7th FIW-Research Conference
Trade and Inequality

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Harvard and CIFAR

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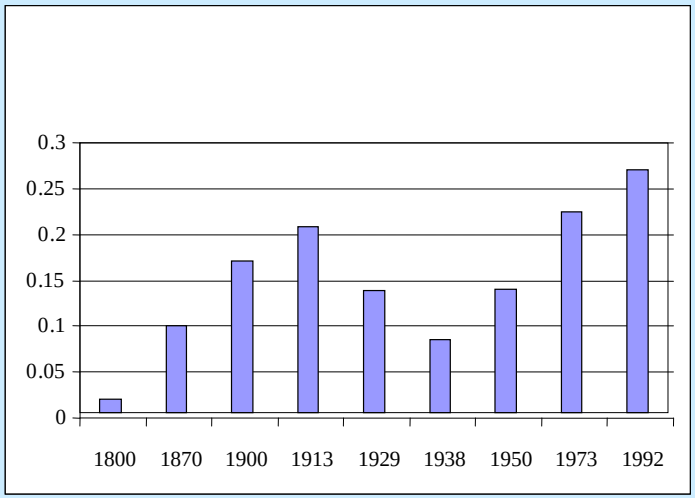
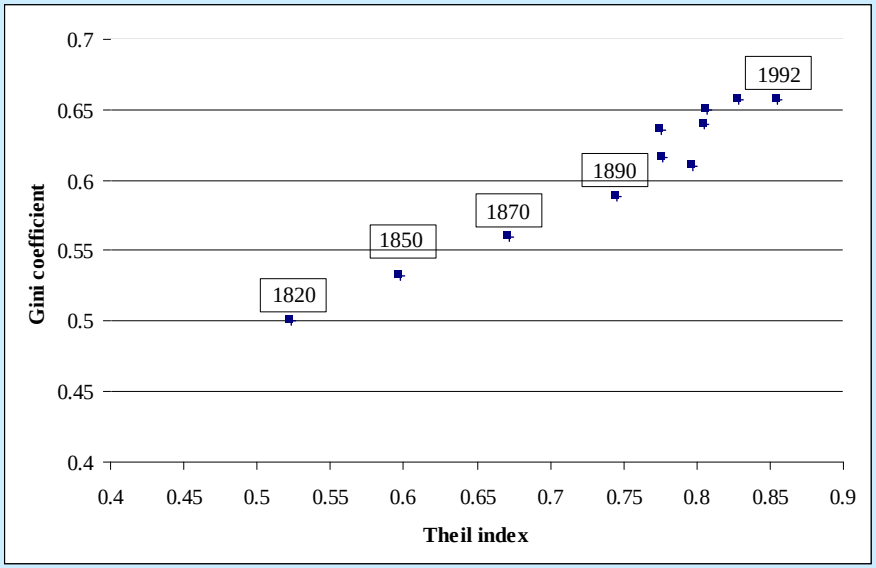
Long-Run Trends: World Economy



Source: Estevadeordal, Frantz and Taylor (2003)

