“Structural change in the Colombian coffee sector: 1975-2007”
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Objectives
Explore different factors causing structural changes in the Colombian coffee sector.

Methodology
Economy’s production possibilities set (i.e., technology) is expressed as a restricted revenue function represented by GDP

\[ \ln \pi = \alpha_i + \sum \alpha_i \ln p_i + 1/2 \sum \beta_i \ln Z_i + \sum \gamma_i \ln p_i \ln Z_i \]

where,
- \( \pi \) represents coffee, manufacturing, non-coffee/manufacturing output prices (N)
- \( Z_i \) is the quantity of quasi-fixed inputs endowments (i.e., labor, capital and natural resources endowment)
- \( T \) has been added as a Taylor approximation to account for technological change

Find output shares
After imposing CRS, symmetry and linear homogeneity in prices, apply Hotelling’s Lemma to the translog specification

Analyzing structural changes

Results

Table 1. Supply price elasticities

<table>
<thead>
<tr>
<th>Output</th>
<th>Price</th>
<th>Coffee</th>
<th>Manufacturing</th>
<th>Non C/M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee (C)</td>
<td>-1.4325</td>
<td>0.13737</td>
<td>1.2951</td>
<td></td>
</tr>
<tr>
<td>Manufacturing (M)</td>
<td>3.75E-02</td>
<td>-3.1388</td>
<td>3.1012</td>
<td></td>
</tr>
<tr>
<td>Non C/M</td>
<td>1.73E-02</td>
<td>0.14375</td>
<td>-0.16103</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Net technological biases

<table>
<thead>
<tr>
<th>Output</th>
<th>Input</th>
<th>Labor</th>
<th>Capital</th>
<th>Natural Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>-265.48</td>
<td>456.73</td>
<td>-190.24</td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-266.61</td>
<td>453.93</td>
<td>-186.31</td>
<td></td>
</tr>
<tr>
<td>Non Coffee/Manufacturing</td>
<td>-266.78</td>
<td>455.9</td>
<td>-188.11</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Rybczynski elasticities

<table>
<thead>
<tr>
<th>Output</th>
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</table>

Conclusions
- Coffee and manufacturing output are complements in production.
- Both coffee and manufacturing technological change decreases the cost of both coffee and manufacturing output respect to all other output in the economy. Thus, there is coffee and manufacturing expanding technological change
- Coffee and the manufacturing sector appear to be capital intensive

References

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