Trade, Unemployment, Income Distribution

International Trade

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Lecture Slides

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- The recent rise of populism in the industrial countries.
- Trade is blamed for the destruction of good jobs in manufacturing, the decrease in employment (wages)
- According to the WSJ, 48%! of workers in manufacturing supported Le Pen in last Sunday's election! (and most of the rest probably supported Melenson)
- Trump is threatening with new barriers to US steel imports (for national security, nto protect wages, etc).

Does international trade hurt low skilled workers in the industrial countries?
(Is Marx striking again?)

Assertion: Trade with less developed countries (abundant in unskilled labor) lowers the prices of the goods produced by -and hence the wages of- the low skilled in the industrial countries. Importing foreign goods displaces domestic production and jobs in these industries.

Foreign competition erodes domestic manufacturing base, "killing" high paying jobs. The inability of domestic firms to sell abroad hurts the low skilled workers.

Some stylized facts

Developments in the labor markets during the last 50 years:

Unemployment in Europe

- Steep time trend in unemployment. Persistence.
- The average level is much higher now relative to before 1970 years ago (9% vs 2% in the EU).
- Long term unemployment has gone up as a share of total unemployment (almost half). Low turnover in the labor market.
- The rate is much higher among the low skilled.

Unemployment and Income distribution in the US

- No trend in US unemployment. The level is about the same to that of 50 years ago.
- High turnover in the labor market.
- Significant deterioration in the distribution of income. The low skilled now earn relatively and even absolutely less in real terms in comparison to the past.
- Income differences have increased even within professions.
- The skill premium has been increasing since the 80s after a decline in the seventies.

What is the contribution of international trade to this?

The theory

How does international trade affect the demands for the factors of production and the distribution of income?

International trade and *factor price equalization:*
According to H-O model, trade brings about complete factor price equalization. If wages are downward rigid then it leads to higher unemployment for the factor used intensively in the imports substitutes (the non abundant factor).

Pattern of international trade: Industrial countries tend to export high skill intensive and import low skill intensive goods.

Stringent assumptions:

- Identical technology + tastes
- Similar rankings of intensities
- No scale effects
- Incomplete specialization

In reality, factor returns may depend also on domestic determinants even under free trade. Even within the US, wage differences across states and localities have persisted.

Expect (according to H-O): Reduction in prices and production of low skilled intensive goods in the industrial countries. Reduction in wages and an **increase in the low/high skilled employment mix across all industries.** (An example for the import competing industry: from 50L/10H to 40L/5H)

The latter has not materialized: Across the board, industries have become more high skilled intensive.

The empirical evidence

Some simple calculations

The effects of imports on income, de-industrialization and the plight of low wage (low skilled) workers (Krugman, 1998, Pop Internationalism, MIT Press)

A. De-industrialization

Manufacturing in the US

	Value added (% GDP)	Employment (% of total)
1950	29.6%	34.2%
1970	25%	27%
1990	18.4% (12% in 2014)	17.4%

(France: from 16 (1995) to 11% (2014); Germany: from 23 to 23; Switzerland: from 20 to 19%; Italy: from 21 to 15%))

Manufacturing's contribution to GDP in the US declined be 6.6% between 1970 and 1990.

(a) The decline in US manufacturing trade balance (exports - imports) between 1970 and 1990 was 1.5% of GDP

(b) A \$1 increase in the manufacturing trade deficit reduces manufacturing's contribution to GDP by \$0.60 (because of leakage)

The effect of the manufacturing trade deficit on GDP is simply:

$$(a) \cdot (b) \quad \Rightarrow \quad 0.6 \cdot 1.5 \quad = \quad 0.9\% \text{ of GDP}$$

If the US had not experienced a deficit in manufacturing, then manufacturing's share in GDP in 1990 would have been $18.4\% + 0.9\% = 19.3\%$ (instead of 18.4%)!

