Does what you export matter?
In search of empirical guidance for industrial policies

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Why might standard price signals be deceptive in choosing goods

- Marshallian externalities related to goods
  - local externalities that lead productivity to rise with the size of the industry
  - local industry level knowledge spillovers, input-output linkages, and labor pooling, for instance.
- Volatility externalities: Export diversification?
- Intervention warranted to shift to good with externalities against price signals.
Empirical Concerns for Policy Makers

1. How do we measure these externalities?
2. Doesn’t the whole world see the same benefit and drive the price down?
   - Interindustry spillovers, assymetries
   - Should we look for safe rents, too? Natural Resources
   - More generally, must think of demand side as well
3. Do externalities necessarily come with a good, or does it matter how we produce it?
   - Heterogeneity, Heterogeneity, Heterogeneity
Practically measurement of MEs is difficult, so take shortcuts

- High productivity goods
  - Rich Country Goods (Rodrik, Hausmann)
  - High tech (Lall) high inter-industry ME

- Natural resources
  - Low productivity (Smith, Matsuyama, Sachs), few Externalities
  - Rent seeking
HIGH PRODUCTIVITY GOODS

- Model - broadly inter-industry spillover
  - Country should produce the highest productivity good *within its CA*

- Empirics:
  - PRODY, EXPY
  - Similar to Lall (2000)
  - Find higher EXPY correlated with higher growth.
Caveats

- GE critique again?
- Rents- higher where rich countries already are?
  - Not generally the case- Nokia and TVs
  - If easy to move into these goods, then barriers to entry/rents low
- Empirical findings muddy
  - Animals, electrical machinery same PRODY
  - Finding of an impact on growth fragile
1b. A digression on Monkeys

- Being a tree in a dense area is like a ME with same GE concerns

- If easy to jump from one tree to others, then easy to jump to, i.e., no barriers to entry and rents

- Is past a good predictor?
  - iPhone didn’t exist, Saab already does
  - Would Chilean forestry produce Saab?
CURSED GOODS: NATURAL RESOURCES
There is lots of heterogeneity in experiences with NR

Leamer Measure: Net Exports of NR/Worker

Maloney 2007
But, empirically, there is no resource curse

- In growth regressions
  - Minerals are good: Davis (1995), Sala-i-Martin et al. (2004), Stijns (2005), Brunnschweiler (2008, 2009)
  - Existing resource curse findings fragile: Lederman & Maloney (2007, 2009)
- Ag has higher TFP growth than manufactures
  - Bernard & Jones (1996), Martin and Mitra (2001): (also Jacob Viner and Douglass North)
IS IT WHAT WE PRODUCE, OR HOW? BEYOND GOODS
Trees can be very high tech!
Innovation policy is key

Figure 8.1 The Swedish Forest Industry Cluster

Table 8.4 Participants in the Knowledge and Skill Cluster in the Paper and Pulp Industry (1990)

<table>
<thead>
<tr>
<th>Generation</th>
<th>Dissemination</th>
</tr>
</thead>
</table>
| Skills
  (Education)              | Royal Technical University
                            | Chalmers Technical University
                            | University of Karlstad
                            | Swedish Pulp and Paper
                            | Research Institute
| Knowledge
  (Research)               | Swedish Pulp and Paper
                            | Research Institute
                            | Institute of Surface
                            | Chemistry
                            | Graphical Research
                            | Laboratory
                            | Swedish Packaging
                            | Research Institute
                            | Swedish Newspaper Mills’
                            | Research Laboratory


Nokia: Site of an early pulp mill in Finland

Learn how to learn
And high tech goods can be produced in a low tech ways

Comparative Advantage in Innovation

Brazil: Airplanes

Korea: Computers

Mexico: Computers

Lederman and Maloney (2004)
### Table 2 China: 10 Exports with the Lowest Domestic Value Added

<table>
<thead>
<tr>
<th>Product</th>
<th>Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic computer</td>
<td>4.6</td>
</tr>
<tr>
<td>Telecommunication equipment</td>
<td>14.9</td>
</tr>
<tr>
<td>Cultural and office equipment</td>
<td>19.1</td>
</tr>
<tr>
<td>Other computer peripheral equipment</td>
<td>19.7</td>
</tr>
<tr>
<td>Electronic element and device</td>
<td>22.2</td>
</tr>
<tr>
<td>Radio, television, and communication equipment</td>
<td>35.5</td>
</tr>
<tr>
<td>Household electric appliances</td>
<td>37.2</td>
</tr>
<tr>
<td>Plastic products</td>
<td>37.4</td>
</tr>
<tr>
<td>Generators</td>
<td>39.6</td>
</tr>
<tr>
<td>Instruments, meters and other measuring equipment</td>
<td>42.2</td>
</tr>
</tbody>
</table>

### China: 10 Exports with the Highest Domestic Value Added

<table>
<thead>
<tr>
<th>Product</th>
<th>Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, animal husbandry and fishing machinery</td>
<td>81.8</td>
</tr>
<tr>
<td>Hemp textiles</td>
<td>82.7</td>
</tr>
<tr>
<td>Metalworking machinery</td>
<td>83.4</td>
</tr>
<tr>
<td>Steel pressing</td>
<td>83.4</td>
</tr>
<tr>
<td>Pottery, china and earthenware</td>
<td>83.4</td>
</tr>
<tr>
<td>Chemical fertilizers</td>
<td>84.0</td>
</tr>
<tr>
<td>Fireproof materials</td>
<td>84.7</td>
</tr>
<tr>
<td>Cement, lime and plaster</td>
<td>86.4</td>
</tr>
<tr>
<td>Other non-metallic mineral products</td>
<td>86.4</td>
</tr>
<tr>
<td>Coking</td>
<td>91.6</td>
</tr>
</tbody>
</table>


“..the electronic components we make in Singapore require less skill than that required by barbers or cooks, involving mostly repetitive manual operations”

Goh Keng Swee, Minister of Finance Singapore (1972)
Diversification

- Market failures inhibit diversification
  - Spillovers in product innovation, which is correlated with diversification
  - Correlation of prices and quantities across products are not internalized

- Export concentration leads to terms of trade volatility
  - poor, small and mining-dependent economies have higher export-revenue concentration, and terms of trade volatility (Lederman & Xu 2010)

- Problems of diversification policy
  - Big hits weird and associated with high concentration of (manufacturing) exports (Easterly et al. 2009)
  - Never really know where the next product comes from
Doing IP blindfolded

- Little guidance on what goods are good.
- Even whether we should be focusing on goods vs. tasks
- Leads us back to horizontalish policies that
  - Resolve market failures related to innovation in old and new goods
  - Other barriers to the emergence of new goods and improvement of old.
  - Strategic coordination policies