of demand for the goods the country produces is lower than this is an indirect impact from the Balance of trade deficit.
- Elevated inconsistency can also negatively influence the economy’s growth through reallocation of both inputs (production processes) and outputs, with a loss in output while reallocation takes place. Present investment may no longer be profitable, to carry on operating and may have to be scrapped which decreases the capital stock significantly.
- While uncertainty associated with high relative price volatility of both inputs and outputs may decrease investment significantly where enclosed markets are incomplete.
Real Income Level – Harberger Laursen Metzler (HLM) hypothesis

- One of the results of this literature is known as the Harberger-Laursen-Metzler (HLM) hypothesis.
- According to this hypothesis an improvement in the terms of trade improves a country’s real income level and, since part of that increase will fall on saving, the improvement in the terms of trade improves the trade balance.

Brief Description – Pakistan Economy

- According to the latest data available for FY10, Pakistan is a country with 172 million (Provisional) populations and a per capita income (in terms of GNP in current market prices) of Rs 89,692 or US $975.
- The economy is the 26th largest economy in the world in terms of purchasing power, and the 47th largest in absolute dollar terms.
- The per capita has almost doubled from $526 in FY00. During this period, the GDP in real terms grew, on average, by 5.5 percent per annum, contributed by the sectorial growth rates of 2.8 percent in agriculture, 9 percent in manufacturing, and 6.2 percent in services.
- In 2005, it was the third fastest growing economy in Asia. Following graph is showing the growth trend from FY94 to FY10.

Inflation

- In Pakistan the Consumer Price inflation (CPI) was 10% annual on average during the 90s. It was relatively low during the earlier years of 2000s, but it started increasing from FY05 reaching 12% in FY08.
- Gone even above 25% during FY09 but, during the on-going year of 2012, the inflation is running around 10.1%, as on January 2012.
- It is expected to rise by the end of FY12.

Foreign Trade

- In foreign trade, Pakistan is moving ahead in terms of quantity, as well as in its economic categorization. Looking at trade numbers since 1980-81 onwards, it shows that merchandise exports (fob) which averaged 9.8% of GDP during the FY81 picked up to 13% during the FY91.
- On the contrary, imports (fob) declined from 18.7% to 17.4% during the same period.
- This has been helpful in reducing the size of the trade deficit from 8.9% of GDP (PKR 27.3 billion) in the FY81 to 4.4% of GDP in the FY98 (PKR 2,877 billion).
- In the latest FY10, exports amounted to $19.5 billion compared to imports of $34.7 billion, leaving a balance of Trade deficit of $15.1 billion.
Viewed in historical perspective, the composition of exports from Pakistan has improved significantly over the past 3 decades. Exports fell 2.5% and imports dropped 20% in FY98, but by FY00 they were back on the upswing, growing at 8.3% and 19%, respectively.

At present, major items of Pakistan's exports pertain to cotton yarn, cotton cloth, knitwear, bedsheets, ready-made garments, rice, leather manufactures, footwear, surgical goods, and cement. One of the leading reasons of Pakistan still lagging behind in this sector is the narrow export base, and heavy dependence on textiles and clothing, which account for more than a half of the total exports. Apart from developing new export groups as well as increasing number of exportable items under them, there is a need for improving the quality of exports and hence the value-added component of exports.

Compared to the level of exports in Pakistan, the value of imports is much higher which poses a problem of import financing. For example, for FY10, against the export level of $19.5 billion, the import value amounted to $34.7 billion. The ratio therefore is only 58% implying that 42% of imports need to be financed from other sources than exports earnings.

Major imports include petroleum crude and products, (sometimes) wheat, tea, palm oil, machinery, iron and steel, and transport equipment. In more recent years, the growth in imports increased substantially owing to unprecedented rise in oil and food prices.

In the following trends of GDP there is a strong evidence of the exponential Growth in GDP, while in the Exchange rate graph demonstrates a stable trend from FY02 to FY08, until FY09, there is an abrupt increase of PKR 16 per unit Dollar. This was the resultant of heavy Government borrowing from central bank. During FY10, unit dollar equates PKR 92.

During FY02 and FY03 Workers' Remittances inflow increased significantly up to $4.3 billion, which can be a result of the increase in economical uncertainty after 9/11. This inflow sudden reduced from $4.3 billion to $3.7 billion during FY04, which can be assumed to be a result of international recession. But this inflow kept on growing and it is $8.9 billion during FY10.

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Terms of Trade – Pakistan

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Barter ToT Vs. BoT
### Comparative Analysis

- However, the income terms of trade index remained below 100 only for FY94 and FY10. For all other years, it was greater than 100, with 123 as an average during the period. Somewhere Income ToT demonstrates a favorable trend for Pakistan. Terms of trade effect was estimated to be negative barring for 5 years. For the 17 years sample period, it averaged Rs -13.3 billion per annum.

- The openness of Pakistan’s economy to international trade in terms of total trade to gross domestic product (GDP) decreased over time. As expected, the worsening of the terms of trade leads to a substantial decrease in GDP Growth in all the respective years. As a ratio to GDP, the effect averaged -2.3%.

- Export prices in Rupee terms for Pakistan increased by 250% during the 17 years period from FY98 to FY10, indicating an annual increase of 7.7%. In dollar terms the annual increase was 1.4%, whereas import prices in Rupee terms for Pakistan increased by 532% during the same period, suggesting an annual increase of 11.5%. In dollar terms, the increase was 5%.

- Points 1 and 2 taken together clearly suggest that the net barter terms of trade for Pakistan deteriorated significantly during the period under review. From an index of 100 in FY91, it fell to 56.94 by FY10. The behavior of the index for individual years, it remained above 100 only for six years and below 100 for the remaining 11 years.

### Consolidated Data (FY94 ~ FY10)

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<thead>
<tr>
<th>Year</th>
<th>Exports in Real Terms</th>
<th>Terms of Trade</th>
<th>Income ToT</th>
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### Effect of ToT on GDP

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<td>1.5</td>
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</table>

### Impacts of ToT

- Deterioration in either barter ToT or Income ToT, has a negative effect on the total GDP, which is due to the trickledown effect through deficits in Balance of Trade, decrease in National Savings and Investments and ultimately deteriorating Balance of Payments.

### Determinants of TOT

- Exchange Rate has a negative effect on Income ToT, as evident when both are graphically compared. Whereas its effect on Barter Terms of Trade was unclear.

- Commodity Goods are low price inelastic, and the price of those indices are very low. Therefore the exports of such goods cause deteriorating effect on Barter ToT.

- Terms of Trade and Trade Balance is highly vulnerable to Exchange Rate, as evident when both are graphically compared. Whereas its effect on Barter Terms of Trade was unclear.

- Income and Price elasticity of Demand and Supply have inevitable effect on Terms of Trade.

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**Conclusion**

- Terms of Trade.

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**Points to Note**

- The openness of Pakistan’s economy to international trade in terms of total trade to gross domestic product (GDP) decreased over time. As expected, the worsening of the terms of trade leads to a substantial decrease in GDP Growth in all the respective years. As a ratio to GDP, the effect averaged -2.3%.

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A trade alliance between primary goods exporting countries must be made, to regulate, monitor and stabilize the international level of prices of raw material and Primary Goods.