What is then the **explanation for the decline in manufacturing?**

The large difference in productivity growth between manufacturing and services which has resulted in a large drop in the relative price of manufacturing in terms of prices of services (23%). Less income is needed now to buy a large quantity of manufacturing goods and fewer workers are needed in order to produce them.

B. Employment and wages

- In 1990, the US manufacturing trade deficit was \$73b.
- $\Rightarrow$ Resulting reduction in manufacturing value added = \$42b. $(= 0.6 \cdot 73)$
- Average (per worker) value added in manufacturing: \$60,000

A trade deficit of \$73 b. implies a loss of 700,000 jobs in manufacturing.

Suppose manufacturing pays better than non manufacturing and that the manufacturing workers who lose their jobs move to other sectors where they earn less.

Value added outside manufacturing: \$55,000.

The net loss in the national wage bill - and hence the national income - is

$$700,000 \cdot (60,000 - 55,000) = \$3.5b.$$

- The US National Income in 1990 = \$5.5 tr.
- The destruction of jobs in manufacturing thus reduces national income by 0.07% ($= \frac{3.5 \text{ billion}}{5.5 \text{ trillion}}$)
- The resulting decline in the average national wage is 0.008% (=% decline in the total national wage bill times the share of the labor force that is affected).
- That is $\frac{60,000-55,000}{55,000} \cdot \frac{700,000}{100,000,000}$ where 100,000,000 is the US labor force.

How can the high wage industrial countries compete against the low wage less developed countries?
By having more productive workers!

$$\text{wage} = (\text{marginal product of good}) \cdot (\text{good price})$$

Industrial countries: $w = a \cdot p$ $(a = \text{labor productivity})$
LDCs $w^\star = a^\star \cdot p^\star$

The industrial country can produce at lower cost (and sell at lower price $p \leq p\star$) if:

$$\frac{w}{w^\star} \leq \frac{a}{a^\star}$$

If the wage disadvantage falls short of the productivity advantage, then they can be competitive.

Factor content analysis of imports-exports

1. Estimate the effect of trade on the relative demand for labor

2. Estimate the effect of the change on the relative demand for labor on relative wages and employment

   (a) Product mix:

   An example: Importing 10 additional toys that could have been produced by 5 domestic low skilled workers
   The demand for domestic low skilled workers decreases by 5 while that for the high skilled increases (to produce the exportable)

(b) Technical innovation: Defensive, labor saving innovation in the traded goods sector in order to remain competitive.
These technologies then spill over into non traded sectors (services), amplifying the effects of trade.

But if such innovations are profitable why are thy not introduced independent of trade?

Sachs & Satz: NO difference in rate of total factor productivity in industrial sectors as a function of skill intensity.

2.a. *Criticism of factor content*

1. Underestimation of effects due to wage adjustment
   International competitive pressures may drive wages down at home and this could limit imports. So the volume of imports does not capture the full effect.

2. Overestimation of effects due to not taking into account the response of demand. Domestic consumption of the good and imports may be high because the price has come down as a result of international trade. But without trade, consumption may have been low due to the higher pre trade prices.

3. General equilibrium. Are there any other reasons for changes in relative wages (like skill bias technological progress) ? Would these changes have taken place even in the absence of any trade.

Empirical assessment: Most studies find small effects. Only Wood claims effects of the order of 50%.

Differences due to the different factor intensities used. Wood's adjustment: Industry factor intensities are different between developed and LDCs (high tech vs low tech toys). Which intensity to use for products not produced in the developed countries?

What does the future hold? Which types of workers are likely to be affected by international trade? Liberalization in services.

Price effects

International trade decreases the relative price of the goods that use intensively the non-abundant factor (in the industrial countries the goods that rely on low skilled workers). A reduction in the price decreases the demand for that factor, resulting in a lower wage both in traded and non-traded sectors.

Empirical strategy: Regress changes in industry product prices on the industry unskilled/skilled employment ratio.

