The Economic Analysis of Comparative Advantage and Competitiveness in the Textile Export Industry in Pakistan

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Abstract:
The present study aims at measuring the export competitiveness of the textile sector of Pakistan in the global market by employing several indices of Revealed Comparative Advantage. The data on textile exports of Pakistan have been taken from the international trade center (ITC) UN-Comtrade statistics from 2003-2018. The findings of the analysis exemplify that Pakistan's textile exports had a comparative and competitive advantage. Pakistan is the net exporter of textile products and it has also a comparative advantage in the imports. Besides, the results of the Revealed Trade Advantage index demonstrate that Pakistan had a net comparative advantage in the concerned sector. The study suggests that Pakistan should emphasize on the diversification of the products, improving its supply chain, searching new markets for selling products and use of modern technology to increase the trade volume of textile products.

Keywords: Comparative Advantage; Comparative Cost; Gains from Trade; Competitiveness

I. Introduction
Exports are considered to be a supplement of economic growth. An economy can gain its goals of prosperity through trade and optimal allocation of available resources. Following the principle of comparative advantage depend on their factor endowments, each country is likely to produce and export those products which are less costly (Iqbal and Khan, 2017). The trade returns depend on ensuring international standards, increasing domestic production and investigating new markets for exports (Bernard and Schott, 2007 and Zada et al., 2011). Comparative advantage implies a greater return to one economy as compared to others in the production of a product. It can be calculated by formulating the
relative pre-trade prices of the product in question; the calculation is accompanied by the complexities (Mahmood and Hajji, 2009). The concept of revealed comparative advantage used by Balassa (1965) is to analyze economies CA in specific products as well as the patterns of CA for products over the period.

The textile sector of Pakistan is the leading manufacturing sector of the economy as it contributes 8.5% to the GDP. Pakistan stands at the eighth largest textile exporter in Asia. The export share of textile products is 58.5% of total exports witnessed a minor growth of 0.10% and remained at 9.99 US$ billion in 2019 as compared to 9.98US$ during the last year. Moreover, the textile sector employed 45 percent of the labour force while 38 percent of the manufacturing labour. Pakistan stands on the fourth position in the cotton production and 3rd largest capacity of spinning in Asia after India and China. The textile sector is one of the important sectors in terms of production, exports and employment in the economy of Pakistan. This study aims to measure the competitiveness in the textile exports of Pakistan during 2003-2018 by employing the Balassa, RSCA, Vollrath, revealed trade advantage, revealed import advantage and net export indices.

II. Review of Literature

Clothing and textile are the necessities of the human being. Asia is the central source of producing and providing the textile products to the USA, European Union and other countries of the world. Pakistan is the leading exporter of textile products, especially cotton textile products. The policy analysis matrix was employed by Jawed et al. (2006) to scrutinize the CA of cotton production in Pakistan and concluded that the farmers of Punjab had a CA in cotton production during analysis. The RCA index was utilized by Hanif and Jafri (2008) to examine the export competitiveness and performance of Pakistan’s textile sector. The findings highlight that external finance altered the competitiveness of concerned sector, both in the short and long run. Khan and Mehreen (2010) and Shah et al. (2012) investigated the problems of textile industry of Pakistan and the result of these studies indicated that Pakistan faced such problems like yarn prices, an energy crisis, electricity crises, devaluation, law and order circumstances, research and development and lack of modern technology. Remeikienė and Startienėa (2013) measured the comparative advantage and competitiveness of revealed comparative advantage of Lithuanian industrial sector in the world markets by employing RCA and RSCA from 2007-2011. The comparative advantage of textile sector of four countries with the US and EU-15 economies is measured by Yilmaz and Karaalp (2013) by utilizing Balassa index during 2000-2010.

