Pakistan’s Cotton and Textile Sectors: Intersectoral Linkages and Effects on Rural and Urban Poverty

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Cotton Trade Policy and Poverty Study in Pakistan and India

Origins of the Study

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Two Reports

- “Challenges Facing the Cotton and Textile Sectors in Pakistan: An Analysis of Intersectoral Linkages and their Poverty Implications”
- “Studies of the Cotton-Textile-Apparel Industries in Pakistan and India”
Outline

- Motivation/Challenges
- Brief Background
  - Cotton and Textiles in Pakistan
  - Poverty Trends in Pakistan
- Scenarios and Assumptions
- Framework of Analysis
  - CGE Model and Poverty Analysis
  - Intersectoral Input Linkages
- Results
- Summary
- Insights
Challenges

- World cotton prices dropped 60% in 1994-01, recovered 70% in 2001-08, and dropped 30% in 1st quarter of 2009

- World trade of textiles and clothing was liberalized on January 1, 2005

- Foreign savings in Pakistan increased by US$3 billion in 2004-05 compared to 2001-02, but deteriorated recently to -US$7 billion in 2006-07, -US$14 billion 2007-08, and -US$8 billion in 3 quarters of 2008-09
Background: World Cotton/Textile Trade
Nominal World Cotton Prices

Source: International Cotton Advisory Committee
Background: Cotton and Textiles in Pakistan

- It is the 4th largest producer of world cotton (9% of total).
- It has 3.5% (2005) share in world textile exports.
- It has 1.3% (2005) share in world clothing exports.
- 50% of cotton farmers in Pakistan are small -- average production on small farms is 1.81 acres.
- Cotton production is susceptible to virus attacks and pest infestations (Bt cotton has not yet been formally adopted).
- It produces cotton yarn with low counts (20s) which command low world prices because of primitive ginning technology, contamination, the absence of cotton standardization, and other constraints.
- At present, exports and imports of cotton are duty free. There is limited government intervention to support raw cotton prices. The government provides some subsidies to the textile sector.
## Background: Cotton and Textiles in Pakistan

### Share of Cotton Product Exports to Total Pakistan Exports

<table>
<thead>
<tr>
<th>Product Category</th>
<th>ave. 1990-92</th>
<th>ave. 1995-97</th>
<th>ave. 2003-05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports of All Cotton Products/Total Pakistan Exports</td>
<td>61.1</td>
<td>62.6</td>
<td>60.9</td>
</tr>
<tr>
<td>Exports of Cotton Lint/Exports of All Cotton Products /1/</td>
<td>13.1</td>
<td>5.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Exports of Cotton Manufactures/Exports of All Cotton Products /1/</td>
<td>86.9</td>
<td>94.2</td>
<td>96.7</td>
</tr>
<tr>
<td>Cotton Yarn</td>
<td>29.7</td>
<td>27.7</td>
<td>13.5</td>
</tr>
<tr>
<td>Cotton Cloth</td>
<td>18.7</td>
<td>23.8</td>
<td>22.0</td>
</tr>
<tr>
<td>Tents &amp; Canvas</td>
<td>1.7</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Cotton Bags</td>
<td>0.7</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Towels</td>
<td>3.3</td>
<td>3.5</td>
<td>5.7</td>
</tr>
<tr>
<td>Bed Wear</td>
<td>6.7</td>
<td>8.3</td>
<td>17.5</td>
</tr>
<tr>
<td>Other Madeup</td>
<td>2.8</td>
<td>3.7</td>
<td>5.2</td>
</tr>
<tr>
<td>Garments</td>
<td>13.9</td>
<td>13.0</td>
<td>12.8</td>
</tr>
<tr>
<td>Hoseiry</td>
<td>9.5</td>
<td>13.1</td>
<td>19.1</td>
</tr>
</tbody>
</table>

/1/ Will add up to 100%

Source: Textile Commission's Organization
Background: Poverty Trends in Pakistan

<table>
<thead>
<tr>
<th>Year</th>
<th>Pakistan</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986-87</td>
<td>29.1</td>
<td>28.2</td>
<td>25.2</td>
</tr>
<tr>
<td>1987-88</td>
<td>29.2</td>
<td>30.3</td>
<td>29.3</td>
</tr>
<tr>
<td>1990-91</td>
<td>26.1</td>
<td>26.6</td>
<td>24.6</td>
</tr>
<tr>
<td>1992-93</td>
<td>26.8</td>
<td>28.3</td>
<td>25.2</td>
</tr>
<tr>
<td>1993-94</td>
<td>28.7</td>
<td>26.9</td>
<td>25.4</td>
</tr>
<tr>
<td>1996-97</td>
<td>29.8</td>
<td>22.6</td>
<td>33.1</td>
</tr>
<tr>
<td>1998-99</td>
<td>30.0</td>
<td>21.0</td>
<td>33.8</td>
</tr>
<tr>
<td>2001-02</td>
<td>34.4</td>
<td>22.8</td>
<td>39.1</td>
</tr>
<tr>
<td>2004-05</td>
<td>29.2</td>
<td>19.1</td>
<td>34.0</td>
</tr>
</tbody>
</table>

