PAKISTAN’S TEXTILES AND CLOTHING IMPORTS DEMAND IN THE EU MARKET: A Cointegration-ECM Analysis

*TAHIRA SADAF, DAWOOD JAN and ANWAR F. CHISHTI

1. Department of Agricultural and Applied Economics, The University of Agriculture, Peshawar-Pakistan
2. Faculty of Management Sciences, City University of Science and IT Peshawar-Pakistan

*Corresponding Author: tahira_madi@yahoo.com

ABSTRACT

The study in hand analyses the importance and value of Pakistan’s textiles and clothing export to the EU. The Correlation, Co-integration and the Error Correction Model (ECM) analyses are used. The Correlation results reveal that there exists a strong depth of association between the EU’s total textiles and clothing imports and her imports of the same products from Pakistan. Same is true for three major textile and clothing categories (26, 65 and 84). The Co-integration analysis shows that there exists co-movement between the EU’s total textiles and clothing imports and her imports from Pakistan, only in case of 65-category textiles, reflecting the fact that Pakistan’s performance in this category of textiles is satisfactory, relative to the other two categories. The 84-category textile and clothing products need special attention as these are relatively more important from the value addition point of view. There is a need of conducting research for finding out and identifying the textiles and clothing products which have strong preferred market in the EU.

Key words: Pakistan’s Textiles; 26-, 65- & 84-textile categories, EU market, Co-integration, Error Correction Model.

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INTRODUCTION

Textiles and clothing sector is truly considered the backbone of Pakistan’s economy; this sector accounts for 38 percent of the manufacturing sector’s employment and 52.3 percent of Pakistan’s exports. The EU is one of the major trading partners of Pakistan, not only for her trade in general products, but also in textile and clothing products trade. Pakistan’s exports to the EU mainly (around two-third) consist of textiles sector products (Sadaf, 2012). Even due to lack of diversification, textiles and clothing still account for more than 65 percent of Pakistan’s export to the EU, and around a quarter of these exports consists of bed, table, toilet and kitchen linen. Apparently, the Pak-EU trade looks sizeable, its detailed analysis reflects that Pakistan has very tiny share in the EU market, relative to her competitors’ share in the EU’s total textiles and clothing products imports. Pakistan’s total textiles and clothing imports in the EU account for 2.55 billion USD, and Pakistan’s share in the EU imports of textile and cotton remained at 1.1 percent, on average, during 1988 to 2011 (Sadaf, 2012).

The literature reviewed reveals that the EU’s trade policies have remained counterproductive to Pakistan’s cotton and textile products exports to the EU on certain occasions. Siegmann (2006) reveals that the imposition of 12 percent import duties on Pakistani bed linen together with anti-dumping duty imposed in 2004 led to reduction in its sales’ growth while catalyzed the increase in China’s and Turkey’s market share in the EU. ADB (2006) reports decline in Pakistan’s share in the EU market despite increase in the textiles and clothing exports of Pakistan due to the antidumping duty on bed linen imports and Pakistan ultimately faced her preferential access to the market of the EU (under Generalized Special Preference scheme). High costs of doing business and low productivity of labor, are also assumed to depress Pakistan’s competitiveness in the global textiles and clothing export market. In contrast to Pakistan, the EU policies remained favourable to Pakistan’s competitors. Concessions given to Bangladesh, Sri Lanka, and Viet Nam also hurt Pakistan’s exports. According to Ahmed (2009), Bangladesh’s ready-made garment industry flourished after 2005 as volume of export and shares in market of RMG kept increasing over the period of 2005-06. This happened because of favourable preferences given to Bangladesh by USA and the EU. Similarly, Sri Lankan textiles, particularly its ready-made garments enjoyed similar privileges (Kelegama, 2009).

Pakistan is also worried about the existing and probable bilateral FTAs between EU and her partners, which would provide competitive edge to counterparts of Pakistan in the EU market by minimizing NTBs, particularly in the textiles and clothing sector. If FTA status is granted to competitors of Pakistan, this may increase pressures on Pakistan in the EU market, particularly when Pakistan’s competitors get a preferential status for semi-processed or highly-processed textiles (65-category and 84-category). Pakistan would then experience a decrease in textile processing imports to the EU. Same is the case with preferential rules of origin, especially in case of 65-category and 84-category textiles (CARIS, 2008 and Sadaf, 2012). This study intends to see the problem afresh, particularly from a new point of view: whether Pakistan has retained its pace of gaining share in the EU’s textile and clothing imports over time. The answer of this research question would help identify the
main subsectors of Pakistan’s textiles and clothing (26, 65 and 84 categories) which were lagged behind, and would need attentions of the relevant stakeholders for the desired improvements.