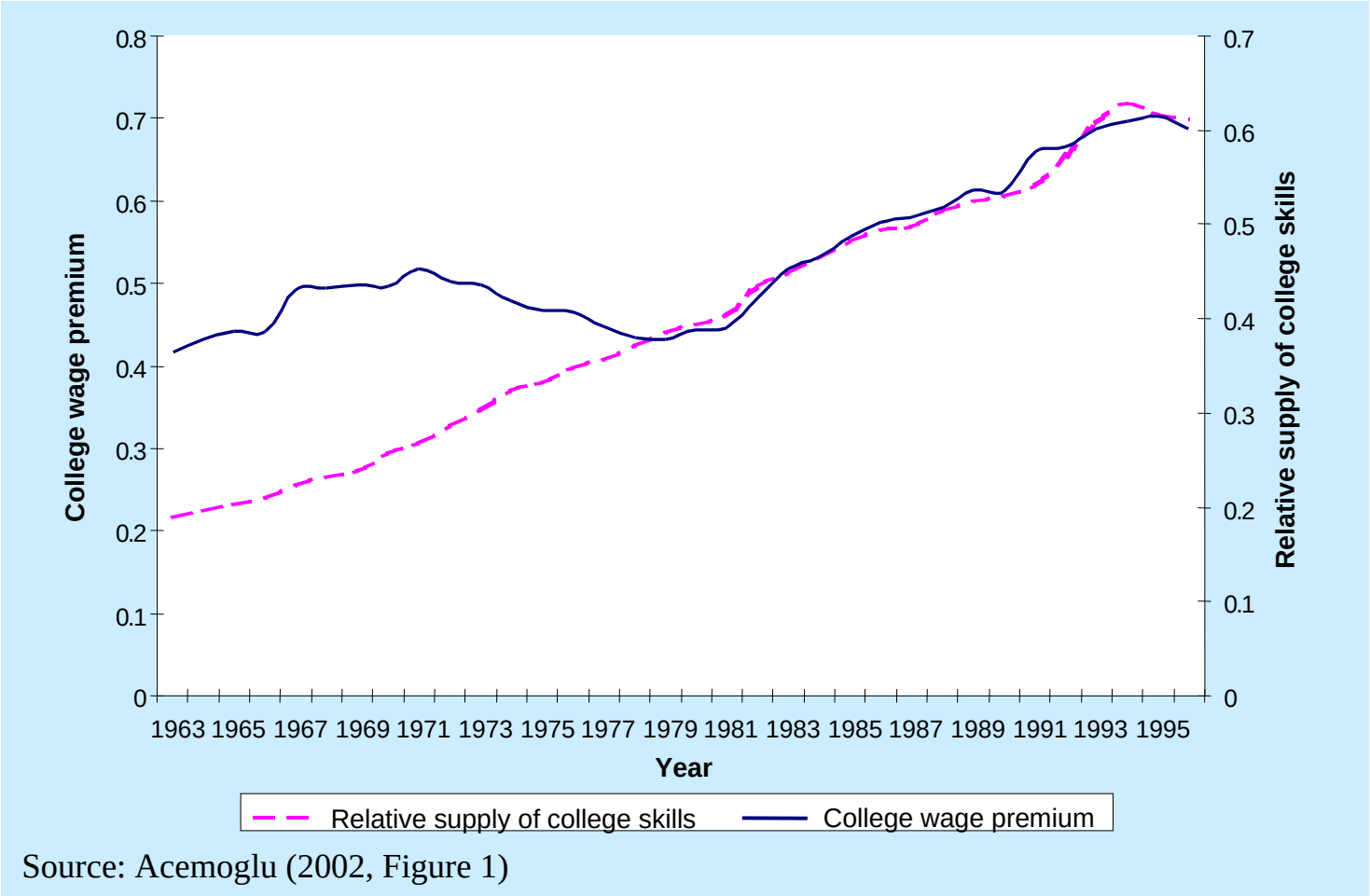


Source: Bourguignon and Morrisson (2002)

Growth of income per capita also increases

College Wage Premium: US

- US college wage premium and the relative supply of skills:



Source: Acemoglu (2002, Figure 1)

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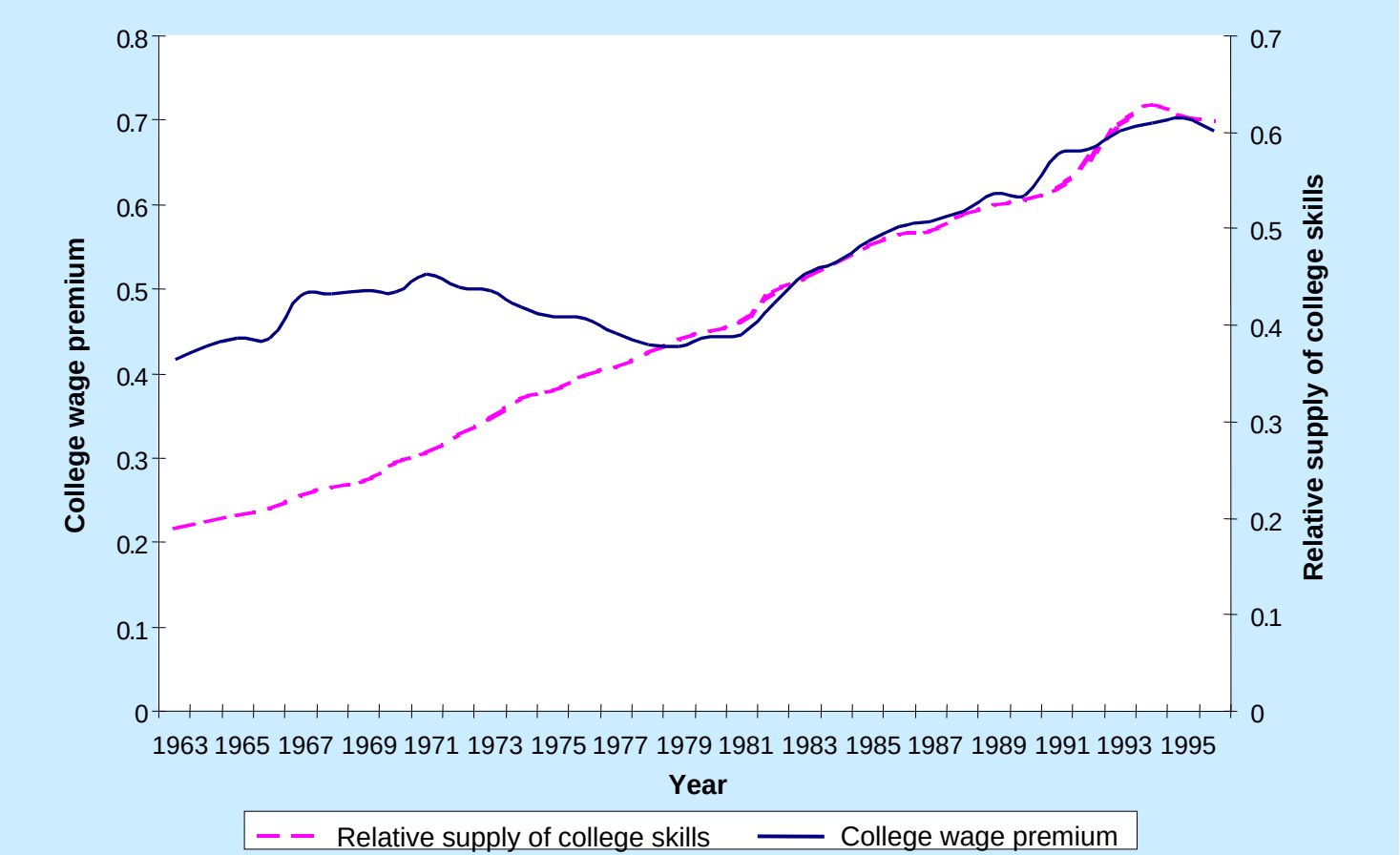