The competitiveness of textile and clothing sector was examined by Ahmad and Kalim (2013 and 2014) by employing Johansen co-integration test and RCA method. The results demonstrate that Pakistan had a high CA in the textile export and low CA in the clothing. Takala and Kazmi (2014) measured the competitiveness of the textile manufacturing sector of Pakistan with the global manufacturing of textile sector. The competitiveness of the textile and clothing exports of Pakistan, India and Bangladesh was measured by Shahzad (2015) by employing RCA index. The study concluded that Pakistan had a CA in textile, Bangladesh had CA in clothing and India had a comparative disadvantage in textile sector in the selected time span. Wadho and Chaudhry (2016) examined the innovations in the Pakistan’s textile sector by using 431 textile industries and findings demonstrate that 56% firms introduced innovations, while 38% firms introduced new commodities. The determinants of export competitiveness of Pakistan were examined by Irshad and Xin (2017) by utilizing revealed comparative advantage index from 2003-
2015. The findings exemplified that Pakistan is not a foremost trading partner in global trade. Further, it was observed that Pakistan had a CA in textile and clothing, hides and skins and vegetable during the selected time. Similarly, the same method was employed by Gupta and Khan (2017) to measure the textile export competitiveness of India as compared to twelve major exporters of textile in international market. The RCA, MCA and CAC indices were employed by Kim (2019) to examine the competitiveness in the export of textile and clothing sector of India from 1991-2017 and concluded that India had a CA. The aim of the current study is to measure the competitiveness and export performance of Pakistan’s textile sector. This study employs Revealed comparative advantage index, Revealed symmetric comparative advantage index, lnRCA, Vollrath index (RCA#), Revealed import advantage index, Revealed trade advantage index and Net export index to scrutinize the export competitiveness of textile sector. Earlier researchers employed different methods to measure the export competitiveness of textile sector of Pakistan, but no study was utilized these indices to examine the competitiveness.

III. Methods and Material

The data were collected from the International trade center for Pakistan’s textile product groups 61, 62 and 63 during 2003-2018. Liesner (1958) was the first who introduced the revealed comparative advantage index and Balassa (1965) operationalized it to examine the CA of the product (Balassa, 1965). The RCA index of exports has been explained as the ratio of an economy’s export in a particular product category to its share in total merchandise exports (Balassa and Marcus, 1989).

\[
RCA = \frac{X_i^t}{\sum X_i^t} \div \frac{X_i^w}{\sum X_i^w}
\]

(Source: Erkan and Kazim, 2014)

Where, \(X_i^t\) = Textile exports of Pakistan, \(\sum X_i^t\) = Pakistan’s total exports, \(X_i^w\) = Global textile exports and \(\sum X_i^w\) = Total exports of the world.

The value of Balassa index varies between zero and infinity, whereas zero indicates zero exports in the selected industry and infinity elaborates that the selected industry is a major exporter as compared to the other industries of the country. The value of RCA index greater than 1 indicates the comparative advantage, or in Balassa’s terminology, a revealed comparative advantage (Rivlin, 2000). This study employs logarithms to the Balassa index and lnRCA>0 reveals CA, while lnRCA<0 indicating comparative disadvantage (Faustino, 2008). To suppress the problem of skewness, revealed symmetric comparative advantage index is utilized. The RSCA index is explained as:

\[
RSCA = -\frac{RCA-1}{RCA+1}
\]

(Source: Erkan and Kazim, 2014)

This index lies between 1 and -1 and avoid the problem with zero values which occur in the transformation of logarithms (Erkan and Saricoban, 2014). The study utilized revealed import advantage (RMA) index to measure the CA in the imports of the economy. The RMA is expressed as
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\[ RMA = \frac{M_i^t}{\sum M_i^t} \]  
\[ \text{(Source: Erkan and Kazim, 2014)} \]

Where, \( M_i^t \) = Textile imports of Pakistan, \( \sum M_i^t \) = Pakistan’s total imports, \( M_i^w \) = Textile imports of the world and \( \sum M_i^w \) = Total imports of the world. The study measured revealed trade advantage index (RTA) which is explained as the difference between RCA and RMA.

