

Lecture 4d:

Wage inequality and skill premium

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C181 – International Trade

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4- Trade and wage inequality

(Continuation of chapter 4)

Skilled vs. unskilled labor

As mentioned earlier, we can reinterpret HO model with two factors of production:

- Skilled labor, e.g. college-educated workers (*instead of K*)
- VS.
- Unskilled labor (*instead of L*)

HO model can be used to examine how trade affects wage inequality between skilled and unskilled workers

(Use HO model after replacing Capital by skilled workers, and labor by unskilled workers)

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Some vocabulary:

“Skill premium”

Ratio of the wage of skilled workers (college educated)
over the wage of unskilled workers

(= Same as R/W in HO model with capital vs. labor)

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Skilled vs. unskilled labor

Suppose that Shoe production is intensive in unskilled labor while Computer production is intensive in skilled labor

Suppose that Home is abundant in skilled labor and Foreign in unskilled labor

What happens when Home and Foreign start to trade?

Clicker question

- Shoe production is intensive in unskilled labor while Computer production is intensive in skilled labor
- Home is abundant in skilled labor and Foreign in unskilled labor

What happens as countries go from autarky to free trade?

- a) The skill premium increases in Foreign and Home
- b) The skill premium decreases in Foreign and Home
- c) Skill prem' increases in Foreign, decreases in Home
- d) Skill prem' decreases in Foreign, increases in Home

Answer

(to be given in class)

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What happens when Home and Foreign start to trade?

- Since Home is relatively abundant in skilled labor, Home has a lower relative price of computers in Autarky (computers are intensive in skilled labor)

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What happens when Home and Foreign start to trade?

- Since Home is relatively abundant in skilled labor, Home has a lower relative price of computers in Autarky (computers are intensive in skilled labor)
- As Home opens to trade, the relative price of computers goes up

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What happens when Home and Foreign start to trade?

- Since Home is relatively abundant in skilled labor, Home has a lower relative price of computers in Autarky (computers are intensive in skilled labor)
- As Home opens to trade, the relative price of computers goes up
- As the relative price of computers go up, Home tends to produce more computers and export computers

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What happens when Home and Foreign start to trade?

- Since Home is relatively abundant in skilled labor, Home has a lower relative price of computers in Autarky (computers are intensive in skilled labor)
- As Home opens to trade, the relative price of computers goes up
- As the relative price of computers go up, Home tends to produce more computers and export computers
- Stolper-Samuelson Theorem implies that the relative wage of skilled workers (i.e. the skill premium) should **increase in Home**

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And what happens to workers in Foreign?

- Since Foreign is relatively abundant in unskilled labor, the relative price of shoes in Foreign goes up and Foreign tends to export shoes.

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And what happens to workers in Foreign?

- Since Foreign is relatively abundant in unskilled labor, the relative price of shoes in Foreign goes up and Foreign tends to export shoes.
- Stolper-Samuelson Theorem implies that the relative wage of skilled workers (i.e. the skill premium) should **Decrease in Foreign**

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Predictions

Do these predictions fit in with the data?

- First, looking at pro-trade views
- Next, looking directly at the wages

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Application:

Stolper-Samuelson and Political Views on Trade

- High-skilled workers in skill abundant (i.e., rich) countries should favor trade
- Low-skilled workers in skill abundant (i.e., rich) countries should be against trade
- High-skilled workers in unskilled-labor abundant (i.e., poor) countries should be against trade
- Low-skilled workers in unskilled-labor abundant (i.e., poor) countries should favor trade

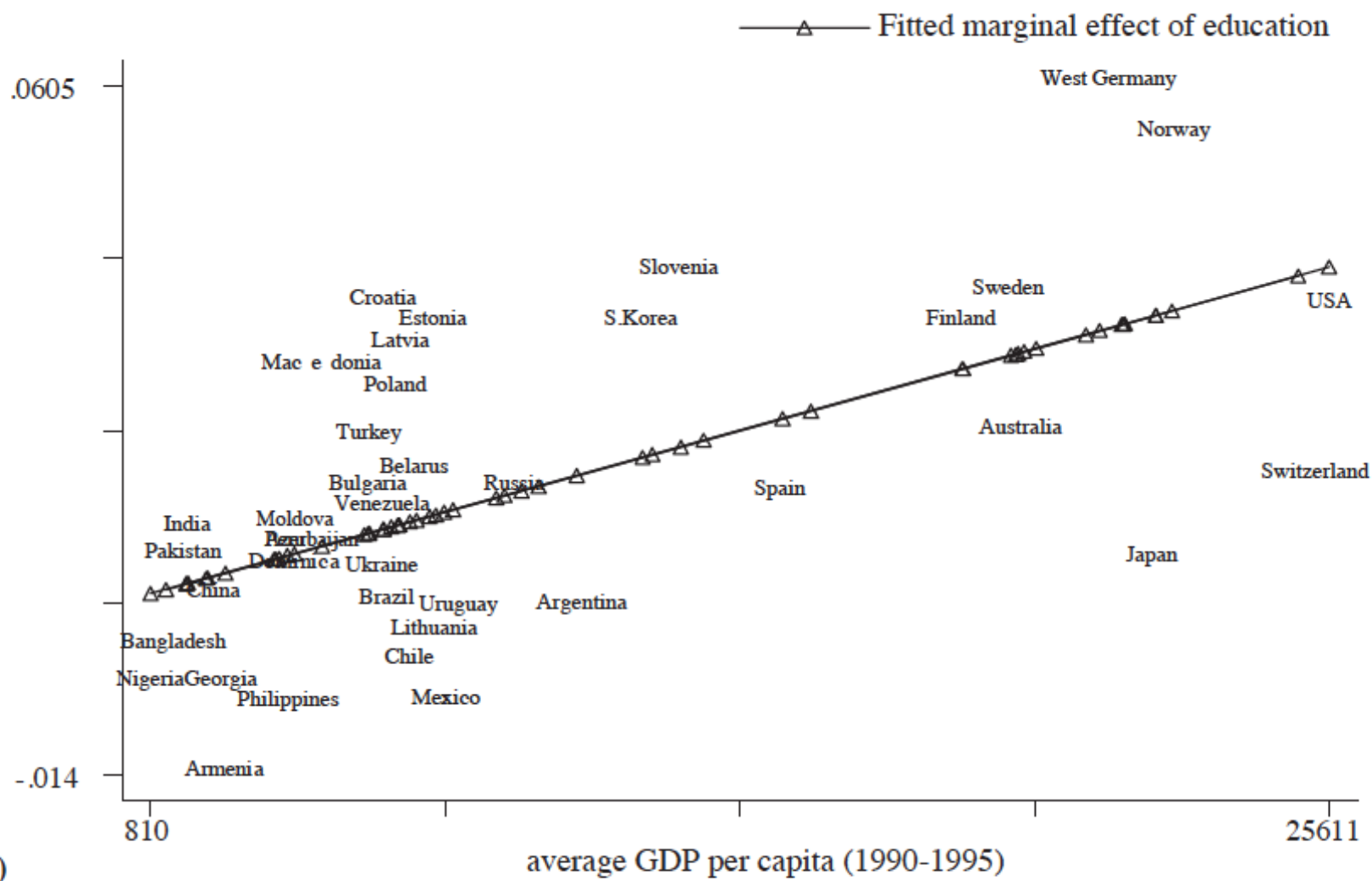


Fig. 2. Relationship between per-capita GDP and the estimated marginal effect of: (a) education on pro-trade attitudes (ISSP data set) and, (b) occupational skill on pro-trade attitudes (WVS data set).