Source: Pakistan Economic Survey 2002-03; World Bank 2007

*From World Bank 2007 "Pakistan Promoting Rural Growth and Poverty Reduction" 2004-05 are estimates of the World Bank
Scenarios and Assumptions

External Shocks
➢ Increase in world cotton and textile prices
   ▪ Increase in world prices of cotton yarn (20%) and textiles (5%)

Domestic Policy Shocks
➢ Increase in total factor productivity
   ▪ Dynamic effects of 5% increase in TFP in raw cotton, cotton yarn, and textiles
# World Prices of Cotton, Yarn, and Fabric

<table>
<thead>
<tr>
<th></th>
<th>COTLOOK - B</th>
<th>Cotton yarn</th>
<th>Cotton fabric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean: 1990-2005</td>
<td>115.7</td>
<td>107.2</td>
<td>113.3</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>26.5</td>
<td>14.0</td>
<td>8.7</td>
</tr>
<tr>
<td>C.V. %</td>
<td>22.9</td>
<td>13.0</td>
<td>7.7</td>
</tr>
<tr>
<td>1994-2001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change, %</td>
<td>-57.8</td>
<td>-27.4</td>
<td>-6.4</td>
</tr>
<tr>
<td>Ratio /1/</td>
<td>0.47</td>
<td>0.11</td>
<td></td>
</tr>
</tbody>
</table>

/1/ Relative to change in COTLOOK - B
Framework of Analysis

2001-02 Pakistan CGE Model (based on 2001-02 SAM)

- **Sectoral re-allocation**
  - 34 sectors, 5 factors of production, 19 households
  - changes in output and factor demand due to changes in relative output and factor prices

- **Changes in household income**
  - 19 household groups

- **Changes in consumer prices**

**Shocks** → **2001-02 Pakistan Household Survey** → **Changes in poverty indicators**
## Inter-sectoral Input Linkages (%)

<table>
<thead>
<tr>
<th></th>
<th>Raw Cotton</th>
<th>Cotton Lint and Yarn</th>
<th>Textile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intermediate input</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw cotton</td>
<td>0.0</td>
<td>30.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cotton lint &amp; yarn</td>
<td>1.7</td>
<td>23.2</td>
<td>22.7</td>
</tr>
<tr>
<td>Textile</td>
<td>0.0</td>
<td>0.5</td>
<td>23.8</td>
</tr>
<tr>
<td>Others</td>
<td>37.1</td>
<td>24.7</td>
<td>31.3</td>
</tr>
<tr>
<td><strong>Primary input (value added)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skilled labor</td>
<td>0.0</td>
<td>4.3</td>
<td>4.8</td>
</tr>
<tr>
<td>Unskilled labor</td>
<td>20.0</td>
<td>0.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Farm labor</td>
<td>16.2</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Workers</td>
<td>3.8</td>
<td>0.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Capital</td>
<td>5.3</td>
<td>16.6</td>
<td>16.1</td>
</tr>
<tr>
<td>Land</td>
<td>36.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Macro Effects for Increase in World Cotton and Textile Prices

% Change from base
Sectoral Effects on Output for Increase in World Cotton and Textile Prices

% Change from base

- 20% inc. price of lint-yarn
- 5% inc. price of textile
- Combined

- Agriculture
- Raw Cotton
- Industry
- Lint & Yarn
- Textile
- Services
- Cement & Bricks
- Construction
- Textile
Real Factor Price Effects for Increase in World Prices

% Change from base

-4.00  -2.00  0.00  2.00  4.00  6.00  8.00  10.00  12.00  14.00  16.00

Skilled labor  Unskilled farm labor  Unskilled workers  Ave. return to capital  Ave. return to land

20% inc. price of lint-yarn
5% inc price of textile
combined
Real Income Effects for Increase in World Cotton and Textile Prices

% Change from base
Poverty Effects for Increase in World Cotton and Textile Prices

% Change from base

Pakistan
Urban
Rural

-3
-2
-1
0
1
2
3

20% inc. price of lint-yarn
5% inc price of textile
combined

20% inc. price of lint-yarn
5% inc price of textile
combined
Effects of Domestic Policies for Cotton-Textile Sector

- Dynamic effects of increase in total factor productivity
Output Effects of Higher TFP

**SIM 4a:** 5% TFP increase in raw cotton

**SIM 4b:** 5% TFP increase in raw cotton, and cotton lint and yarn

**SIM 4c:** 5% TFP increase in raw cotton, cotton lint and yarn, and textiles
Income Effects of Higher TFP

TFP: Raw Cotton

TFP: Raw Cotton & Lint and Yarn

TFP: Raw Cotton, Lint and Yarn and Textiles
Increase in world cotton and textile prices has significant positive effects on cotton households, but negative on non-cotton households.

Simultaneous increase in TFP in cotton-related sectors generates significant intersectoral effects and sustained growth in income of all groups in the short and long run.
Summary and Insights (2)

- Improved competitiveness through higher productivity is key to addressing issues regarding the abolition of MFA in 2005
- Investing in productivity improvement is far better than using scarce resources to support the sector through subsidies