**MATERIAL AND METHODS**

**Data and data sources**

Time-series data, pertaining to period 1988 to 2011, have been collected on the EU’s total clothing and textile imports as well as its major textile categories (26, 65 and 84), from the world over and her imports of the same products from Pakistan. The major sources of data collected have been: COMTRADE database (http://comtrade.un.org), World Integrated Trade Solution (WITS: wits.worldbank.org/wits), Economic Survey of Pakistan (www.finance.gov.pk), and European Commission (http://ec.europa.eu).

**Analytic tool and techniques employed**

Our research question/theme basically requires comparing the pace of growth of Pakistan’s textiles and clothing products exports to the EU with that of the EU’s total textiles and clothing imports. We therefore resort to using the following statistical/econometric techniques.

- **Trend analysis**

  Trend analysis of the EU’s total textiles and clothing imports and her imports from Pakistan, of each of the three major categories, was carried out for comparing the trends in the two types of imports, using the following formulae:

  \[
  \ln Y = \beta_0 + \beta_1 TR + e
  \]

  where \( \ln Y \) the natural log of the respective series and \( TR \) is trend variable (or time; valuing 1, 2, 3, ….., n); here \( \beta_1 \) would measure percentage change in \( Y \) per year over the period of study (Gujarati 2007, pp 183).

- **Correlation analysis**

  The data of the two series (the EU’s total textiles and clothing imports and her imports from Pakistan) tested for Pearson’s correlation between the two variables using the following formula:

  \[
  r = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{\sum (x-x^2)^2 \sum (y-y^2)^2}}
  \]

- **Co-integration and ECM analysis**

  Whereas correlation (equation 2) would measure degree of association between the two types of series, Co-integration analysis would measure whether there exists a co-movement or long-run relationship between the two series. The Error Correction Model (ECM) is accompanied with the Co-integration analysis to measure the short-term dynamics in the long-term relationships, if any.

  The two analyses are carried out, taking the following steps (Engle and Granger (1987) and Gujarati (2007, pp.841-845).

  **Step 1: Run regression of the following type:**

  \[
  Y = \beta_0 + \beta_1 X + u_t
  \]

  And save residuals \( u_t \), for the use in step 2, as shown below.

  **Step 2: Regress the ‘differenced residuals’ on its lagged to test stationarity, like:**

  \[
  \Delta u_t = \alpha_1 u_{t-1} + e_t
  \]

  where \( \Delta u_t = u_t - u_{t-1} \)

  If equation 3(b) is tested for unit roots, and it turns out to be stationary, I(0), it would mean regression like equation 3(a) is Co-integrated, and would not yield spurious results if OLS is used. Such a relationship would prove that \( Y \) and \( X \) have long-run relationship.
• **Error Correction Model** (ECM), popularized by Engle and Granger, states that if a dependent variable and its determinant are Co-integrated, then their short-run dynamic relationship can also be measured through the ECM, postulated, as follows.

\[ Y_t = \alpha_0 + \alpha_1 X_t + \alpha_2 u_{t-1} + \epsilon_t \]  
(4)

The ECM measure states that \( \alpha_2 \) is always zero, and residuals (\( u_{t-1} \)) can be both negative and positive; so product term ‘\( \alpha_2 u_{t-1} \)’ can make changes in dependent variable in both ways, positive and negative, provided \( \alpha_2 \) turns out to be statistically significant.

**RESULTS AND DISCUSSION**

**Correlation between the EU’s total imports and her imports from Pakistan**

Table 1 provides data on the EU’s total textiles and clothing imports and her imports from Pakistan. Pearson correlation, when worked out between the EU’s total textiles and clothing imports and her imports from Pakistan, estimates at \( r = 0.982 \) (\( p < 0.01 \)), suggesting that there has been strong degree of association between the EU’s total textiles and clothing imports and her imports from Pakistan over the study period (1988 to 2011).

