Determinants of Export Demand of Textile and Clothing Sector of Pakistan: An Empirical Analysis

Nawaz Ahmad
Determinants of Export Demand of Textile and Clothing Sector of Pakistan: An Empirical Analysis

1Wasif Siddiqi, 2Nawaz Ahmad, 2Abdul Aziz Khan and 2Kamran Yousef

1Economics at GCU, Lahore, Pakistan
2Economics at NCBAE, Lahore, Pakistan

Abstract: This paper attempts to evaluate the determinants of export demand of textile and clothing sector of Pakistan. Moreover it estimates elasticity coefficients of the variables of the study. This study uses co-integration approach to check the long run relationship between export demand and its determinants. Results show that world income is the major determinant of export demand as it shows high income elasticity of export demand of textile and clothing sector while trade openness is also second major determinant of export demand which was the part of the model as the proxy of trade restriction. Rest of the variables also shows their significant contribution in determining the export demand. Study also reveals the long run relationship between the export demand and explanatory variables.

JEL Classification:

Key words: Trade openness % Real world GDP % Cointegration % Value added % Exchange rate % Stationarity % Export volume

INTRODUCTION

Textile and clothing sector has been playing effective role in the economy of Pakistan. Trade performance of Pakistan’s Textile and clothing sector has been improving till 2006, afterwards performance started declining. Export of textile and clothing sector was 11376 (US $ millions) in 2006 and by the end of year 2008 it declined to 11092 (US $ millions). This shows its percentage share of world trade 1.81% in 2008 as compared to the share of world trade 2.23% in the year 2006. The performance of textile industry proved its strength globally up to the year ended 2006. It did not show only its growth during 2005-06 but kept sustaining its position in the world market even in post quota era. Again in the July- April 2010-11 its share in overall export of Pakistan started improving from 53.5% in 2009-2010 to 55.3% in the year 2010-11. Despite rising international prices of textile and cotton goods and increased cost of labor inputs in competitive markets globally, export demand of textile and cotton industry of Pakistan increased particularly from EU and US. The major activity of textile sector in Pakistan is spinning activity, which produces export quality of yarn. This quality oriented yarn is exported instead of using for high value added products like garments or fabric. The Japan, Hong Kong and South Korea are major importer of this good quality yarn. Despite importing yarn by these countries, they have established and growing textile industry which produces high value added products and charge higher prices internationally. Pakistan who has absolute and comparative advantage in cotton production over these countries, does not get appropriate benefit. One study reveals that Pakistan may achieve additional access to export markets of about 62 percent and 67 percent with the eradication of MFA in 2005 [1].

Textile sector is a major source of foreign exchange and as a largest industrial sector of Pakistan, contributing towards employment of skilled and unskilled labor in Pakistan. It has considerable contribution towards the GDP of the country and international trade hence any problem to the textile and clothing sector naturally tantamount to a national problem. Textile industry in Pakistan is consisted of large scale organized sector and it has fragmentation of cottage industry which is also organized small scale sector. Many other sectors are a part of the chain of textile sector such as spinning activity and weaving activity. These industries are consisted of small and medium scale entities. Unfortunately the textile and clothing sector of Pakistan is badly trapped in multi facet complicated problems. It is
facing problems like policy imbalances, energy crises, war on terrorism, inflation, cotton shortage, technological lag, sharp decline in FDI and the global financial crises. Destruction of infrastructure due to war on terrorism and natural hazards/disasters are also amplifying problems of textile in Pakistan.

Literature Review: Recent financial crisis has revealed the vulnerability of many emerging countries [2] including Pakistan. Some of the countries (the countries having current account surplus) were bit insulated from crisis [3] but Pakistan stood out of that criteria. The insulated countries might have also taken and might have been taking risk premiums during this period of market turmoil [4]. Various negative shocks hitting the economies at a time and continuous positive technological growth reduced the interest rates and the government policies could not play any significant role in the crisis [5]. The crisis affected almost all the sectors of economy and multiplied the problems for export industries. Textile and clothing sector as a backbone of many economies, adversely affected in the current age [6]. Lot of research surpassed on the reasons of declining trend of textile exports and it will be out of context to account for all that, however, in the context of textile industry of Pakistan; few very relevant studies have been iterated, reviewed and relied upon. When all the quantitative restrictions on textile and apparel commodities were removed according to Agreement of Textile and Clothing (ATC) in 2005, the world biggest market of textile (i.e. USA and European countries) was seriously affected [7]. It was generally believed trade off between short-run pain and long-run gain [8] but as, it is natural for economists to generalize from the experiences of a few particularly salient features [3]. Therefore, as a result of said trade off boom in textile in general was expected. Unfortunately the world wide financial crisis dragged the textile and clothing sector as a result of general contraction in textile industry and its production, the exports of textile goods also reduced considerably. Negative impact of financial crisis on the textile industry of Pakistan experienced substantially greater contraction in value added exportable textile goods [9].