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Application:

Stolper-Samuelson and Political Views on Trade

- Data: surveys asking people whether they favor trade and relate to their education across countries
(Mayda and Rodrik, EER 2005)
- Opinions are in line with Stolper-Samuelson:
 - Higher education more likely to lead to pro-trade views in skill-abundant countries

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Predictions

Now, looking directly at the skill premium:

- Does the skill premium increase with trade in richer countries with relatively more skilled workers?
- Does the skill premium decrease with trade in poorer countries with relatively fewer skilled workers?

NOTE: this is about relative wages *within* each country

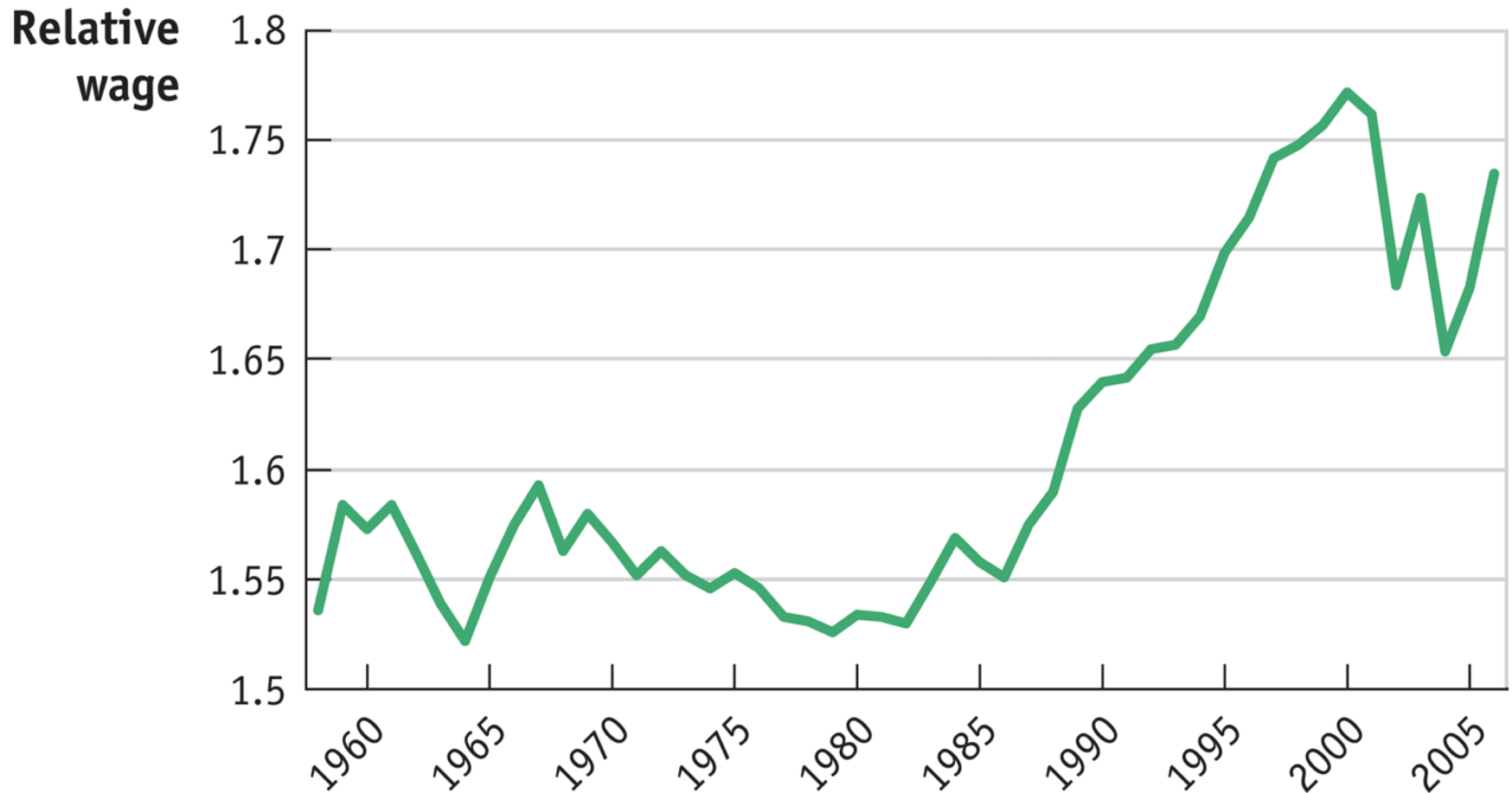
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US Data

Increase in the relative wage of skilled workers?

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Relative wage of skilled workers in US manufacturing:



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US Data

How do we know it's not due to a change in the supply of skilled vs. unskilled workers?

(i.e. a change in college education)