Source: Acemoglu (2002, Figure 1)

- Similar changes, although less pronounced, also took place in other countries; both developed and developing

Possible Explanations

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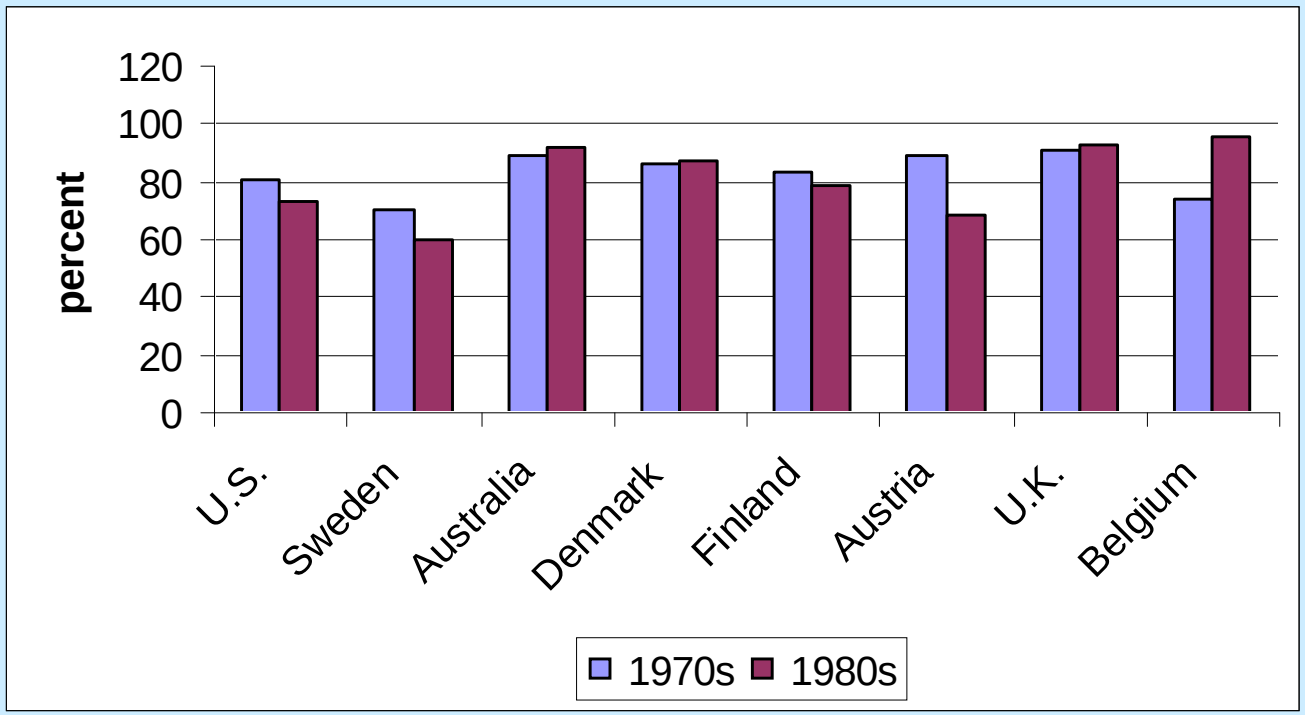
- Offshoring can contribute: Feenstra and Hanson (1999)

Employment

Shifts of employment more consistent with global technological change: Share of within-industry contribution to the increased percentage of nonproduction workers



Source: Berman, Bound and Machin (1998, Table II)

Similar shifts in less developed countries

Additional Difficulties

- Trade liberalization raises wage inequality in developed and developing countries: Goldberg and Pavcnik (2007)

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- More generally, residual wage inequality is large and contributes significantly to rising wage inequality

After Controlling for Worker Characteristics

- **Brazil**:

	Level 1990	**Change 1986-95**
Residual wage inequality	57	48
—within sector-occupation	88	91

Helpman, Itskhoki, Muendler and Redding (2013)

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- **Sweden**:

	Level 2001	**Change 2001-7**
Residual wage inequality	70	87
—within sector-occupation	83	79

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New Approaches

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- Today I focuses on the latter, including implications for growth and inequality

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4. Trade/openness affects degree of PAM

Inequality in OECD Countries

Uneven changes

Table: Earnings Inequality in OECD Countries

	2000		2007	
	5/1	9/5	5/1	9/5
Canada ↓ ↑	2.000	1.736	1.995	1.810
France ↓	1.561	2.112	1.521	2.093
Germany ↑ ↓	1.649	1.820	1.783	1.816
Ireland ↑	1.814	1.892	1.941	1.976
Japan ↑	1.592	1.730	1.618	1.774
Korea ↑	1.973	1.881	2.205	2.131
Norway ↑	1.440	1.495	1.577	1.548
Sweden ↑ ↓	1.402	1.742	1.422	1.721
UK ↓ ↑	1.828	1.891	1.826	2.023
U.S.A. ↑	2.137	2.240	2.146	2.397

Decile ratios of men's gross earnings.