Efforts are being made in research relating to identification of the problems and the possible solutions but extensive research is needed to determine implicit and explicit beyond border costs and the natural costs of textile exports of Pakistan [10]. The research in the area of textile in Pakistan is at nascent stage. International research community is embarking on energy and utility management systems in textile processing [11] but Pakistan is stuck with basic energy crises. Shortage of energy has the most deleterious impacts on textile industry in general and on compatibility of export goods in the international market in particular. Pakistan has failed to make real progress in the international market and is being overtaken by neighboring countries.

The situation can be arrested if immediate coordinated efforts are made by the industrialists and the government. Production dynamics are expected to have a positive impact on economic growth in long run in India and Pakistan over the period till 2050 [12]. A cushion can be created to sustain sudden effects of trade liberalization [13]. Further rebate to the exporting sectors, in order to increase national welfare [14] can be given.

MATERIALS AND METHODS

This paper investigates yearly data from the period of 1971-2009. Export volume of textile and clothing sector is used as export demand. A consumer price index with the base year of 2000-01 of textile and clothing sector is used as the prices of textile and clothing goods. To incorporate the effect of income on export demand as it depends on the income of imported countries, study used world real per capita income. On the other hand variable of trade openness is used as the proxy of trade restrictions. More trade openness means less trade restriction. Trade openness is measured by sum of volume of export and import of textile and clothing sector. Nominal exchange rate also affect the export demand, therefore this variable is incorporated for the same period. All the variables are in US $ taken from Economic Survey of Pakistan and International Financial Statistics. This study uses Johansen and Juselius [15] cointegration technique to test long run relationship through existence of any one vector that has cointegration or number of vectors. A unit root methodology justifies the use of this technique from the order of integration of concerned variables. The order of integration is established by using Ng-Perron [16] unit root test due to its advantages of good size and power over ADF and Phillips Perron [17]. This test has greater reliability in case of small sample size unlike ADF and Phillips Perron [17].

Cointegration Test: The study uses Johansen [18] and Johansen and Juselius [15] methodology of maximum likelihood cointegration. This multivariate analysis is more
appropriate in determining demand factor when prices are endogenously determined. This analysis was followed by Silvapulle and Jayasuriya [19] to check the cointegration in the rice market. The equation for multivariate test can written as:

$$Z = K_1Z_{t-1} + K_2Z_{t-2} + \ldots + K_kZ_{t-k} + \mu + v_t$$

Where

$$Z = (EX, CPI, ER, TO, GDP)$$ i.e, vector of \((n \times 1)\) or \((5 \times 1)\).

All these variables are integrated of order one \(I(1)\) provide reason for applying Johansen cointegration.

$$\mu = \text{A vector showing constant}$$

$$v_t = \text{Vector showing normally and independently distributed error term}$$

RESULTS AND DISCUSSION

The results reported in Table 1 show the unit root problem in all the variables at their level with constant. When stationarity of these variable is checked at first difference with constant then null hypothesis of unit root problem for all variables are rejected. Therefore except GDP which is stationary at 10% significance level, all variables are stationary at 5% significance level.

The results of Table 2 and Table 3 show long run relationship among the variables through cointegrating vector. There is one cointegrating vector among each five series. This is witnessed by trace statistic and maximum eigen value. Therefore we can reject the null hypothesis of no cointegrating vector against one cointegrating vector. But we cannot reject at most one cointegrating vector in the favor of alternative more than one cointegrating vector. This discussion concludes that there is long run relationship among export demand (Ex) and (CPI, ER, TO, GDP). While the OLS results given in below equation show coefficients of explanatory variables that affect the export demand. Phillips [20] pointed out that in the absence of cointegration, OLS results will not be reliable but if the variables are cointegrated and have not unit root problem then OLS yield reliable results.

$$\ln Ex = 2.3585 - 0.327967 \ln CPI + 0.30611 \ln ER + 0.72705 \ln TO + 2.51923 \ln GDP$$

\((4.7301)***( -2.8835)*** (1.8790)** (3.05782)*** (7.13904)*** \)