Existing studies have produced mixed results

- A price increase! Lawrence and Slaughter (1993)
- Sachs and Schatz (1994) find a small but statistically significant decrease (but exclude computer prices)

Problems associated with the application of this approach:

(a) Measurement problem

(b) Simultaneity: There are other factors, independent of trade, that may cause the prices of low skilled intensive products to decline.
For example: A decrease in the minimum real wage. It will have its biggest effect on prices of goods that use more intensively low skilled workers.
Similarly, the decrease in the relative demand for low skilled workers may be due to either factors.

Question: Why have not prices for low skilled intensive goods fallen?

(a) Lack of free trade in the products that would have experienced the gravest effects: Antidumping actions and VERs

(b) Displacement effects. New entrants (China, Vietnam) displace some of the existing producers of labor intensive goods (East Asian countries). As the latter group of countries gets richer, it moves "up" and becomes exporter of capital intensive manufactures. Hence exports of labor intensive goods to the rich countries grow less.

Additional tests

International out-sourcing of the U.S. multinationals. It has been argued that multinational firms have relocated their production toward low-wage countries (due to lower labor costs and low labor standards) with detrimental effects on blue-collar workers employment and wages. This has been offered as an explanation of the decline in both relative low skilled wages an the ration of blue- to white- collar workers employed in the U.S. manufacturing.

BUT

The ratio of production of non-production workers employed in the U.S. manufacturing operations worldwide has fallen. The declines are of similar magnitude in U.S. manufacturing parents (-15.7%) and in their affiliates in developing countries (-13.6%). The declines have been particularly large in Europe (-24.2%) and in Australia, South Africa, and New Zealand (-19.1%). In addition, the relative wages of production workers have fallen worldwide - in U.S. subsidiaries in both the developed and the developing economies. Worldwide (in both developed and developing countries), we see a rise in the relative employment of non-production workers despite the increase in their relative wage (Laurence, 1996).

What does the future hold?
New developments:

- North-South manufacturing trade in the past involved the original four Asian tigers South Korea, Taiwan, Hong Kong, and Singapore.
- More recently, U.S. trade growth with developing countries has principally involved China and Mexico. This may make the "threat" to low skilled workers in the industrial countries more grave. Why?
- In 1990, the four original tigers had average hourly compensation in manufacturing equal to 25% of U.S. levels. By 1995 that had risen to 39% of U.S. levels. But as of 2005, Mexico had hourly compensation only 11% of the U.S. level, and China only slightly more than 3%! (BLS estimates).