**Table 1. EU’s total textiles and clothing imports and her imports from Pakistan**

<table>
<thead>
<tr>
<th>Products</th>
<th>EU’s total imports</th>
<th>EU’s imports from Pakistan</th>
<th>Percentage of EU’s imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textiles and clothing (SITC rev. 3, code 26, 65 and 84)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Value (billion USD)</td>
<td>Value (billion USD)</td>
<td>Percentage of EU’s imports</td>
</tr>
<tr>
<td>1988</td>
<td>82.339</td>
<td>0.953</td>
<td>1.101</td>
</tr>
<tr>
<td>1989</td>
<td>85.317</td>
<td>0.939</td>
<td>1.255</td>
</tr>
<tr>
<td>1990</td>
<td>105.919</td>
<td>1.329</td>
<td>1.299</td>
</tr>
<tr>
<td>1991</td>
<td>112.095</td>
<td>1.456</td>
<td>1.288</td>
</tr>
<tr>
<td>1992</td>
<td>118.888</td>
<td>1.531</td>
<td>1.580</td>
</tr>
<tr>
<td>1993</td>
<td>98.919</td>
<td>1.563</td>
<td>1.549</td>
</tr>
<tr>
<td>1994</td>
<td>109.240</td>
<td>1.692</td>
<td>1.487</td>
</tr>
<tr>
<td>1995</td>
<td>132.518</td>
<td>1.970</td>
<td>1.507</td>
</tr>
<tr>
<td>1996</td>
<td>134.480</td>
<td>2.027</td>
<td>1.475</td>
</tr>
<tr>
<td>1997</td>
<td>137.447</td>
<td>2.027</td>
<td>1.472</td>
</tr>
<tr>
<td>1998</td>
<td>138.892</td>
<td>2.045</td>
<td>1.496</td>
</tr>
<tr>
<td>1999</td>
<td>131.143</td>
<td>1.962</td>
<td>1.597</td>
</tr>
<tr>
<td>2000</td>
<td>125.465</td>
<td>2.004</td>
<td>1.633</td>
</tr>
<tr>
<td>2001</td>
<td>125.852</td>
<td>2.055</td>
<td>1.699</td>
</tr>
<tr>
<td>2002</td>
<td>130.629</td>
<td>2.220</td>
<td>1.807</td>
</tr>
<tr>
<td>2003</td>
<td>151.450</td>
<td>2.737</td>
<td>1.813</td>
</tr>
<tr>
<td>2004</td>
<td>187.065</td>
<td>3.391</td>
<td>1.888</td>
</tr>
<tr>
<td>2005</td>
<td>193.403</td>
<td>3.072</td>
<td>1.663</td>
</tr>
<tr>
<td>2006</td>
<td>208.634</td>
<td>3.469</td>
<td>1.698</td>
</tr>
<tr>
<td>2007</td>
<td>242.569</td>
<td>4.118</td>
<td>1.718</td>
</tr>
<tr>
<td>2008</td>
<td>257.682</td>
<td>4.427</td>
<td>1.808</td>
</tr>
<tr>
<td>2009</td>
<td>219.318</td>
<td>3.966</td>
<td>1.915</td>
</tr>
<tr>
<td>2010</td>
<td>233.708</td>
<td>4.475</td>
<td>2.092</td>
</tr>
<tr>
<td>2011</td>
<td>272.908</td>
<td>5.710</td>
<td>1.571</td>
</tr>
</tbody>
</table>

Average 155.662 2.547 1.101

Source: Adopted from Special Tables A and D of UN Comtrade Yearbook 2005 and 2007

