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# Global Inequality in a more educated world

# Global Inequality in a more educated world

- What is global inequality?
- Does global inequality matter?
- What has been its recent evolution?
- Where may it go in the future? [Why it matters to look at the future?]
  - Developing countries: are the recent reductions of inequality in highly unequal countries (Latin America) sustainable?
  - High income countries: Will robots take over, or immigrants?

# What is Global Inequality

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# Global Inequality: three concepts

*Intercountry inequality:*  
Three countries and three representatives  
with mean incomes (height)



*International inequality:*  
Entire population included,  
but with mean incomes



*Global inequality:*  
All individuals with their actual income



Source: World Development Report, 2006 "Equity and Development"

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Does global inequality  
matter?

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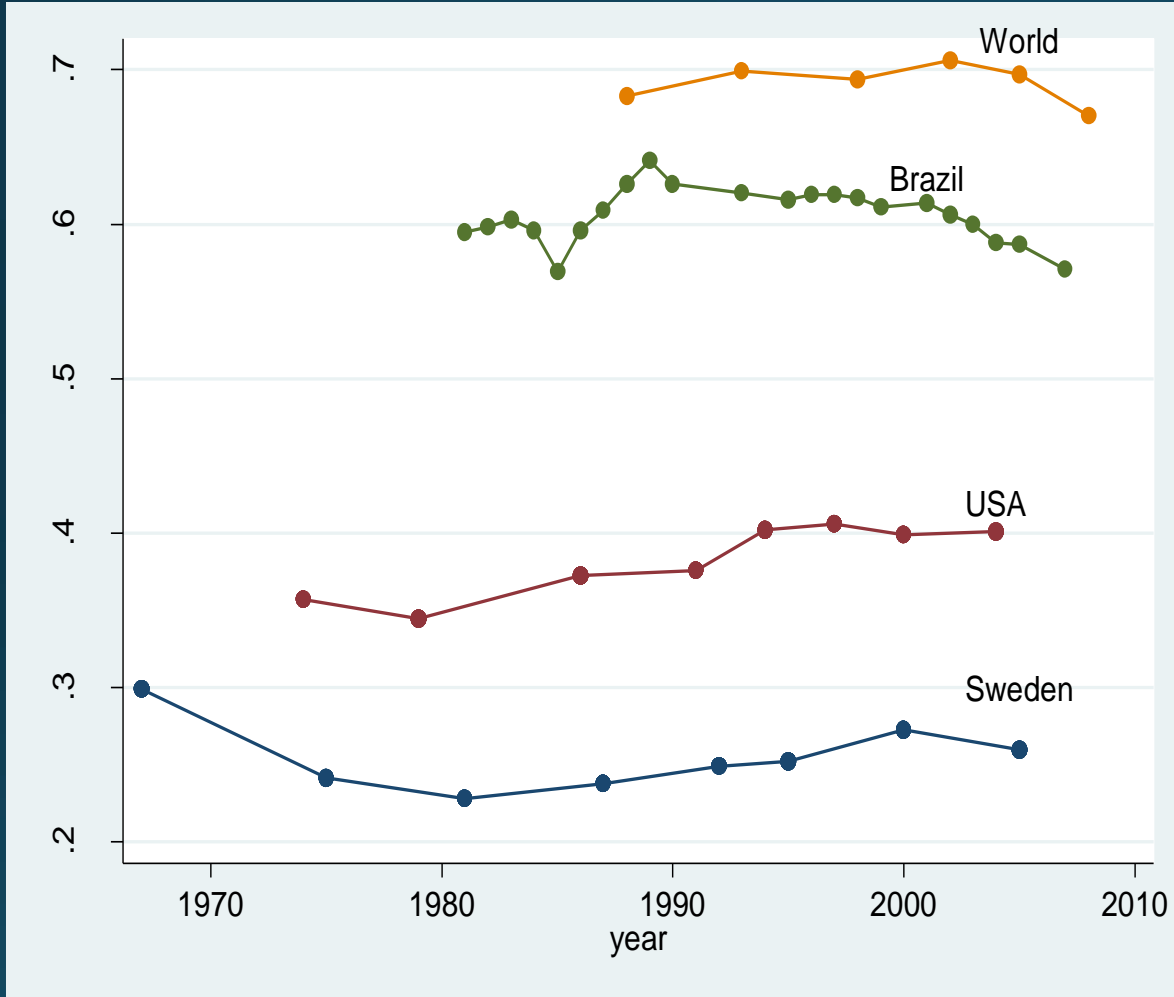
# Why Global Inequality matters

- Global Gini is just a number with no addresses - Bagwhati, 2004: “a lunacy”
- Two sets of arguments: (a) globalization and (b) philosophy: “global Rawlsianism”
- (a) Globalization
  - Even if there is no global government, globalization increases awareness of others’ incomes (process of formation of modern nation states from isolated hamlets)
  - International transfers (climate change, aid) ... Many poor people live in non poor (on average) countries [Kanbur and Ravallion (2002) p 173-4: “Since it is only through contact that recognition and tension are created, one could argue that the reduction of physical misery associated with low income and consumption levels...permit[s] an increase rather than a diminution of political tensions [because] the political misery of the poor, the tension created by the observation of the much greater wealth of other communities...may have only increased.”]
- (b) Social welfare —
  - Utilitarianism: social marginal utility of income, with decreasing marginal utility of income;
  - Equity is valued by relative income [relative to the reference] observation of the much greater wealth of other communities...may have only increased.
  - Place of birth accounts for a lot of global inequality: “Global Rawlsianism”

What has been global inequality  
recent evolution?