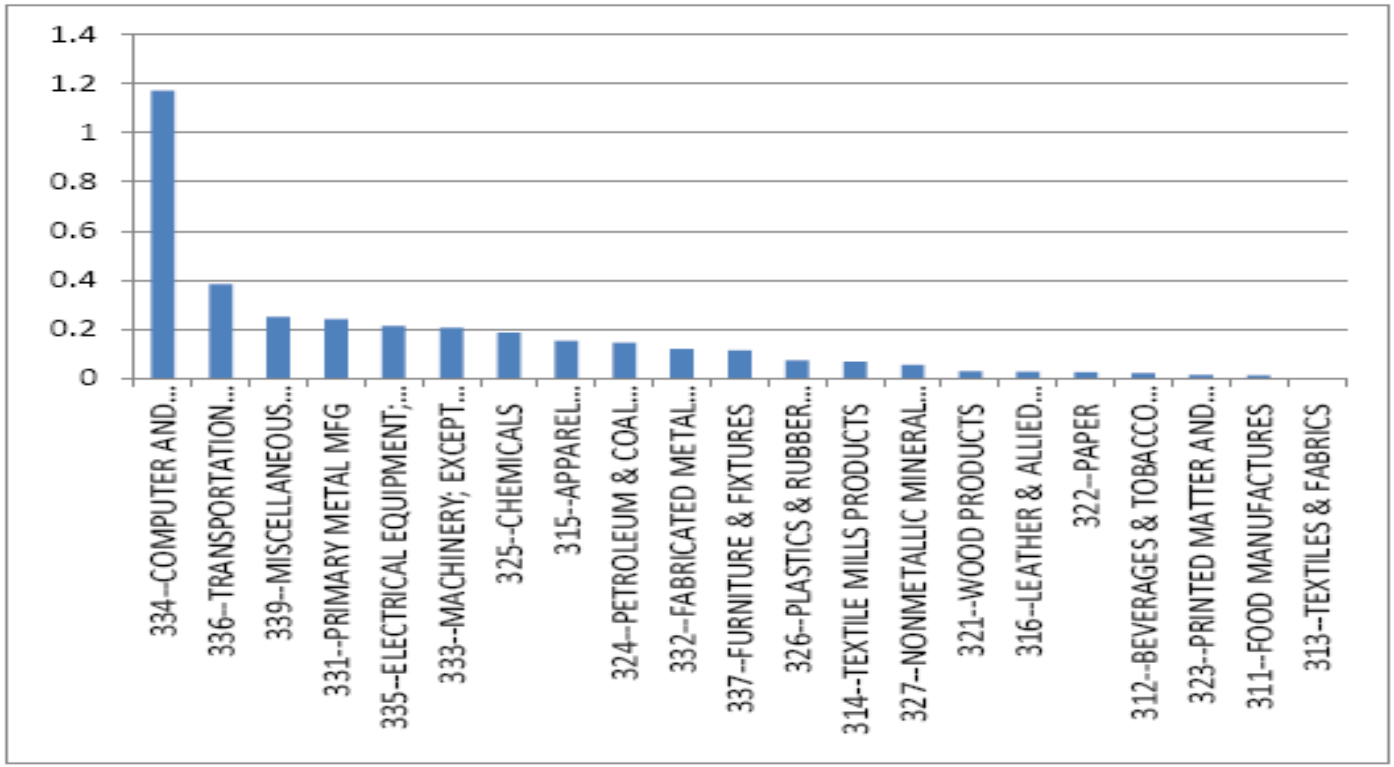

Figure : The change in the composition of manufacturing imports by the industrial countries

The change in the composition of manufacturing imports by the industrial countries. The LDC export more high skilled manufactures

- This implies a lower threat.
- Is this true under production fragmentation and re-exporting?
- Consider computer production (or semi-conductors): Computer production involves many stages, which may be split between advanced and developing economies in a way related to skill-intensity. The label skilled labor intensive LDC export may then be misleading!
- Various people have speculated as to the number of jobs that could be potentially up for grabs in the future, as technology, policy, and the introduction of billions of workers from China, India, and the former Eastern Bloc countries into the capitalist global economy make more jobs internationally contestable, particularly through service-sector off-shoring (software jobs, calling centers migrating to India,).

Jobs currently offshorable and forecasts for the coming decade

Current	Offshorable Jobs	Trade Share	LDC Trade Share
	14,500	12.5%	3.1%
Forecast for newly offshorable jobs by:	(New) Offshorable Jobs (thousands)	Implied Trade Share	Implied LDC Share
Forrester Research	20,000	29.8%	10.9%
Bardhan* and Kroll* (2004)	14,850	25.4%	9.3%
Kletzer#+ and Jensen + (2005)	36,800	44.4%	6.2%
McKinsey Global Institute (2005)	12,029	22.9%	8.4%
Van Welsum and Vickery (2005)	18,100	28.2%	10.3%
Blinder (2006)	21,275	30.9%	11.3%
Average	20,509	30.2%	11.0%

This could make trade have larger quantitative effects on the incomes of the low skilled in the future.

Figure : Off-shorable jobs

Conclusions

- There exists no empirical evidence that international trade with the LDCs has had a large negative impact on the low skilled in the industrial countries.
- It could be that trade does not matter much for relative wages.
- But maybe our empirical strategies/data do not capture adequately the complex structure of international specialization and trade.