**Analysis by major textiles and clothing categories**

This section analyses Pakistan’s textiles and clothing imports trade of the EU market by major categories, 26-category, 65-category and 84-category textiles. Table 2 provides category-wise data on the EU textiles and clothing imports and her imports from Pakistan for the period 1988 to 2011.
Table 2. The EU’s total textile and clothing imports and her imports from Pakistan: category-wise (Billion USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>EU’s total imports</th>
<th>EU’s imports from Pakistan</th>
<th>EU’s total imports</th>
<th>EU’s imports from Pakistan</th>
<th>EU’s total imports</th>
<th>EU’s imports from Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Textile Fibres (26-category textiles)</td>
<td>Textile Yarn and Fabrics (65-category textiles)</td>
<td>Clothing (84-category textiles)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>9.282</td>
<td>0.192</td>
<td>35.989</td>
<td>0.462</td>
<td>37.067</td>
<td>0.299</td>
</tr>
<tr>
<td>1989</td>
<td>9.584</td>
<td>0.132</td>
<td>37.344</td>
<td>0.468</td>
<td>38.328</td>
<td>0.338</td>
</tr>
<tr>
<td>1990</td>
<td>9.243</td>
<td>0.148</td>
<td>46.002</td>
<td>0.648</td>
<td>50.674</td>
<td>0.532</td>
</tr>
<tr>
<td>1991</td>
<td>8.338</td>
<td>0.071</td>
<td>45.443</td>
<td>0.707</td>
<td>58.314</td>
<td>0.677</td>
</tr>
<tr>
<td>1992</td>
<td>8.160</td>
<td>0.080</td>
<td>47.102</td>
<td>0.736</td>
<td>63.262</td>
<td>0.714</td>
</tr>
<tr>
<td>1993</td>
<td>6.105</td>
<td>0.042</td>
<td>37.334</td>
<td>0.772</td>
<td>55.480</td>
<td>0.749</td>
</tr>
<tr>
<td>1994</td>
<td>8.357</td>
<td>0.053</td>
<td>42.872</td>
<td>0.841</td>
<td>58.011</td>
<td>0.798</td>
</tr>
<tr>
<td>1995</td>
<td>9.692</td>
<td>0.060</td>
<td>52.835</td>
<td>1.040</td>
<td>69.991</td>
<td>0.871</td>
</tr>
<tr>
<td>1996</td>
<td>8.799</td>
<td>0.084</td>
<td>51.684</td>
<td>1.048</td>
<td>73.997</td>
<td>0.894</td>
</tr>
<tr>
<td>1997</td>
<td>8.819</td>
<td>0.057</td>
<td>52.092</td>
<td>1.101</td>
<td>76.536</td>
<td>0.869</td>
</tr>
<tr>
<td>1998</td>
<td>7.807</td>
<td>0.050</td>
<td>53.317</td>
<td>1.128</td>
<td>77.769</td>
<td>0.867</td>
</tr>
<tr>
<td>1999</td>
<td>6.495</td>
<td>0.032</td>
<td>48.844</td>
<td>1.104</td>
<td>55.804</td>
<td>0.827</td>
</tr>
<tr>
<td>2000</td>
<td>6.629</td>
<td>0.065</td>
<td>45.811</td>
<td>1.077</td>
<td>73.024</td>
<td>0.862</td>
</tr>
<tr>
<td>2001</td>
<td>6.145</td>
<td>0.050</td>
<td>44.226</td>
<td>1.090</td>
<td>75.481</td>
<td>0.915</td>
</tr>
<tr>
<td>2002</td>
<td>5.849</td>
<td>0.041</td>
<td>44.408</td>
<td>1.197</td>
<td>80.372</td>
<td>0.982</td>
</tr>
<tr>
<td>2003</td>
<td>6.230</td>
<td>0.033</td>
<td>49.995</td>
<td>1.478</td>
<td>95.225</td>
<td>1.225</td>
</tr>
<tr>
<td>2004</td>
<td>7.850</td>
<td>0.043</td>
<td>64.840</td>
<td>1.830</td>
<td>114.375</td>
<td>1.518</td>
</tr>
<tr>
<td>2005</td>
<td>7.244</td>
<td>0.049</td>
<td>63.970</td>
<td>1.633</td>
<td>122.189</td>
<td>1.391</td>
</tr>
<tr>
<td>2006</td>
<td>7.220</td>
<td>0.043</td>
<td>67.808</td>
<td>1.861</td>
<td>133.606</td>
<td>1.565</td>
</tr>
<tr>
<td>2007</td>
<td>8.472</td>
<td>0.056</td>
<td>80.336</td>
<td>2.306</td>
<td>153.762</td>
<td>1.756</td>
</tr>
<tr>
<td>2008</td>
<td>8.384</td>
<td>0.064</td>
<td>80.105</td>
<td>2.382</td>
<td>169.192</td>
<td>1.980</td>
</tr>
<tr>
<td>2009</td>
<td>5.886</td>
<td>0.054</td>
<td>61.913</td>
<td>2.078</td>
<td>151.518</td>
<td>1.834</td>
</tr>
<tr>
<td>2010</td>
<td>7.547</td>
<td>0.064</td>
<td>68.113</td>
<td>2.374</td>
<td>158.047</td>
<td>2.037</td>
</tr>
<tr>
<td>2011</td>
<td>10.107</td>
<td>0.142</td>
<td>79.223</td>
<td>2.957</td>
<td>183.578</td>
<td>2.611</td>
</tr>
</tbody>
</table>

Source: Authors calculations based on comtrade (http://comtrade.un.org/db/) (Dated 12/12/2012)

The analytical techniques, including correlation analysis, trend analysis, and co-integration cum ECM analysis are used.