→ Look at evolution of relative employment

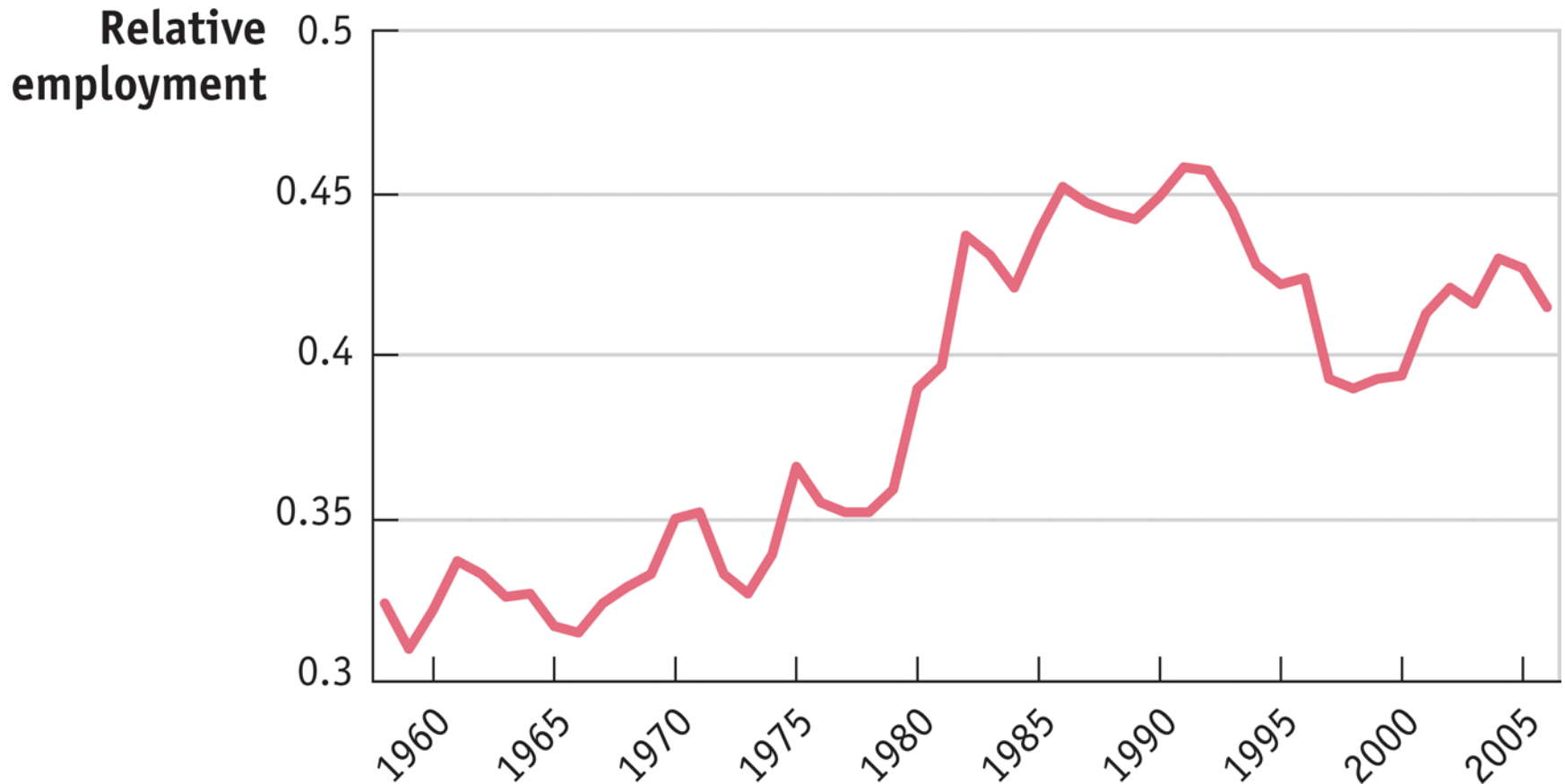
Reminder:

Labor **demand** is determined by firms and industry specialization

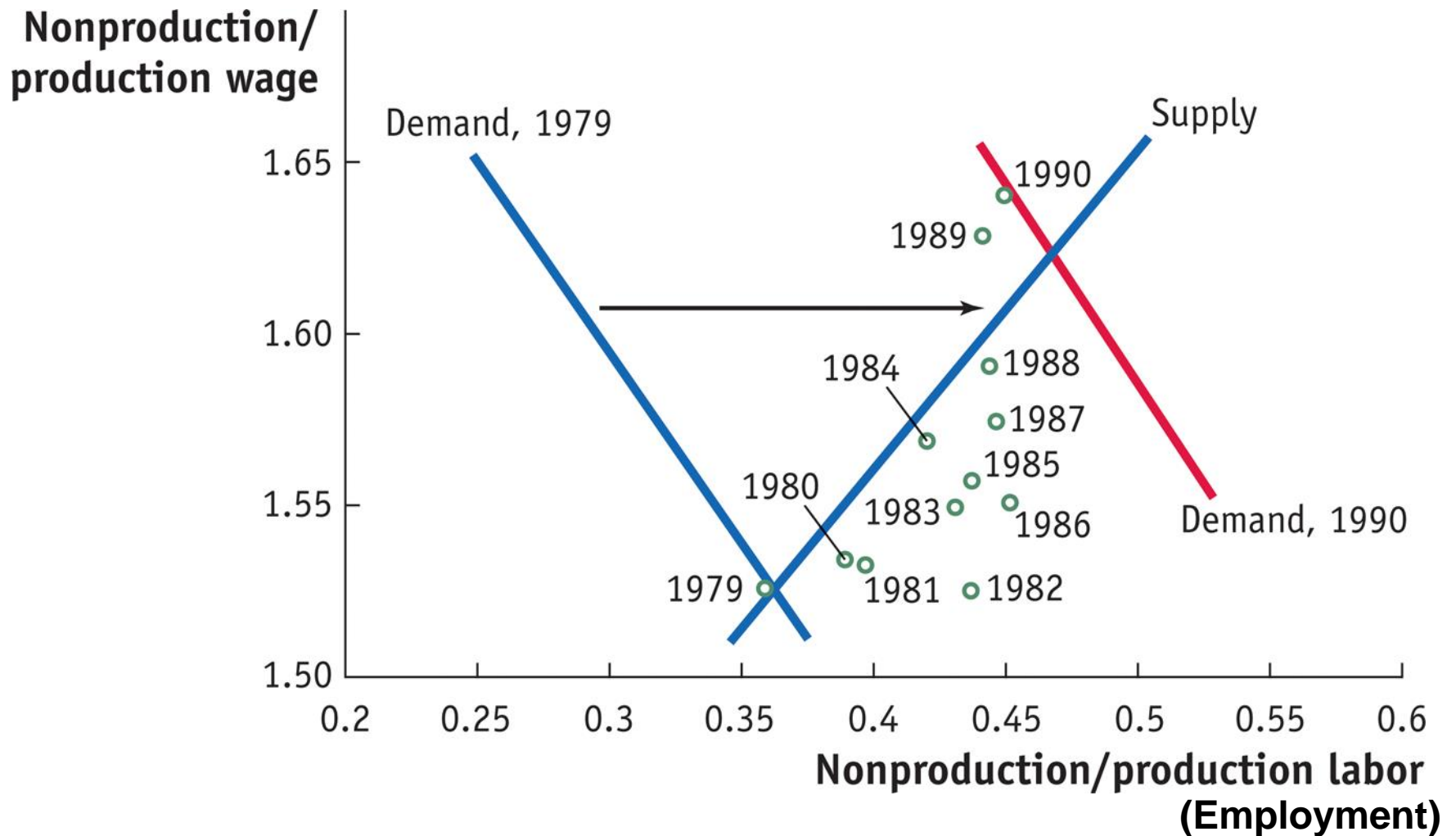
Labor **supply** is determined by workers choice and education

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Relative employment of skilled workers in US manufacturing:



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US Data

How do we know it's not due to a change in the supply of skilled vs. unskilled workers?

(i.e. a change in college education)

A decrease in the relative supply of skilled workers induces:

- An **increase** in the skilled premium
- But a **decrease** in relative skilled labor employment

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US Data

How do we know it's not due to a change in the supply of skilled vs. unskilled workers?

(i.e. a change in college education)

An increase in relative demand of skilled workers induces:

- An **increase** in the skilled premium
- And a **increase** in relative skilled labor employment

= what we observe!!

