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*Helpman (Harvard University)*

*Trade and Labor Market Outcomes*

*June 2008*
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  - "universal" exporting by firms.

Melitz adds firm heterogeneity plus fixed or sunk export costs:
- only a fraction of firms export;
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Three prominent features of product and labor markets are:

1. Substantial differences in workforce composition across firms;
2. Variation in wages for workers with the same observed characteristics;
3. Positive unemployment that varies across industries (see BLS).

In addition, macro studies find that:

1. To explain unemployment in European economies, it is necessary to allow for interactions between shocks and differences in labor market institutions;
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Labor Market Rigidities

- There are substantial differences across countries in labor market rigidities

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Source: Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004)
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It seeks to achieve job flexibility and employment security via active labor market policies.
Main Issues

To think about such issues, we need theoretical frameworks that pay more attention than usual to features of labor markets.

I will focus my discussion on the following question: How do labor market frictions impact interdependence across countries?

In particular:
- what are the impacts of one country’s labor market institutions on its trade partners?
- how does the removal of trade impediments impact countries with different labor market institutions?
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General Framework

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- Differentiated sector: brands of a differentiated product produced by heterogeneous firms, monopolistic competition in product market, search and matching in labor market, wage bargaining, unemployment.

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Preferences: quasi linear (marginal utility of homogeneous good constant), CES in differentiated sector (homothetic with constant relative risk aversion can be used instead).
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Sequence of Moves in Model with Homogeneous Labor

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Wages and Sectoral Labor Allocation

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- Wage bargaining in the differentiated sector splits the marginal surplus equally (can be generalized) between the firm and the workers, as in Stole and Zwiebel (1996).

\[ w = b + \frac{1}{2} b u \]

The hiring cost \( b \) depends on search and matching, bargaining costs and unemployment benefits \( b = \Phi(x) \).

Search and matching yields a cost component \( b_s = \alpha x \xi \), with \( b = b_s \) in the absence of bargaining (\( \sigma_f = 0 \)) and unemployment benefits.

For workers to be indifferent between seeking work in the two sectors requires

\[ \frac{1}{x} = E \tilde{w} + (1 - \frac{1}{x}) b_u. \]

Unemployment:

\[ u = \left(1 + \frac{1}{x} + \sigma_f x\right) \frac{N}{L}. \]
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  \[ 1 = x \mathbb{E} \tilde{w} + (1 - x) b_u. \]
- Unemployment:
  \[ u = (1 - x + \sigma_f x) \frac{N}{L}. \]
Higher costs of vacancies, less efficient matching, higher administrative costs or severance pay, and higher unemployment benefits, all reduce labor market tightness and lead to a less tight labor market and higher sectoral unemployment.

Higher costs of vacancies, less efficient matching, and higher administrative costs lead to larger hiring costs. Higher severance pay or unemployment benefits may increase or reduce hiring costs.

Larger hiring costs = less competitive industry.
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Equilibrium Cutoffs

Hiring costs affect productivity cutoffs
Results: Trade and Productivity (b larger in A)

Trade:

(i) a larger fraction of differentiated-product firms export in country B; (ii) country B exports differentiated products on net and imports homogeneous goods; (iii) the share of intra-industry trade is smaller the larger is the proportional gap in hiring costs.

Productivity:

(i) in the closed economy, TFP does not depend on the quality of labor market institutions; (ii) TFP is higher in any trade equilibrium than in autarky. If in addition, productivity is distributed Pareto, then: (iii) TFP is higher in country B; (iv) an improvement in labor market institutions in country j raises TFPj and reduces TFP of the trade partner; (v) a reduction of trade costs raises TFP in both countries.
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Results: Unemployment and Welfare (b larger in A)

- Unemployment:

  - In a symmetric world: (i) improvements in labor market institutions, common to both countries, reduce unemployment if and only if $b$ is low; and (ii) reductions in trade impediments raise unemployment.
  
  - In the vicinity of a symmetric equilibrium: (iii) country $B$ has a lower rate of unemployment if and only if the $b_j$s are low; and (iv) an improvement in a country's labor market institutions reduces the rate of unemployment in its trade partner, yet it reduces home unemployment if and only if the $b_j$s are low.