Source: OECD.StatExtracts. Accessed on February 28, 2014.

Correlation Across Industries

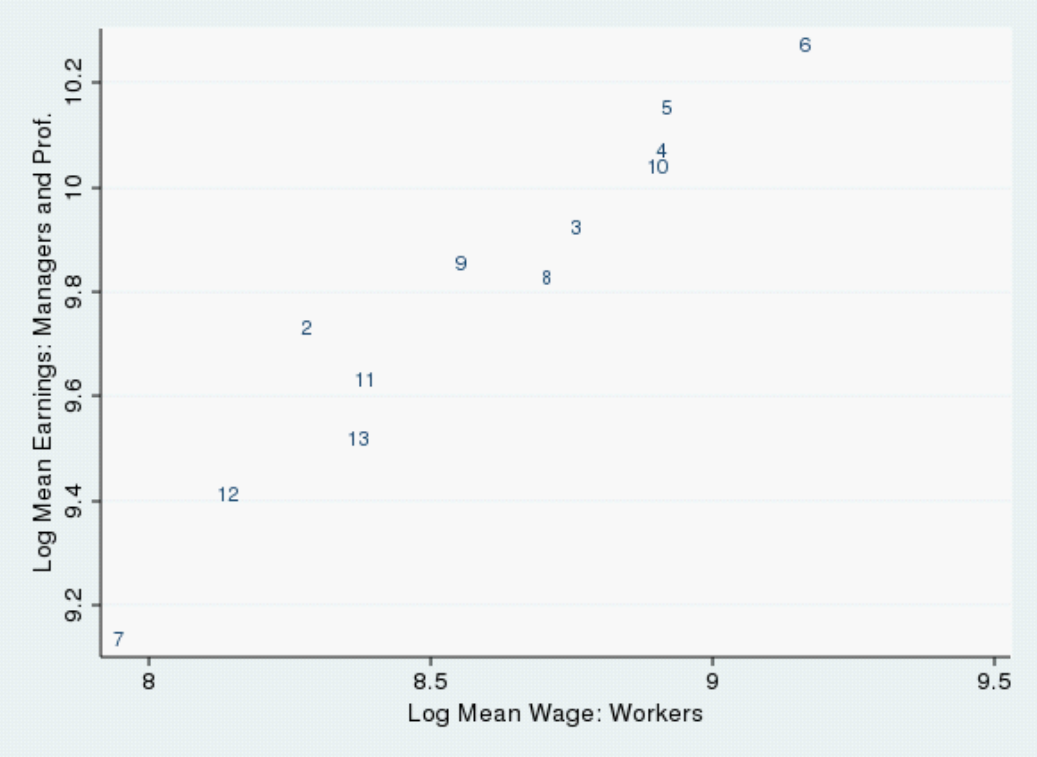

Figure: Variation across manufacturing industries of log mean salary of male managers and log mean wage of male workers in Brazil, 1994. Source: own calculations.

Observation 1 There is a strong positive correlation between the mean wage of male managers employed in a Brazilian industry and the mean wage of male workers employed in the industry

Other Observations

Observation 2 Within-industry inequality accounts for a majority of the income inequality for male workers and for male managers in Brazil in 1986 and 1994, and for a majority of the changes in inequality between 1986 and 1994. Within-occupation-and-industry inequality accounts for a majority of the income inequality for male workers and managers as a group in 1986 and 1994, and for a majority of the change in inequality between 1986 and 1994

Observation 3 There is a negative correlation across industries between the change in the Theil index of earnings inequality between 1986 and 1994 for Brazilian workers and the change in the Theil index of earnings inequality for Brazilian managers

Observation 4 The correlation across industries between the change in relative output price and the change in income inequality between 1986 and 1994 is positive for Brazilian workers and negative for Brazilian managers (see the following figure)