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US Data

Increase in the relative wage of skilled workers:

Hanson Feenstra (1996) have shown that trade can explain about $1/3^{\text{rd}}$ of skill premium increase in the US

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US Data

Increase in the relative wage of skilled workers:

Hanson Feenstra (1996) have shown that trade can explain about $1/3^{\text{rd}}$ of skill premium increase in the US

Other channels:

- *Explained by skilled-biased technological change
(computers require skills and favor workers with college education)*
- *Rents from capital*

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Mexican Data

Increase in the relative wage of skilled workers?

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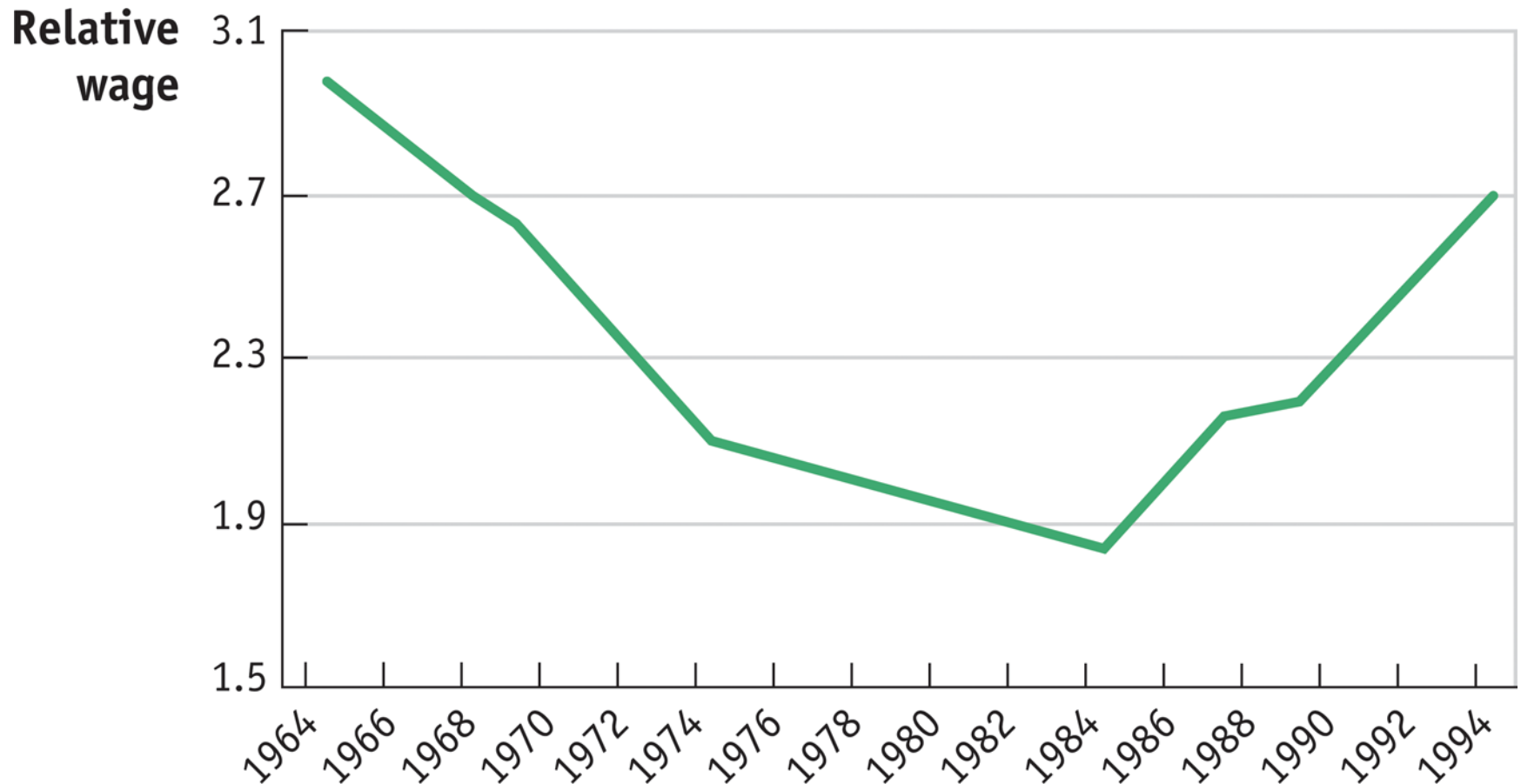
Mexican Data

Increase in the relative wage of skilled workers?

Not as sharp, but increase in skill premium after 1985

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Relative wage of skilled workers in Mexican manufacturing:



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Other countries

Increase in the relative wage of skilled workers?

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Other countries

Increase in the relative wage of skilled workers?

→ Yes, for most of them

Argentina	2.1%	1990-1999	college/high school wage ratio
Austria	-9.9%	1990-2005	college/high school wage ratio
Brazil	5.6%	1996-2007	non-prod./prod. workers wage ratio
Canada	-1.2%	1990-2004	college/high school wage ratio
Chile	-5.0%	1990-2000	college/high school wage ratio
China	40.2%	1992-2006	college/high school wage ratio
Colombia	26.4%	1990-2000	non-prod./prod. workers wage ratio
Denmark	-2.3%	1990-2005	college/high school wage ratio
Finland	1.4%	1990-2005	college/high school wage ratio
France	-16.8%	1990-2005	college/high school wage ratio
Germany	14.4%	1990-2005	college/high school wage ratio
Greece	-2.4%	1990-2005	college/high school wage ratio
India	11.9%	1987-2004	college/high school wage ratio
Italy	29.8%	1990-2005	college/high school wage ratio
Japan	-3.4%	1990-2005	college/high school wage ratio
Korea	-6.6%	1990-2005	college/high school wage ratio
Mexico	12.5%	1990-2001	non-prod./prod. workers wage ratio
Peru	23.9%	1994-2000	non-prod./prod. workers wage ratio
Portugal	12.3%	1992-2005	college/high school wage ratio
Philippines	5.0%	1988-2006	college/high school wage ratio
Spain	8.2%	1990-2005	college/high school wage ratio
Sweden	9.0%	1990-2002	college/high school wage ratio
Thailand	17.2%	1990-2004	college/high school wage ratio
United Kingdom	2.0%	1990-2005	college/high school wage ratio
United States	3.1%	1990-2007	non-prod./prod. workers wage ratio

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Other countries

Increase in the relative wage of skilled workers?

→ Yes, for most of them

→ Not very consistent with HO model for poor countries

(see ch. 7 for theory that can explain an increase in skill premium in both types of countries)

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World Data

Income distribution across the world

Beyond countries: has inequality decreased globally?

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World Data

Income distribution across the world

Beyond countries: has inequality decreased globally?