Welfare (assuming small unemployment benefits):

  - (i) both countries gain from trade; (ii) welfare is higher in country $B$; (iii) an improvement in labor market institutions in one country raises its welfare and reduces the welfare of its trade partner; (iv) a simultaneous improvement in labor market institutions in both countries, with $\hat{b}_A = \hat{b}_B$, raises welfare in both of them.
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Results: Unemployment and Welfare (b larger in A)

- **Unemployment:**
  - In a symmetric world: (i) improvements in labor market institutions, common to both countries, reduce unemployment if and only if $b$ is low; and (ii) reductions in trade impediments raise unemployment.
  - In the vicinity of a symmetric equilibrium: (iii) country B has a lower rate of unemployment if and only if the $b_j$s are low; and (iv) an improvement in a country’s labor market institutions reduces the rate of unemployment in its trade partner, yet it reduces home unemployment if and only if the $b_j$s are low.

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- Active labor market policies that raise competitiveness (reduce $b$) are welfare improving with no unemployment benefits, but may reduce welfare in the presence of unemployment benefits.
- Higher severance pay or higher unemployment benefits may raise competitiveness.
A limitation of the previous analysis is that workers are homogeneous, and, as a result, all firms pay the same wages in the differentiated sector, irrespective of productivity and trade status.

To allow for variation in wages, assume instead that workers are homogeneous ex ante, but draw an ability \( a \) which is match specific in the differentiated sector. As a result, they are heterogeneous ex post. The ability \( a \) is observed neither by the worker nor by the firm.

The focus on unobserved ability is justified by empirical findings that variation in wages is largely the result of unobserved worker characteristics, and that the rise in wage inequality is dominated by these unobserved characteristics.
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- Now assume that firm productivity and worker ability are distributed Pareto (makes closed-form solutions possible) and there is no firing and no unemployment benefits.
Screening

- The structure of the model is the same as before, with the following two modifications:

\[ y = \theta h^{\gamma} \bar{a}, \quad 0 < \gamma < 1 \]

(definition: human capital externalities or \( \bar{a} \) fixed managerial time at the level of the firm).

A firm can identify workers with productivity above \( a \) at cost \( c \). As a result, more productive firms screen to higher ability cut-offs and have better compositions of workforce. This generates a size-wage premium.

The model collapses to the previous version when \( c \) is large and firms do not screen.

Unemployment rate:

\[ u = (1 - \sigma c x) N \]
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  - As a result, more productive firms screen to higher ability cutoffs and have better compositions of workforce. This generates a size-wage premium.
    - The model collapses to the previous version when \( c \) is large and firms do not screen.
  - Unemployment rate:
    \[ u = (1 - \sigma_c x) \frac{N}{L}. \]
Results: Closed Economy

- Dispersion of firm size and labor productivity:
  - (i) the dispersion of firm size is increasing in firm productivity dispersion and worker ability dispersion;
  - (ii) the dispersion of measured labor productivity is increasing in firm productivity dispersion and declining in worker ability dispersion.

Unemployment in differentiated sector:
  - (i) the sectoral rate of unemployment is higher the higher is $b$ and the lower is $c$;
  - (ii) the sectoral rate of unemployment is higher the more dispersed is firm productivity, but may be higher or lower the more dispersed is worker ability.
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Wage dispersion in differentiated sector:

- Inequality of the wage distribution is rising with firm productivity dispersion.
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Aggregate unemployment:

An increase in $c$ reduces aggregate unemployment while an increase in $b$ may reduce or increase aggregate unemployment.
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\begin{align*}
\text{Search Cost, } b & \quad \text{Aggregate Unemployment Rate,} \\
\text{Low } c & \quad \text{High } c
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![Graph showing aggregate unemployment rate vs. search cost (b) for different values of c.](image-url)
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\[ T = T_W + T_B \]

Inequality vs openness

\[ \text{Theil Index of Wage Inequality} \]

\[ \text{Openness to Trade Index, } \frac{\theta_d}{\theta_x} \]

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Unemployment, Inequality and Welfare

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Welfare is higher in the trade equilibrium.
Conclusions

While trade is beneficial with many labor market frictions, it can raise unemployment and inequality.

In a cross-section of countries, differences in unemployment do not necessarily reflect differences in labor market frictions; a country with lower frictions may have higher unemployment (e.g., U.S. versus Portugal at different points in time).

While some labor market frictions raise hiring costs and reduce competitiveness, higher severance pay or unemployment benefits may reduce hiring costs and increase competitiveness.

While higher labor market frictions raise the sectoral rate of unemployment, they may reduce the aggregate rate of unemployment in a multi-sector economy due to compositional effects.

It has been argued that increased wage inequality due to unobserved worker heterogeneity may have resulted from technological change that increased the dispersion of firm productivity. Although this explanation is consistent with a world of heterogeneous firms and labor, as argued above, it also is consistent with declining costs of international trade.

Finally, simple macro models are inadequate for assessing active labor market policies, and especially so in a world of integrated economies.
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Trade and Labor Market Outcomes
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