Observation 4

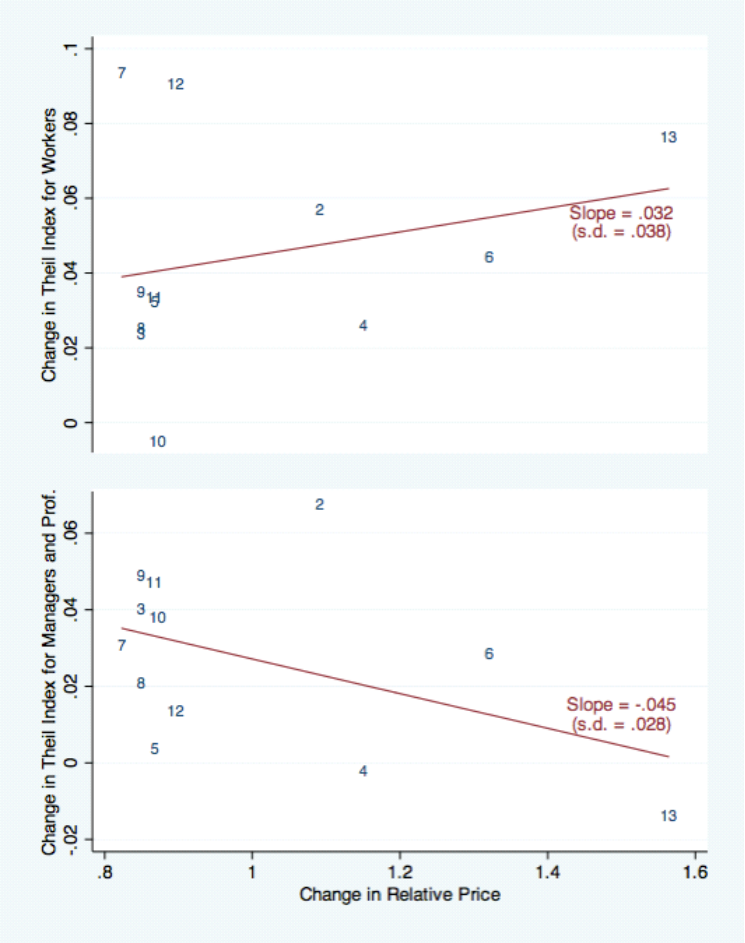

Figure: Correlation across industries of changes in income inequality and changes in relative prices

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$$x_i = \psi_i (q_H, q_L) \ell^{\gamma_i}$$

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- Overall CRS in quantities, competitive equilibrium (can be done with monopolistic competition, as in Sampson 2014)

Strictly Log Supermodular Productivity Functions

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- Two types of threshold equilibria: HL/LH and HH/LL
- HL/LH: wages of workers and salaries of managers are negatively correlated across sectors
- HH/LL: wages of workers and salaries of managers are positively correlated across sectors
- The evidence is more consistent with the latter