Trade should induce an increase in top incomes but also an increase in incomes at the bottom of the distribution

Figure 2: The global distribution of income over time

logarithmic scale, population-weighted

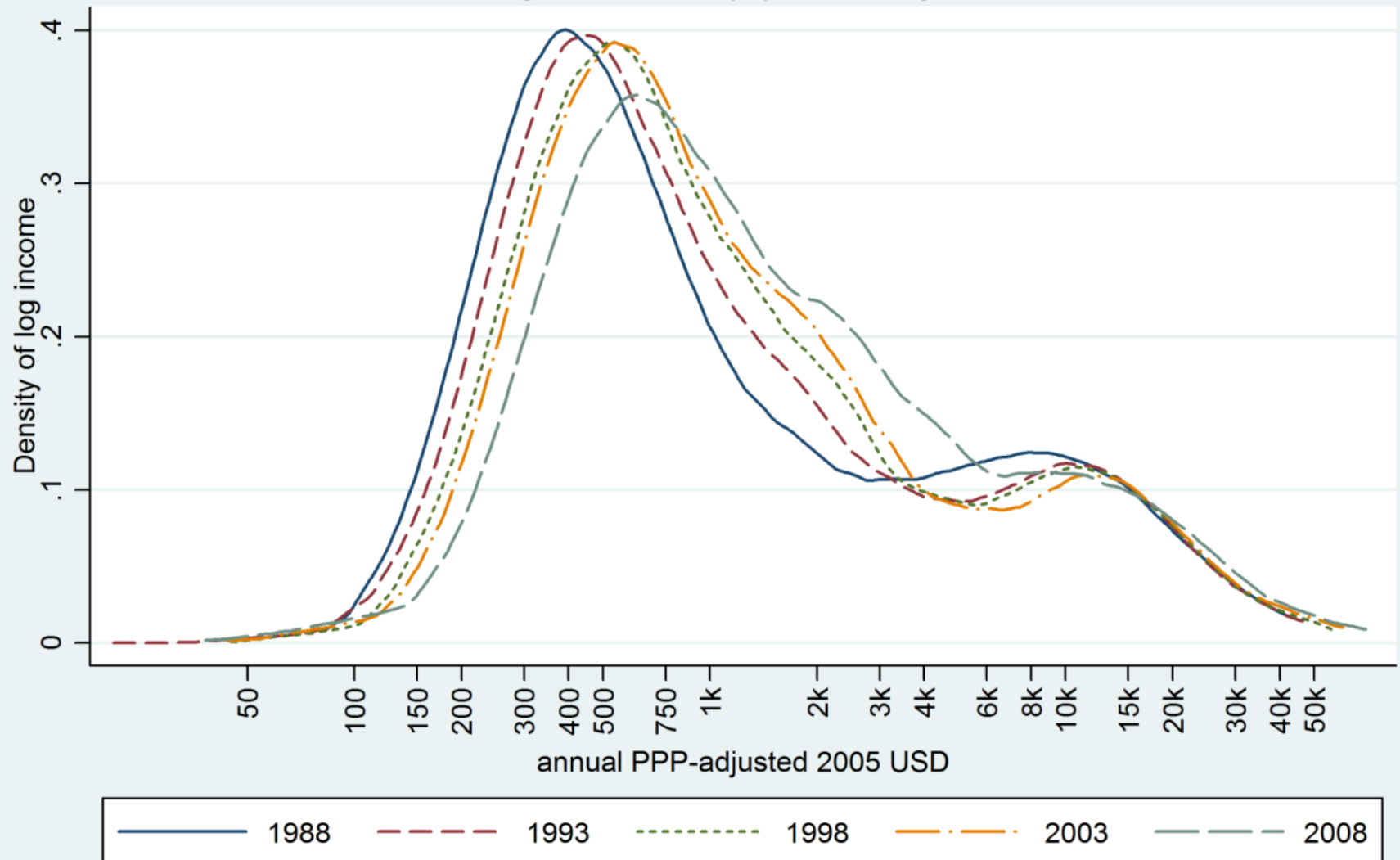
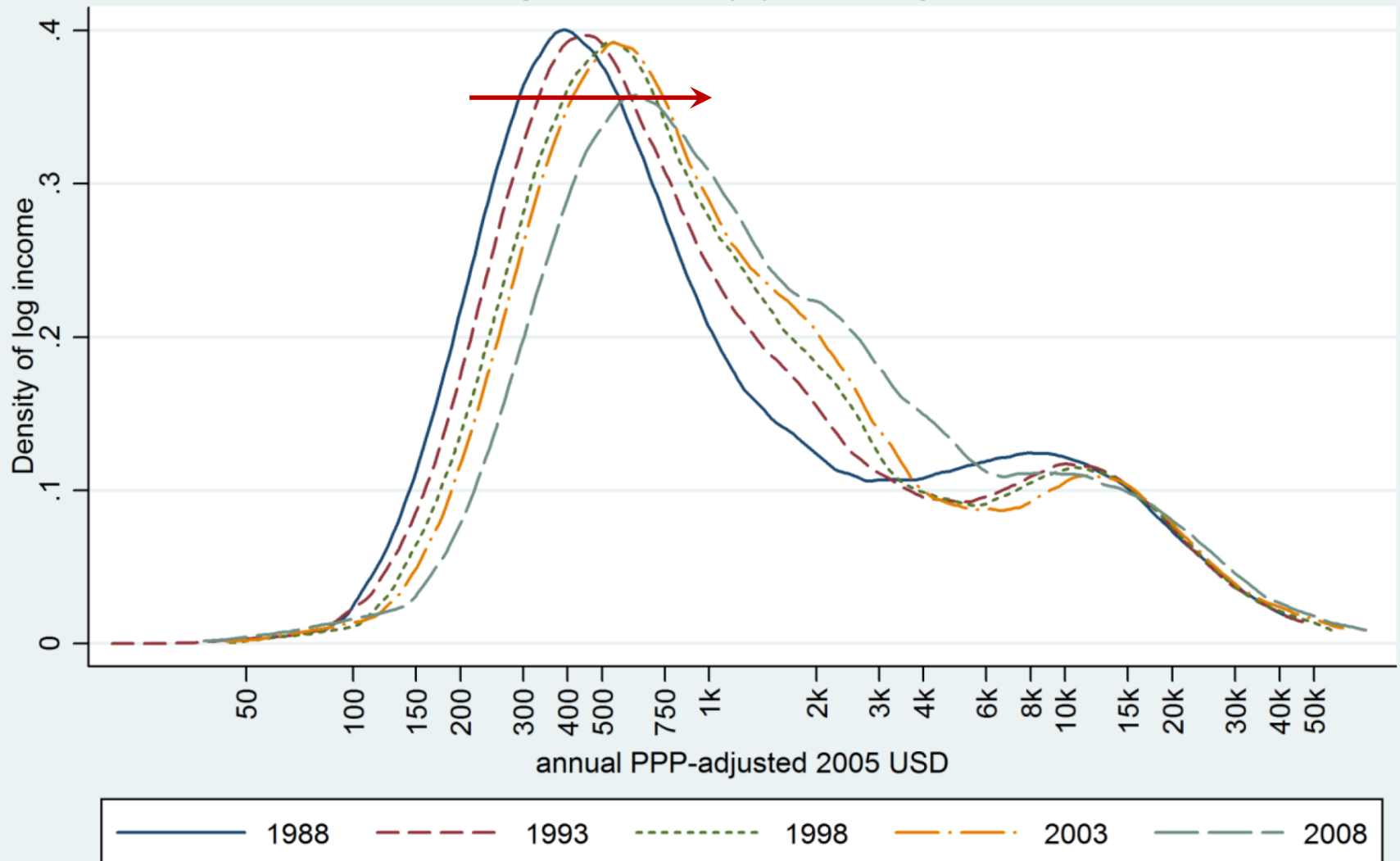
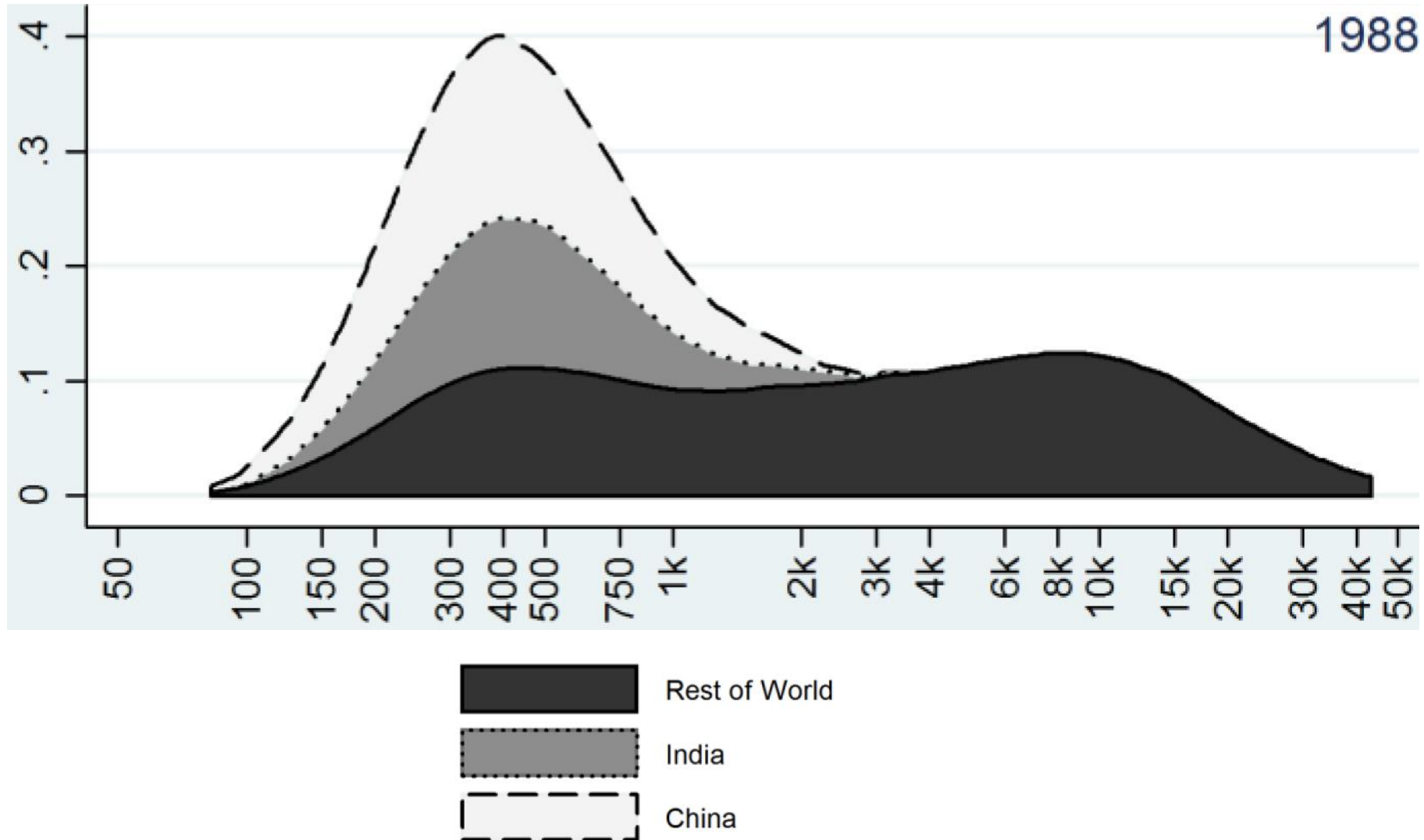