The OLS results given in the above equation, show that all the variables significantly affect the export demand. The 1 percent increases in the prices of textile decrease the export demand by 0.32 percent i.e. more close to small country hypotheses. On the other hand increase in the domestic price of US $ show the devaluation of Pak Rupee. Therefore increase in exchange rate by 1 percent (means devaluation of Pak Rupee) increase the export demand by 0.30 percent showing low exchange rate elasticity of export demand but significant t-statistic. The most important result is about trade openness coefficient, which is showing significant impact on export demand with efficient elasticity than others except world real per capita income which has greater elasticity than others. More trade openness means low trade restrictions either from importing or exporting country. The most important determinant is world income among all these determinants as its coefficient is highly elastic. This shows 1 percent increase in world real per capita income increase the export demand of Pakistan’s textile and cotton industry by 2.51 percent. The error correction term (ECT) has important feature of determining the time period after any deviation from long run equilibrium. ECT reflects speed of adjustment or moments back to equilibrium. The coefficient of ECT is -0.23596 with right negative sign indicating convergence to equilibrium. This means if any divergence occurs in the long run equilibrium then in every short run period, a 23 percent correction will come about in disequilibrium.
Table 2: Johansen’s Maximum Likelihood

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Alternative Hypothesis</th>
<th>Eigen values</th>
<th>$\lambda_{max}$ rank values</th>
<th>95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_0$: $r=0$</td>
<td>$H_1$: $r=1$</td>
<td>0.621920</td>
<td>71.10387**</td>
<td>69.81889</td>
</tr>
<tr>
<td>$H_0$: $r=1$</td>
<td>$H_1$: $r=2$</td>
<td>0.383673</td>
<td>36.08852</td>
<td>47.85613</td>
</tr>
<tr>
<td>$H_0$: $r=2$</td>
<td>$H_1$: $r=3$</td>
<td>0.228318</td>
<td>18.66535</td>
<td>29.79707</td>
</tr>
<tr>
<td>$H_0$: $r=3$</td>
<td>$H_1$: $r=4$</td>
<td>0.209081</td>
<td>9.343775</td>
<td>15.49471</td>
</tr>
<tr>
<td>$H_0$: $r=4$</td>
<td>$H_1$: $r=5$</td>
<td>0.024436</td>
<td>0.890604</td>
<td>3.841466</td>
</tr>
</tbody>
</table>

Note **indicates rejection of null hypothesis at 5% significance level

Table 3: Johansen’s Maximum Likelihood

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Alternative Hypothesis</th>
<th>Eigen values</th>
<th>$\lambda_{max}$ rank values</th>
<th>95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_0$: $r=0$</td>
<td>$H_1$: $r&gt;0$</td>
<td>0.621920</td>
<td>35.01536**</td>
<td>33.87687</td>
</tr>
<tr>
<td>$H_0$: $r=1$</td>
<td>$H_1$: $r&gt;1$</td>
<td>0.383673</td>
<td>17.42317</td>
<td>27.58434</td>
</tr>
<tr>
<td>$H_0$: $r=2$</td>
<td>$H_1$: $r&gt;2$</td>
<td>0.228318</td>
<td>9.330572</td>
<td>21.13162</td>
</tr>
<tr>
<td>$H_0$: $r=3$</td>
<td>$H_1$: $r&gt;3$</td>
<td>0.209081</td>
<td>8.444171</td>
<td>14.26460</td>
</tr>
<tr>
<td>$H_0$: $r=4$</td>
<td>$H_1$: $r&gt;4$</td>
<td>0.024436</td>
<td>0.890604</td>
<td>3.841466</td>
</tr>
</tbody>
</table>

CONCLUSION

In view of the prevailing circumstances and the problems of textile and clothing sector an empirical analysis has been carried out based on time series data. The determinants of export demand of textile sector of Pakistan have been analyzed through a model having following variables: export demand (volume of export of textile), real per capita world GDP, exchange rate, CPI of textile sector (prices of textile sector) and openness (as a proxy of trade restrictions). Study used Johansen Cointegration methodology. The discussion revealed that among determinants of export demand of textile and clothing sector of Pakistan, the world real per capita GDP is important one. This means our producers should adopt market demand oriented strategy. Despite rise in prices of textile goods, still it is affordable for importers. Pakistan should produce high value added products such as garment and fabric instead of exporting quality oriented yarn. The price elasticity of export demand is low; therefore it would not affect demand to greater extent. This means producers should introduce product differentiation and brand names in textile and clothing market. Their higher prices will offset the fall in demand through greater elasticity of increase in world real per capita GDP.

REFERENCES