\[ \text{RTA} = \text{RCA} - \text{RMA} = \frac{X_i^t}{\sum X_i^t} - \frac{M_i^t}{\sum M_i^w} \]  
\[ \text{(Source: Erkan and Kazim, 2014)} \]

Vollrath (1991) introduced the index for CA, and it is considered to be a better measure of competitiveness because this index eliminates the problem of double-counting in global trade (Gnidchenko and Salnikov, 2015).

\[ \text{RCA#} = \left\{ \frac{W_{ij}}{(\sum W_{ij}) - w_{ij}} \right\} \]  
\[ \left\{ \frac{W_{ij}^w}{(\sum W_{ij}^w) - w_{ij}} \right\} \]  
\[ \text{(Source: Topcu and Sarigul, 2015)} \]

Where, \( W_{ij} \) = Pakistan’s textile exports, \( \sum W_{ij} \) = Pakistan’s total exports, \( \sum W_{ij}^w \) = World’s textile exports and \( \sum W_{ij}^w \) = World’s total exports. The study also utilizes net export index (NEI) to measure the competitiveness which is examined as the net exports divided by the sum of imports and exports of textile of Pakistan (Balassa and Nolan, 1989). This index is utilized to describe the specialization of the concerned economy in the exports (as net-exporter) or in the imports (as net-importer). The absolute values of this index examine the share of inter-industry trade of textile in the world economy, while \((1-|\text{NEI}|)\) highlights intra-industry trade (Vixathep, 2011). The net export index is defined as follows where \( M \) refers to imports.

\[ \text{NEI} = \frac{X_{ij} - M_{ij}}{(X_{ij} + M_{ij})} \]

**IV. Results and Discussion**

Table 1 illustrates the growth of Pakistan’s textile import and export sectors during 2003-18. A positive growth rate exists due to high prices of inputs along with the record high exports to US economy. During 2007, the economy of Pakistan went through economic instability due to political instability and deprived law and order situation. In 2008-09, the negative growth rate was observed due to the effects of global financial crises and flimsy international financial markets.

This study utilized a set of revealed comparative advantage indices to measure the competitiveness and comparative advantage of textile sector of Pakistan from 2003-18. Figure 1 represents the trend of revealed comparative advantage indices during the selected time period. In Table 2, the findings highlight that Pakistan’s textile export sector had a higher CA from 2003-18, because the RCA index values is greater than 4. Net export index describes that Pakistan is the net exporter of the textile sector (Hanif and Jafri, 2008 and Ahmad and Kalim, 2014). Moreover, the results also illustrate that the portion of inter-industry and intra-industry trade relative to the global trade of textile exports of Pakistan.
The positive values of InRCA and RSCA reveal the CA in the exports of textile. The high competitive advantage was also seen in the textile sector by utilizing Vollrath index (Irshad and Xin, 2017). Pakistan had a competitive advantage in the imports of textile because the RMA index is less than 1. It means that Pakistan not only exports but also imports these selected textile products during above mentioned time span. The positive value of RTA index describes that Pakistan had a net comparative advantage in the textile sector.

Table 1: Export and import growth in the textile sector of Pakistan during 2003-18 (Billions US $)