HL/LH Matching

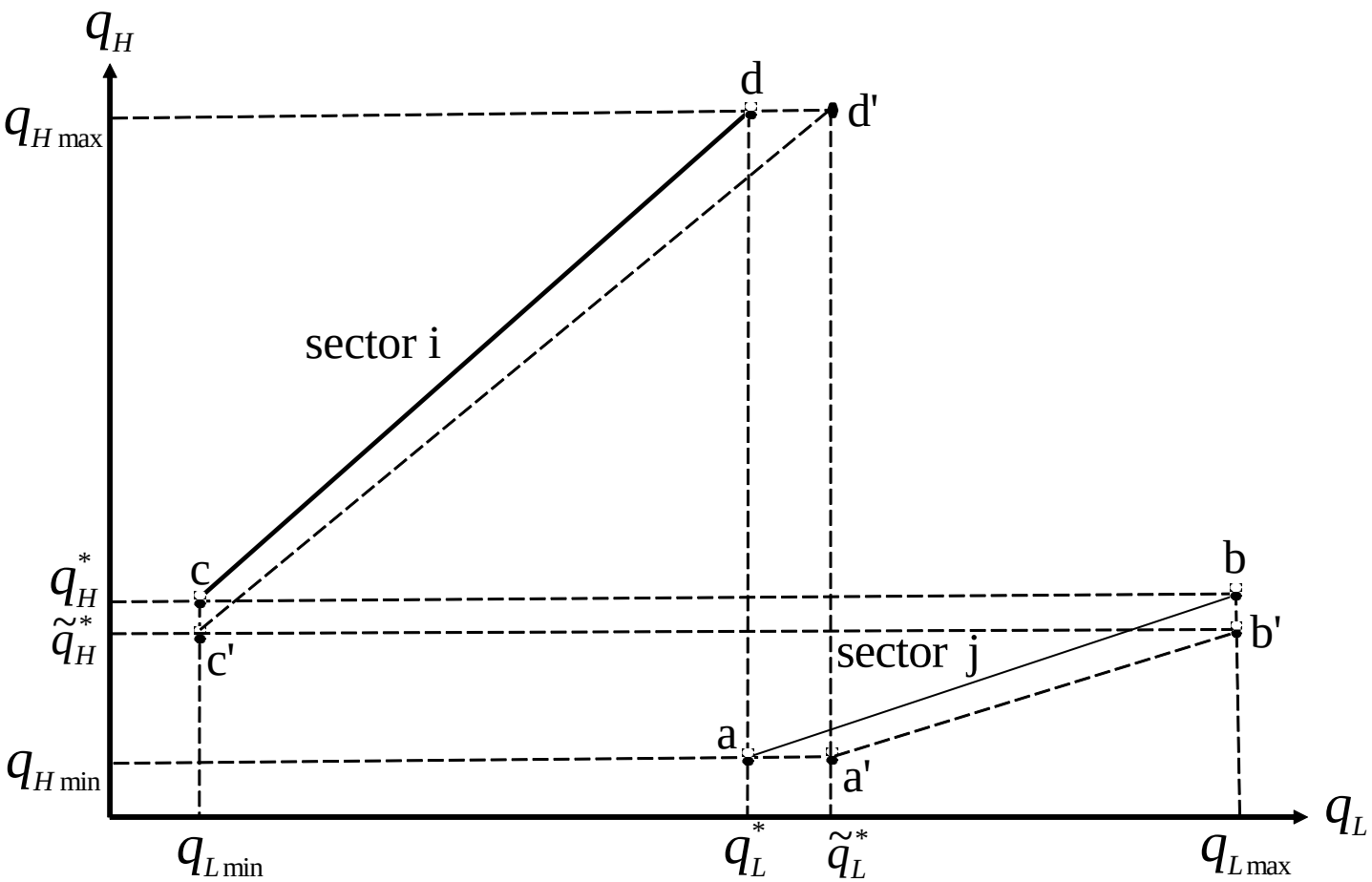
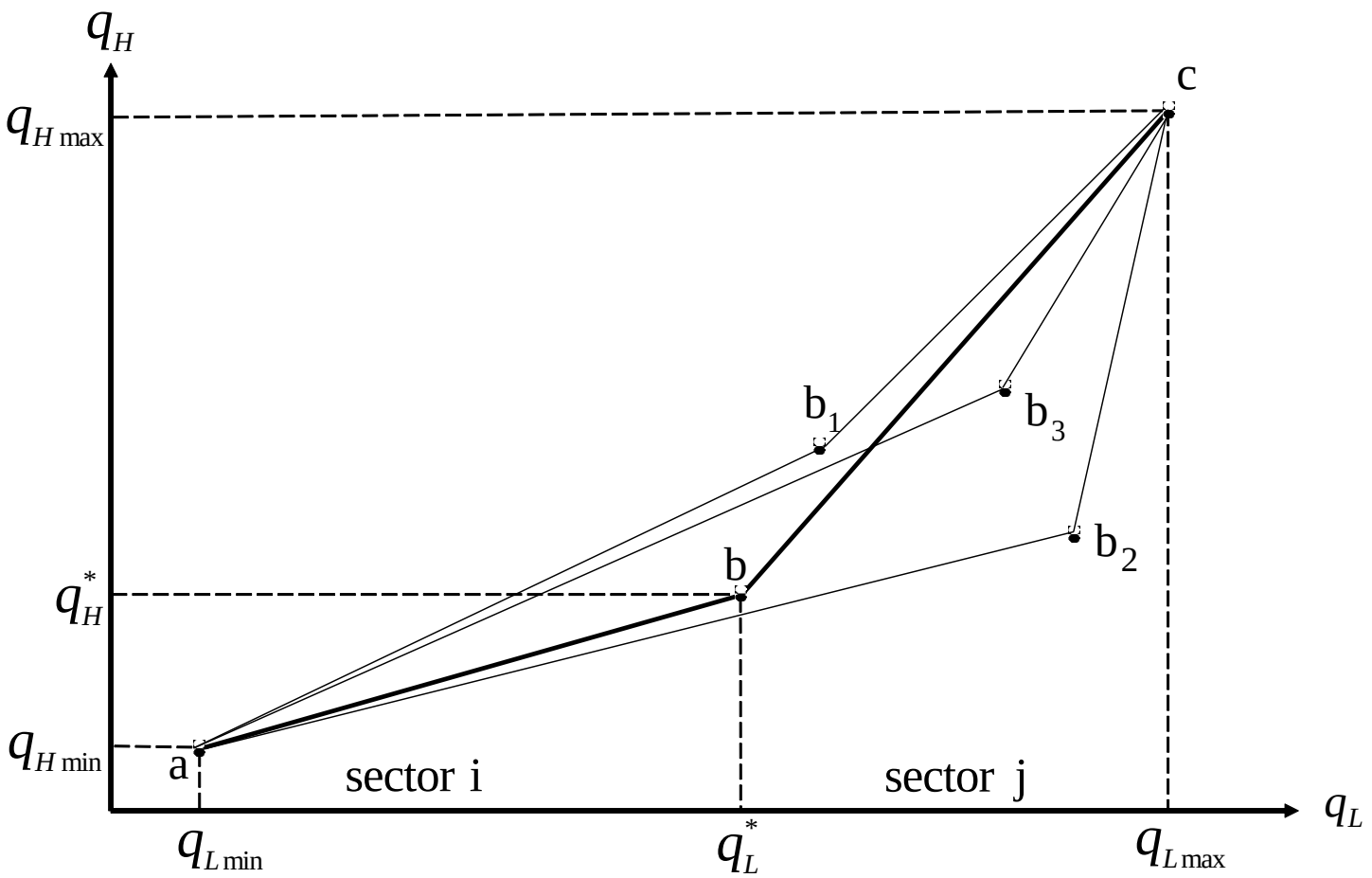