Figure 2: The global distribution of income over time

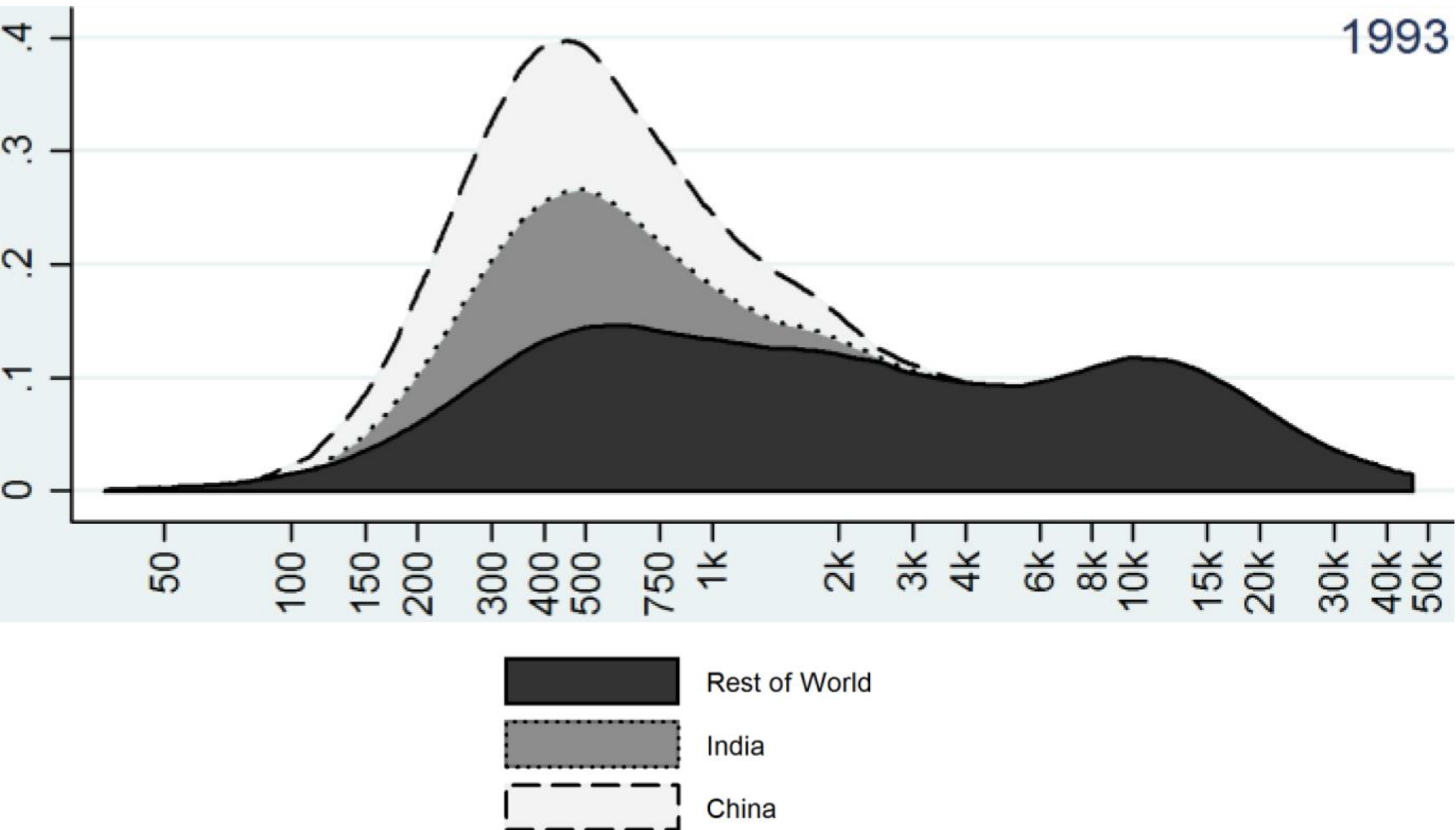
logarithmic scale, population-weighted



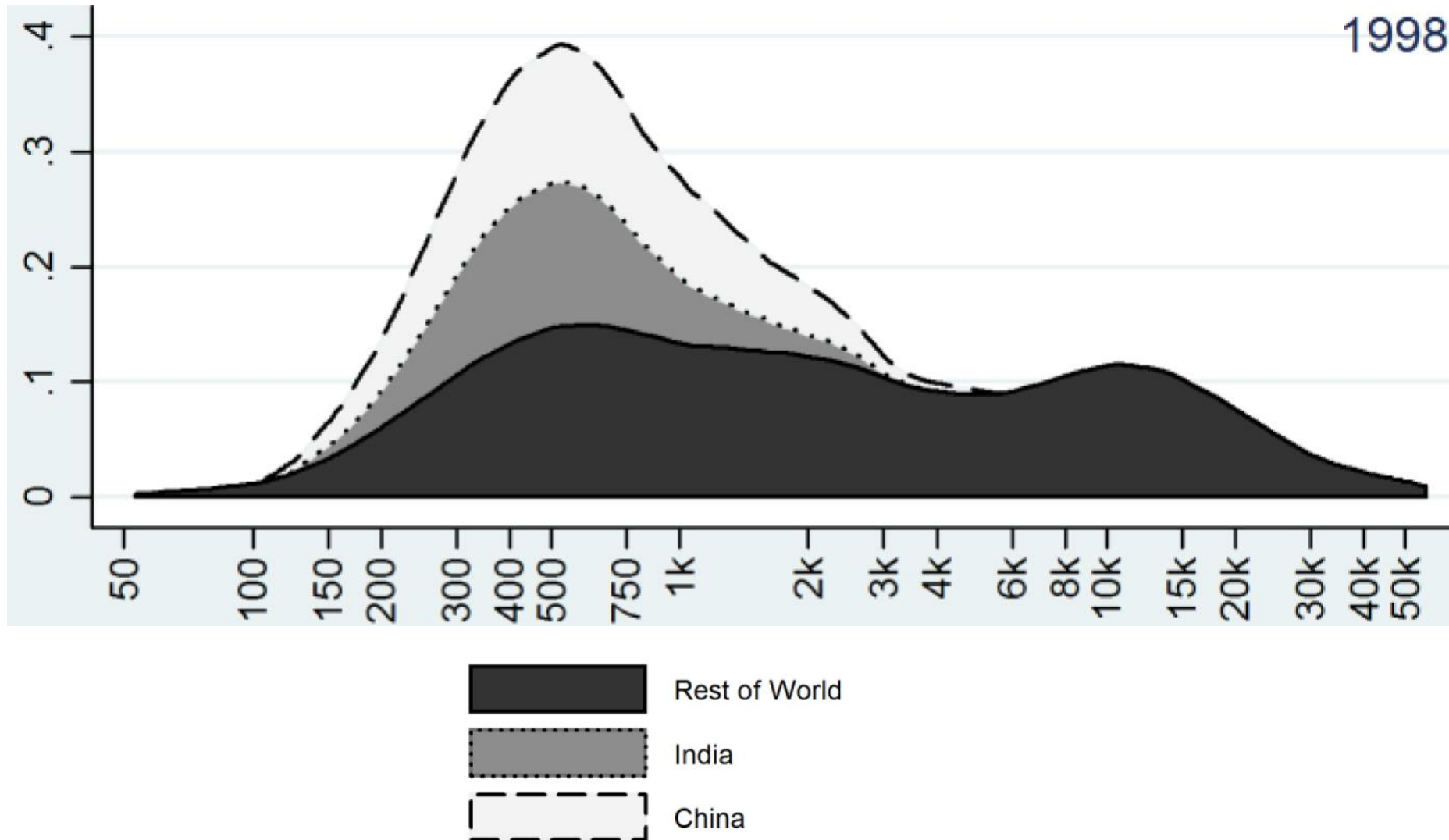
World data



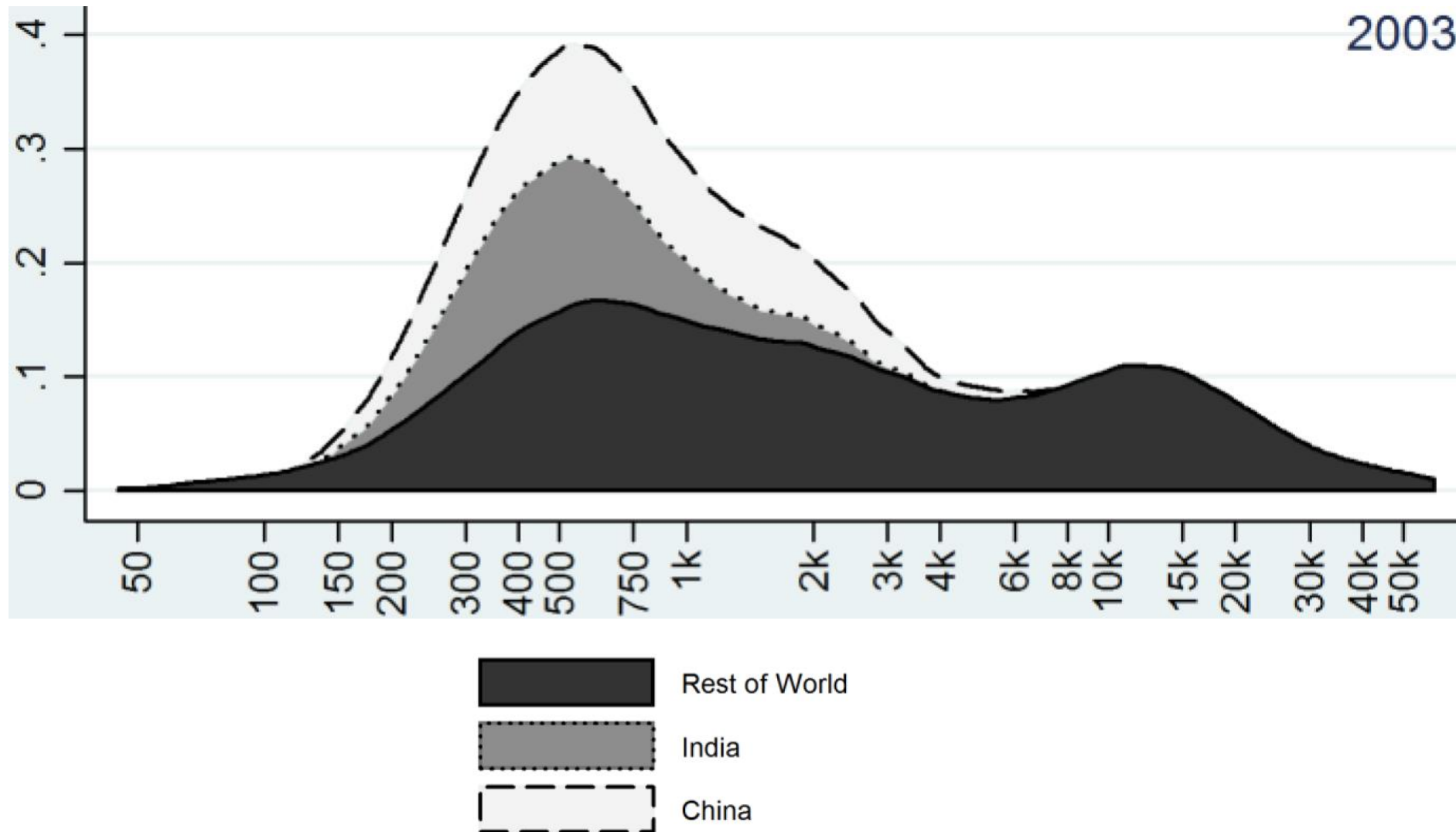
World data



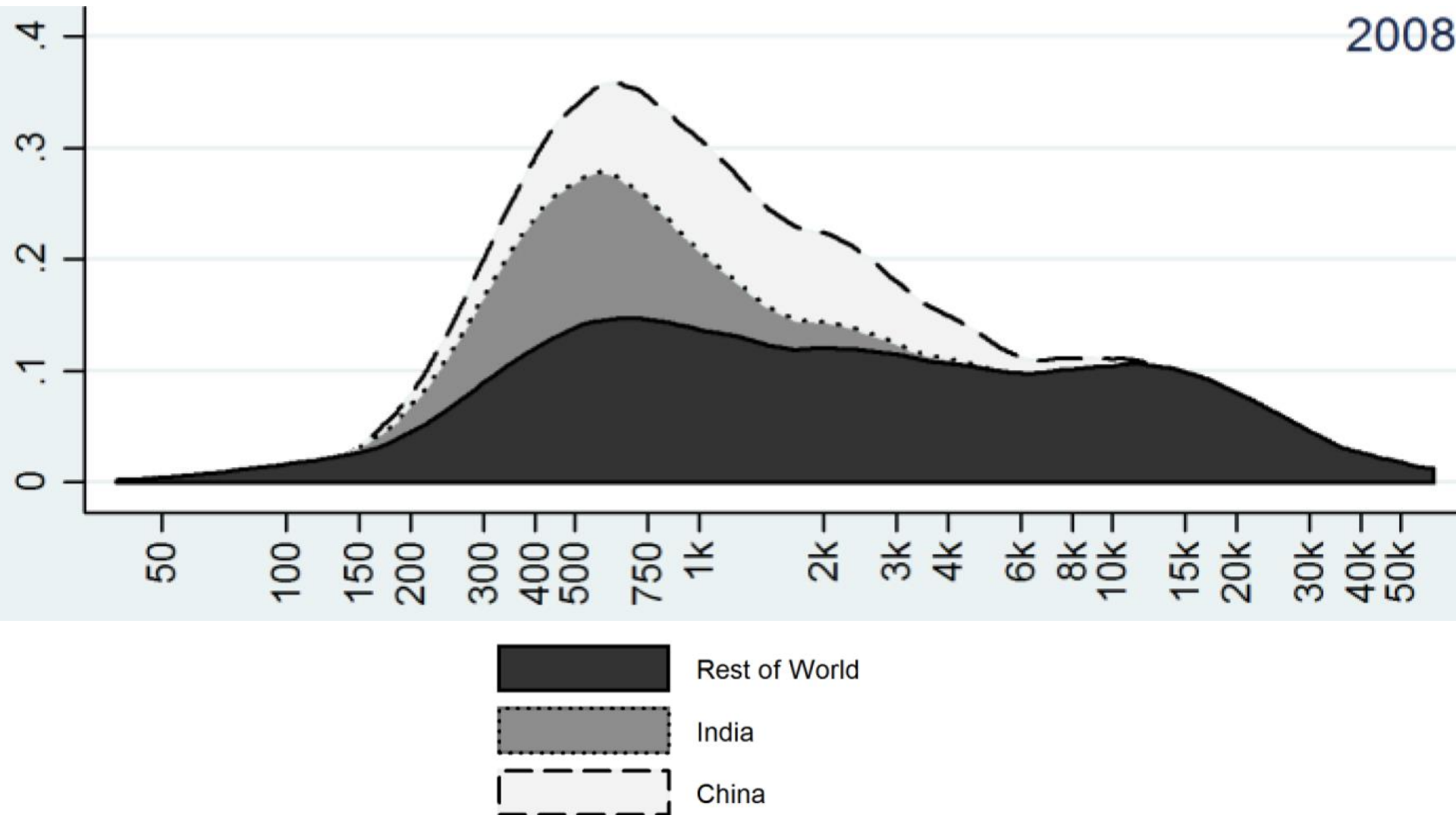
World data



World data



World data



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World Data

Income distribution across the world

- Increase in income for the top incomes
- Increase in income for bottom incomes?
 - Large changes driven by China
 - Decrease in bottom incomes w/o China

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Summary

Can the Heckscher-Ohlin model explain wage inequality?

- Can explain increases in skill premium in skill-abundant countries
- Can explain global reduction in inequality
- But HO can't explain increases in skill premium in countries abundant in unskilled labor