<table>
<thead>
<tr>
<th>Years</th>
<th>TEOP (Billions US $)</th>
<th>TEOW (Billions US $)</th>
<th>TEP (Billions US $)</th>
<th>Percentage Change</th>
<th>Percentage Change</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>4.709</td>
<td>12.605</td>
<td>16.354</td>
<td>-</td>
<td>0.0547</td>
<td>-</td>
</tr>
<tr>
<td>2004</td>
<td>4.750</td>
<td>12.585</td>
<td>16.349</td>
<td>-</td>
<td>0.0528</td>
<td>-</td>
</tr>
<tr>
<td>2005</td>
<td>6.056</td>
<td>16.05</td>
<td>22.106</td>
<td>-</td>
<td>0.0906</td>
<td>71.66</td>
</tr>
<tr>
<td>2006</td>
<td>6.493</td>
<td>16.933</td>
<td>23.426</td>
<td>-</td>
<td>0.1104</td>
<td>21.78</td>
</tr>
<tr>
<td>2007</td>
<td>6.402</td>
<td>17.838</td>
<td>24.240</td>
<td>-</td>
<td>0.1457</td>
<td>31.37</td>
</tr>
<tr>
<td>2008</td>
<td>6.395</td>
<td>20.279</td>
<td>26.674</td>
<td>-</td>
<td>0.1653</td>
<td>14.03</td>
</tr>
<tr>
<td>2009</td>
<td>5.805</td>
<td>17.555</td>
<td>23.360</td>
<td>-</td>
<td>0.1611</td>
<td>-2.63</td>
</tr>
<tr>
<td>2010</td>
<td>6.729</td>
<td>21.134</td>
<td>27.863</td>
<td>5.471</td>
<td>0.239</td>
<td>-48.48</td>
</tr>
<tr>
<td>2011</td>
<td>7.584</td>
<td>19.067</td>
<td>26.651</td>
<td>20.693</td>
<td>0.2538</td>
<td>7.949</td>
</tr>
<tr>
<td>2012</td>
<td>6.986</td>
<td>24.614</td>
<td>31.600</td>
<td>9.657</td>
<td>0.2486</td>
<td>-3.89</td>
</tr>
<tr>
<td>2013</td>
<td>7.646</td>
<td>25.121</td>
<td>32.767</td>
<td>-</td>
<td>0.2454</td>
<td>-1.03</td>
</tr>
<tr>
<td>2014</td>
<td>8.294</td>
<td>24.722</td>
<td>33.014</td>
<td>-</td>
<td>0.2973</td>
<td>29.99</td>
</tr>
<tr>
<td>2015</td>
<td>8.542</td>
<td>-10.65</td>
<td>23.089</td>
<td>-</td>
<td>0.3665</td>
<td>23.42</td>
</tr>
<tr>
<td>2016</td>
<td>8.404</td>
<td>-7.041</td>
<td>20.534</td>
<td>-</td>
<td>0.3978</td>
<td>8.543</td>
</tr>
<tr>
<td>2017</td>
<td>8.937</td>
<td>21.878</td>
<td>30.815</td>
<td>-</td>
<td>0.4027</td>
<td>1.23</td>
</tr>
<tr>
<td>2018</td>
<td>9.496</td>
<td>23.631</td>
<td>33.127</td>
<td>-</td>
<td>0.4532</td>
<td>12.54</td>
</tr>
</tbody>
</table>

Sources: Authors own calculations based on ITC. Where, TEOP= Textile export of Pakistan, TEOW= Textile export of World, TEP= Total export of Pakistan and TIP= Textile Import of Pakistan.

Figure 1: Revealed comparative advantage indices from 2003-18
V. Conclusion

The primary purpose of this study is to measure the export competitiveness of Pakistan’s textile sector in the global markets by utilizing several indices of revealed comparative advantage. Using data that collected from UN-Comtrade statistics from 2003-2018, the results of the RCA, RSCA, LnRCA and RCA# indices illustrate that Pakistan enjoyed comparative and competitive advantage over the period under consideration. The results of net export index highlights that Pakistan is the net exporter of this sector.

The results also exemplify the portion of inter-industry and intra-industry trade relative to the global trade of textile exports from Pakistan. The index of RMA describes that Pakistan also had a CA in the textile imports. The RTA index also shows that Pakistan is the net-exporter of textile products. It is suggested that Pakistan should focus on the product diversification and supply chain upgradation. The country should also maximize the value-addition to enhance its export revenues. Moreover, a research intensive and innovative production along with modern technology can upsurge the textile exports of Pakistan.

References