Figure: Effects of a rise in p_i/p_j on matching: HL/LH equilibrium

HH/LL Matching



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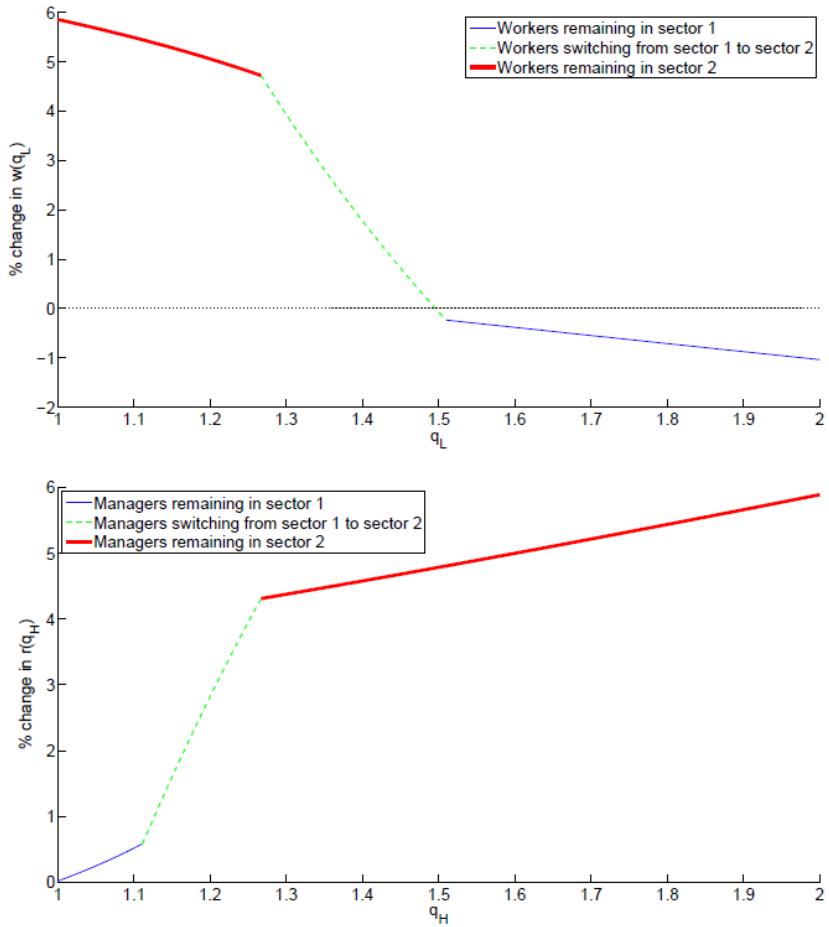
Compensation Response in HL/LH Equilibrium

5% rise in p_2



Compensation Response in HH/LL Equilibrium

20% rise in p_2

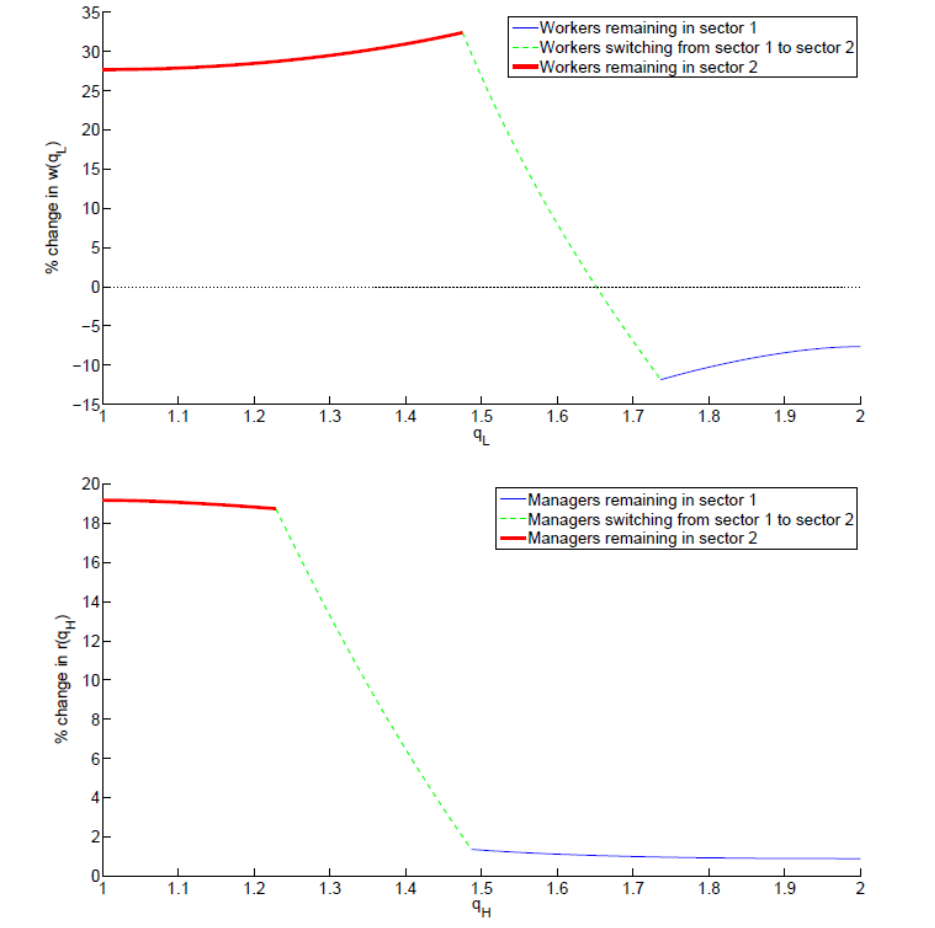


Figure: Cutoff shifts to b_1 in previous figure: Matching improves for all workers and worsens for all managers