Correlation analysis

Pearson’s correlations between the EU’s total imports and her imports from Pakistan in respect of the three major categories of 26, 65 and 84 textiles are estimated, with results provided, as follows.

Pearson correlation

<table>
<thead>
<tr>
<th>Category</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-category textiles</td>
<td>0.684 p &lt; 0.01</td>
</tr>
<tr>
<td>65-category textiles</td>
<td>0.937 p &lt; 0.01</td>
</tr>
<tr>
<td>84-category textiles</td>
<td>0.984 p &lt; 0.01</td>
</tr>
</tbody>
</table>

The Pearson correlation results suggest that there exist statistically significant degrees of association between the EU total imports and her imports from Pakistan in each of the three major categories of textiles and clothing.

Trend analysis

Case of 26-category textiles

In order to compare the pace of the increase in demand of the EU total textiles and clothing (EUT26) with that of her imports from Pakistan (EUPT26), the trend analyses of both the variables are carried out, using equation 1; the results are provided, as follows (equation 5a&b).

\[
\ln EUT26 = 9.048 - 0.008 TR \\
\text{(129.70)(-1.552)} \\
\text{(0.0000)(0.1350)} \\
\]

\[
\ln EUPT26 = 4.446 - 0.026 TR \\
\text{(23.88)(-1.9750)} \\
\text{(0.000)(0.0610)} \\
\]

(Figures in the first and second parenthesis, respectively, are t-statistic and p-value)

The results in equation 5a&b indicate that there has been a negligible/insignificant negative change of 0.80 percent per year in the EU 26-category textile and clothing during the 1988-2011 period, against a relatively statistically significant negative change of 2.6 percent in case of her imports from Pakistan. These results
suggest that Pakistan could not maintain its pace of increase in demand of the EU for 26-category textiles, during last 2½ decades.

**Case of 65-category textiles**

The results of the trend analyses of demand of the EU total textiles and clothing (EUTT65) and that of her imports from Pakistan (EUPT65) are provided, as follows (equation 6a&amp;b).

\[
\begin{align*}
\ln EUTT65 &= 10.5120 + 0.029TR \\
& (193.98) \\
& (0.0000) \\
\ln EUPT65 &= 6.1950 + 0.071TR \\
& (128.77) \\
& (0.0000)
\end{align*}
\]

Compared to the 2.9 percent statistically significant increase per year in the EU’s total 65-category textiles and clothing imports, there has occurred a 7.1 percent per year statistically significant increase in EU’s 65-category textiles and clothing imports from Pakistan during the 1988-2011 period. These results suggest that Pakistan has been able to not only maintain its pace of increase in the demand of the EU for 65-category textiles, but her 65-category textile demand in the EU has achieved with a rate greater than the EU’s own rate of increase.

**Case of 84-category textiles**

The results of the trend analyses of demand of the EU total textiles and clothing (EUTT84) and that of her imports from Pakistan (EUPT84) are provided, as follows (equation 7a&amp;b).

\[
\begin{align*}
\ln EUTT84 &= 10.5600 + 0.063TR \\
& (214.65) \\
& (0.0000) \\
\ln EUPT84 &= 5.9930 + 0.072TR \\
& (83.17) \\
& (0.0000)
\end{align*}
\]

Compared to the 6.3 percent statistically significant increase per year in the EU’s total 84-category textiles and clothing imports, there has occurred a 7.2 percent per year statistically significant increase in the EU’s 84-category textiles and clothing imports from Pakistan during the 1988-2011 period. These results suggest that Pakistan has been able to maintain its pace of increase in the demand of the EU for 84-category textiles, with a slightly greater rate of increase than that of the EU’s own.

