Trade and Labor Market Outcomes

Elhanan Helpman  (joint with Oleg Itskhoki and Stephen Redding)

June 16, 2011
Approaches to Trade

- Traditional explanations of trade:
  - Differences in technology (Ricardo);
  - Differences in factor endowments (Heckscher-Ohlin, Jones, Samuelson).

In the 1980s factor proportions were merged with economies of scale and monopolistic competition (Dixit-Norman, Helpman, Krugman, Lancaster), featuring:

- Similar firms within industries;
- "Universal" exporting by firms.

More recently, firm heterogeneity has been added (Melitz, Bernard-Eaton-Jensen-Kortum):

- Only a fraction of firms export;
- Exporters are bigger and more productive than non-exporters.
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### Table: Share of manufacturing firms that export, in percent

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Exporting firms, in percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.A.</td>
<td>2002</td>
<td>18.0</td>
</tr>
<tr>
<td>Norway</td>
<td>2003</td>
<td>39.2</td>
</tr>
<tr>
<td>France</td>
<td>1986</td>
<td>17.4</td>
</tr>
<tr>
<td>Japan</td>
<td>2000</td>
<td>20.0</td>
</tr>
<tr>
<td>Chile</td>
<td>1999</td>
<td>20.9</td>
</tr>
<tr>
<td>Colombia</td>
<td>1990</td>
<td>18.2</td>
</tr>
</tbody>
</table>

Source: WTO (2008, Table 5)
Table: Share of exports of manufactures, in percent

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Top 1% of firms</th>
<th>Top 10% of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.A.</td>
<td>2002</td>
<td>81</td>
<td>96</td>
</tr>
<tr>
<td>Belgium</td>
<td>2003</td>
<td>48</td>
<td>84</td>
</tr>
<tr>
<td>France</td>
<td>2003</td>
<td>44</td>
<td>84</td>
</tr>
<tr>
<td>Germany</td>
<td>2003</td>
<td>59</td>
<td>90</td>
</tr>
<tr>
<td>Norway</td>
<td>2003</td>
<td>53</td>
<td>91</td>
</tr>
<tr>
<td>U.K.</td>
<td>2003</td>
<td>42</td>
<td>80</td>
</tr>
</tbody>
</table>

Source: WTO (2008, Table 6)
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Labor Market Rigidities

There are substantial differences across countries in labor market rigidities

<table>
<thead>
<tr>
<th>Country</th>
<th>Difficulty of Hiring</th>
<th>Rigidity of Hours</th>
<th>Difficulty of Redundancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Uganda</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rwanda</td>
<td>11</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>11</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Japan</td>
<td>11</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td><strong>OECD</strong></td>
<td><strong>27</strong></td>
<td><strong>30</strong></td>
<td><strong>23</strong></td>
</tr>
<tr>
<td>Italy</td>
<td>33</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Mexico</td>
<td>33</td>
<td>20</td>
<td>70</td>
</tr>
<tr>
<td>Russia</td>
<td>33</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Germany</td>
<td>33</td>
<td>53</td>
<td>40</td>
</tr>
<tr>
<td>France</td>
<td>67</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Spain</td>
<td>78</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Morocco</td>
<td>89</td>
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The European Context

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- And we need to understand how labor market policies in one country affect its trade partners.
Main Issues

- Much of my work with Oleg Itskhoki and Steve Redding, and more recently with Marc Muendler, has focused on the following questions:

  1. what is the impact of trade on inequality and unemployment?
  2. what are the impacts of one country’s labor market frictions and policies on its trade partners?
  3. how does the removal of trade impediments impact countries with different labor market frictions?
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Residual wage inequality decomposition (occupations)

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Firm productivity and worker ability are distributed Pareto.
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\( x = N/L \) is the ratio of the number of matched workers to the number of searching workers; our measure of tightness in the labor market.
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Firms select into exporting, as in Melitz (2003):

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  1. Post more vacancies;
  2. Match with more workers;
  3. Screen to higher ability cutoffs;
  4. Employ more workers;
  5. Pay higher wages (because they have workforces of higher average ability).
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Wages

Productivity, $\theta$

Wage Rate, $w(\theta)$

$w^c(\theta)$

$w(\theta)$

$\theta_d$

$\theta_x$

[Graph showing wage rate and productivity relationship]
Inequality of Wages

\[ \mu \text{-} \ln(1 + \mu) \]

Trade Openness, \( \rho = \frac{\theta_d}{\theta_x} \)
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Interdependence

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Assume $b_A > b_B$, i.e., labor market frictions in the differentiated sector are relatively larger in country $A$. 
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\(b_{uj}\) raises \(b_j\) directly, and reduces \(b_j\) indirectly via the decline of \(x_{\alpha_j}\).
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**Own effect:** Country $j$ may gain or lose from unemployment benefits; impact $Q$, $\omega$, and tax burden $T$:

![Graph showing the impact of unemployment benefits on welfare gains](image-url)
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A single policy instrument, such as unemployment benefits, cannot correct the labor market and product market distortions simultaneously.
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Labor Market Distortions

Let $\alpha \lambda \neq 1$. Then a number of labor market policies can be used to secure optimal tightness. In particular:

- Subsidies to posting vacancies or to the cost of hiring, are the most direct: $s_b = 1 + \lambda$.

- Unemployment benefits, which work only if $\alpha \lambda > 1$: $b_u = \alpha \lambda (1 + \alpha \lambda)$.

- The remaining optimal policies are ad valorem output subsidies and subsidies to fixed costs; with the details depending on whether $s_b$ or $b_u$ is used in the labor market.

If the optimal $s_b$ is used in the labor market, then:

- $s_o = (1 - \beta) \lambda (1 + \lambda)$,
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- Generalizing macro models to include trade and multiple sectors is useful for assessing active labor market policies:
  - interdependence across countries implies that a country’s labor market policies affect its trade partners;
  - independent labor market policies can lead to prisoner dilemma type situations, and therefore there exist potential gains from coordination of labor market policies.