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- Traditional neoclassical models are too simple for the rich patterns in the data
- Heterogeneity of inputs and firms has the potential to better explain the link between trade and inequality

Growth, Trade and Inequality

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- Workers sort into R&D and manufacturing
- Workers of different ability match with firms of different productivity
  - Characteristics of these matches determine wage inequality

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- There is a cutoff a_R, such that $a > a_R$ sort into R&D

Matching Varies with Ability Cutoff

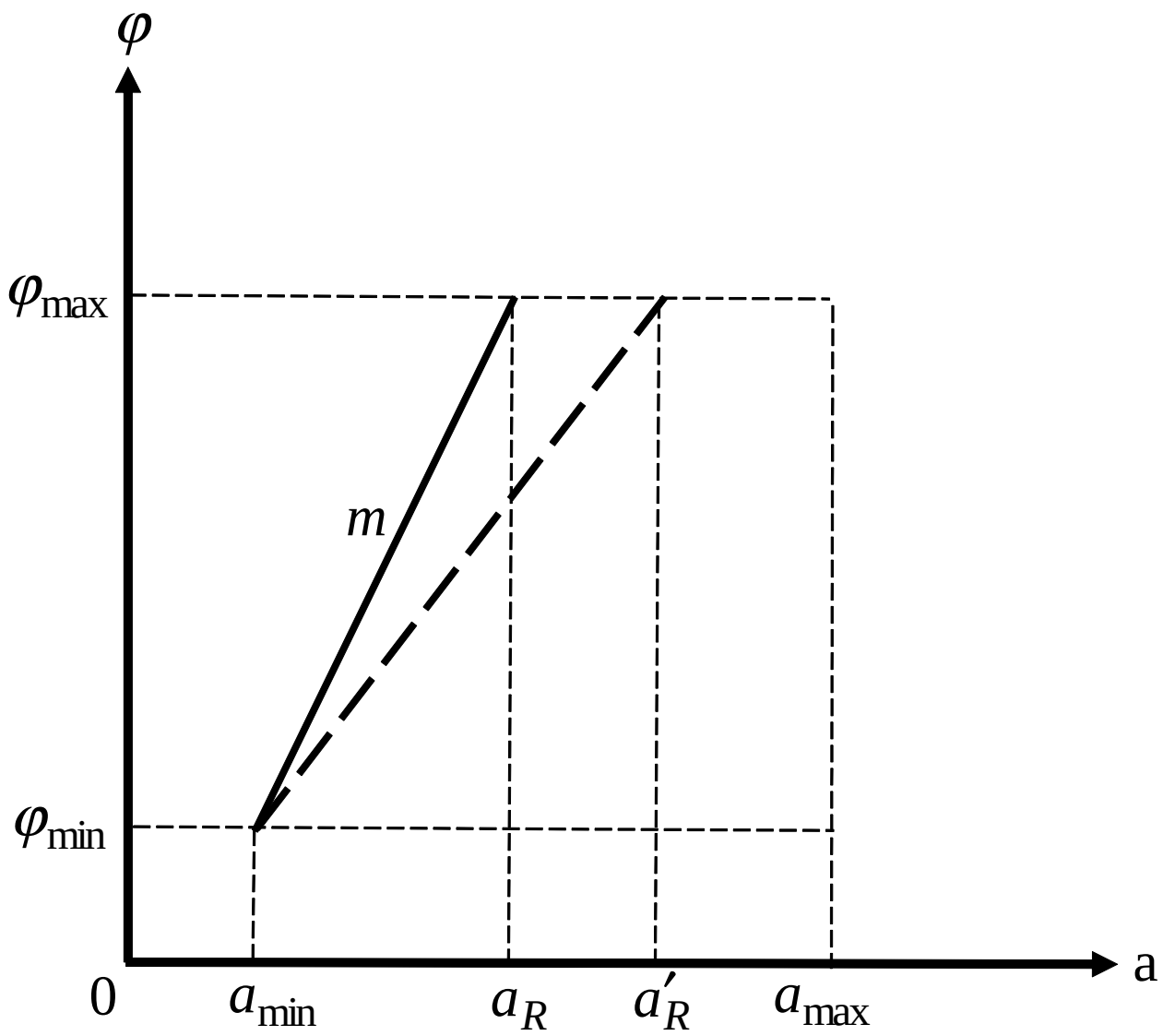

Figure: Matching function for different ability cutoffs

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- For evidence see Coe and Helpman (1995), Coe, Helpman and Hoffmaister (1997, 2009)

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  - An increase in any s_c raises the growth rate and wage inequality in every country

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- Technological conditions or government policies that cause an expansion of the research sector in one country have spillover effects abroad:
  - e.g., when the incentives for R&D rise somewhere, it generates a positive growth spillover for other countries and a tendency for income inequality to rise everywhere