**Co-integration cum ECM analysis**

Following the Co-integration and Error Correction Model given in equations 3 (a & b) and 4, we estimate the relevant equations of 26, 65 and 84 category textiles, and provide the results, with respective discussions thereon, in the following paragraphs.

**Case of 26 category textiles**

The empirical results of Model 3 (a & b), estimated for 26 category textiles and clothing, are provided, as follows.

\[
\begin{align*}
EUTT26 &= 6.292 + 21.844EUPT26 \\
& (15.557) \\
& (0.0000)
\end{align*}
\]

\[
\begin{align*}
\Delta u_{26} &= -0.686u_{26-1} \\
& (-3.558) \\
& (0.002)
\end{align*}
\]

\[
\begin{align*}
R^2 &= 0.469 \\
F &= 19.404 \text{ (p value = 0.000)} \\
\end{align*}
\]

\[
\begin{align*}
R^2 &= 0.355 \\
F &= 12.662 \text{ (p = 0.002)}
\end{align*}
\]

The τ-computed = -3.558, happens to be more negative than ADF critical values at 1 percent (-2.66) and 5 percent (-1.95) provided in Gujarati (2007, Table D.7, p.995); according to Engle and Granger (1987) and
Gujarati (2007, pp.841-845), these results suggest that the first-differenced residuals regressed over residuals lagged one period are stationary, and therefore fulfill the condition of the Co-integration of Model (8a). Since, the estimation in Model 8(b) proves that the linear relationship between the first-differenced residuals and residuals lagged one period have become stationary; therefore, there exists long run relationship between the two variables regressed in Model 8(a), that is, 26-category the EU’s total textiles and clothing imports and her imports of 26-category textiles and clothing from Pakistan.

The Error Correction Model (ECM), given earlier as model 4, states that if a dependent variable and their determinant are Co-integrated like they did in our above estimated model 8a, then their short-run dynamic relationship can also be measured through the ECM measure (model 4). Accordingly, the ECM is estimated, with empirical results provided, as follows.

\[
\Delta EUT_{26} = 0.067 + 24.435 EUT_{26} - 0.697 u_{t-1}^{26} \\
\text{R}^2 = 0.527 \quad F = 11.689 (p = 0.000)
\]  

(8c)

The coefficient carrying with the lagged residual variable \(u_{t-1}^{26}\) happens to be statistically significant at \(p < 0.01\), suggesting that model exhibits short-run dynamic effects. The results thus suggest that there exists a long term co-movement between the EU 26-category textiles imports and her imports from Pakistan, with short term effects, measuring at 0.697.

**Case of 65-category textiles**

The empirical results of Model 3 (a & b), estimated for 65 category textiles and clothing, are provided, as follows.

\[
\Delta u_{65} = -0.482 u_{t-1}^{65} \\
\text{R}^2 = 0.231 \quad F = 6.912 (p = 0.150)
\]  

(9b)

The \(\tau\)-computed = -2.629 happens to be less negative than ADF critical values at 1 percent (-2.66) and more negative at 5 percent (-1.95) provided in Gujarati (2007, Table D.7, p.995); the results thus are not very clear and remain somewhat inconclusive regarding the long run relationship between the two variables (65-category the EU’s total textiles and clothing imports and her imports of 65-category textiles and clothing from Pakistan).

The computed \(\tau\) of the respective model (9b) has happened to be less negative than ADF critical values at 1 percent (-2.66) and more negative at 5 percent (-1.95), and the results have thus remained somewhat inconclusive; however, we estimate ECM for arriving at the short-run dynamics of the model. Accordingly, the ECM has been estimated, and its results provided, as follows.

\[
\Delta EUT_{65} = -1.080 + 27.863 EUT_{65} - 0.302 u_{t-1}^{65} \\
\text{R}^2 = 0.730 \quad F = 28.341 (p = 0.000)
\]  

(9c)

The coefficient carrying with the lagged residual variable \(u_{t-1}^{65}\) happens to be statistically insignificant at \(p > 0.10\), suggesting that model exhibits no short-run effects. The results of model (9c) exhibit that this linear combination (9c) has not yet become stationary or I(0), hence there exists no co-integration between 65-category the EU’s total textiles and clothing imports and her imports of 65-category textiles and clothing from Pakistan.

**Case of 84-category textiles**

The empirical results of Model 3 (a & b) estimated for 84 category textiles and clothing, are provided, as follows.
EUTT84=10.810 +73.276 EUP\textsuperscript{T}84
(3.053) (26.200)
(0.006) (0.000)
\[R^2 = 0.969 \quad F = 686.428 \quad (p = 0.000) \quad \ldots \quad (10a)\]
\[\Delta u_{84} = -0.326u_{t-84} \quad (-1.676) \quad (0.107)\]
\[R^2 = 0.109 \quad F = 2.809 \quad (p = 0.107) \ldots \quad (10b)\]
The τ-computed = -1.676, which is less negative than ADF critical values at both 1 percent (-2.66) and 5 percent (-1.95) provided in Gujarati (2007, Table D.7, p.995), according to Engle and Granger (1987) and Gujarati (2007, pp.841-845), these results suggest that the first-differenced residuals regressed over residuals lagged one period are non-stationary, and this does not fulfil the condition of the Co-integration of Model (10a), suggesting that there exist no long-run relationship between the two variables (84-category the EU’s total textiles and clothing imports and her imports of 84-category textiles and clothing from Pakistan). Since the estimated model (10a) does not measure long-run relationship, the estimation of ECM for measuring of short-run effects become in valid.

CONCLUSION AND RECOMMENDATIONS
The results of statistical analysis carried out in preceding section help draw a few very important conclusions regarding the relationship between the EU’s total textiles and clothing imports demand and her textiles and clothing imports from Pakistan.
First, it seems that there exists a strong Pearson correlation or degree of association between the EU’s total textiles and clothing imports and her imports from Pakistan, and the same is true for the 26, 65 and 84 textiles and clothing imports categories.
Second, the trend analysis of the EU’s textiles and clothing imports and her imports from Pakistan for all the three major categories indicate that:

(a) Against the EU’s 0.8 percent negligible and statistically insignificant decrease in 26-category textiles imports per year during 1988 – 2011, Pakistan’s 26-category textiles imports to the EU decreased at a higher and statistically significant rate of 2.6 percent per year.
(b) Against the EU’s 2.90 percent increase in 65-category textiles imports per year during 1988 – 2011, Pakistan’s 65-category textiles imports to the EU increased at a higher rate of 7.10 percent per year.
(c) Against the EU’s 6.30 percent increase in 84-category textiles imports per year during 1988 – 2011, Pakistan’s 84-category textiles imports to the EU increased at a higher rate of 7.20 percent per year.

Third, of the three categories of textiles, only 26 category textiles and clothing imports and her imports from Pakistan are co-integrated, suggesting long-run relationship, while in the other two category textiles, 65 and 84, the EU total imports and her imports from Pakistan do not exhibit long-run relationship. However, it is good for Pakistan that her rates of growth in 65 and 84 categories of textiles imports by the EU are relatively higher than the EU’s own total imports.

Fourth, in spite of the fact that Pakistan’s rates of growth in 65 and 84 categories of textiles imports by the EU are relatively higher than that of the EU’s own total imports, Pakistan needs to maintain not only its present growth rates but she should also make efforts to get more shares, especially in 65 and 84 category textiles in the EU market, as these two category belong to value added textiles.

Last, to enhance Pakistan’s share in the EU’s value added textiles, Pakistan would need to conduct research to identify the EU’s preferred textiles products, and Pakistan’s present status and its strength to meet the EU’s demand.

1. Pakistan should not only maintain her present growth rates of her 65 and 84 category textiles and clothing imports by the EU, she should also make efforts to get more shares in the EU market, as these two categories (65 and 84) belong to value added textile products.
2. To enhance Pakistan’s share in the EU’s value added textiles, Pakistan should intensify her research efforts to identify the EU’s preferred textiles products, and Pakistan’s present status and her strength and weaknesses to meet the EU’s preferred products demand.
3. The EU policy makers should take note of the fact, and Pakistani policy makers should try to convince the EU officials, that the EU policy of imposing increasing rate of tariffs –escalation of tariff – from raw commodities (26-category) to semi-processed and processed products (65 and 84-categories textiles) is discouraging value-addition textile trade from Pakistan.

4. Pakistani stakeholders (manufacturers, exporters and policy makers) would have to adopt the required and up-to-date quality standards (relating to the product, process and packing) while keeping costs under control. Government of Pakistan in particular, should take arrangements for having inflation in control and making availability of inputs and resources ensured.

REFERENCES