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# How unequal the world is?



A lot, it has a Gini of 70

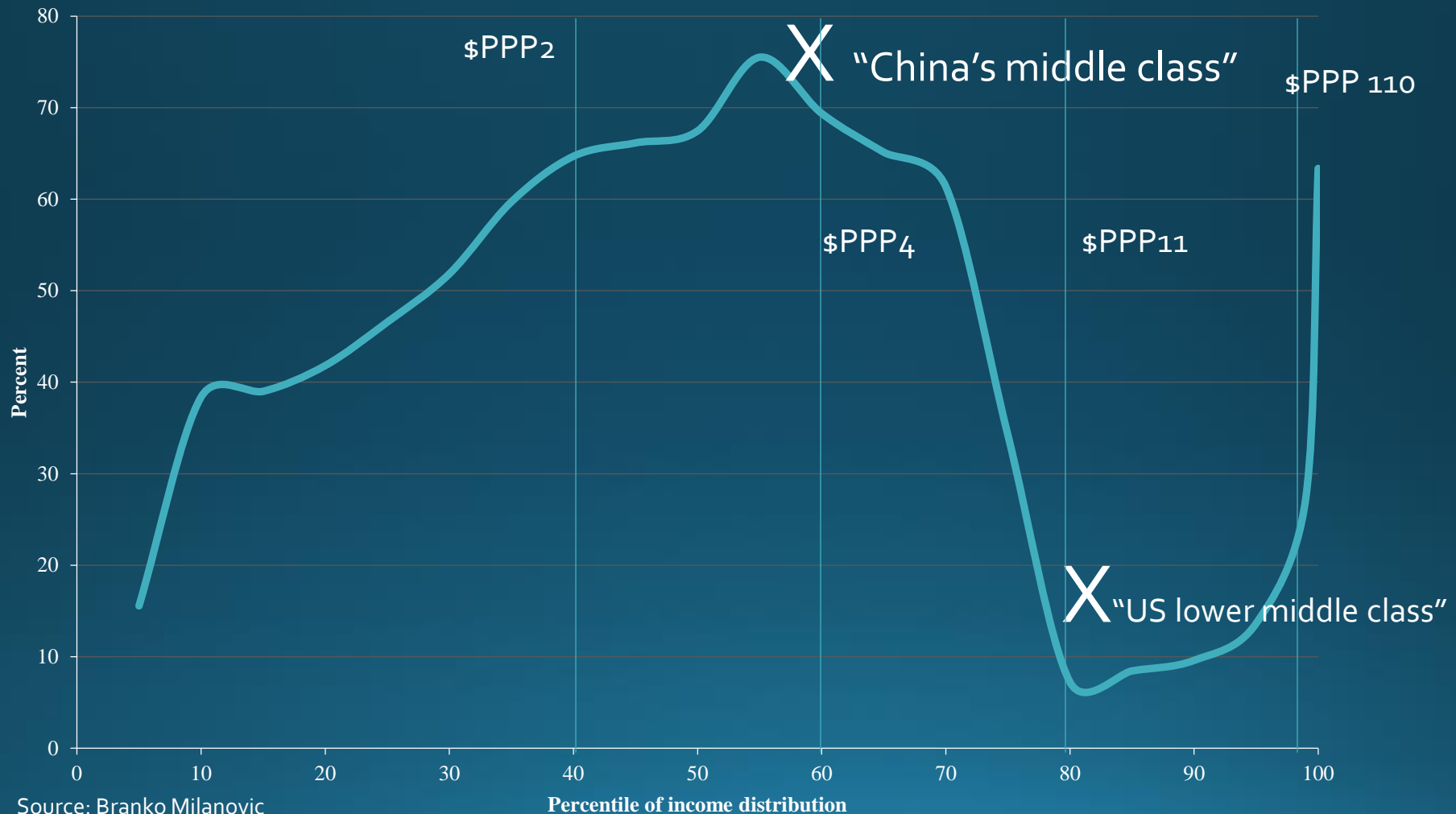
Source: Branko Milanovic

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# Global Inequality Evolution since the fall of the Berlin Wall

Real income growth at various percentiles of global income distribution, 1988-2008 (in 2005 PPPs)



Source: Branko Milanovic

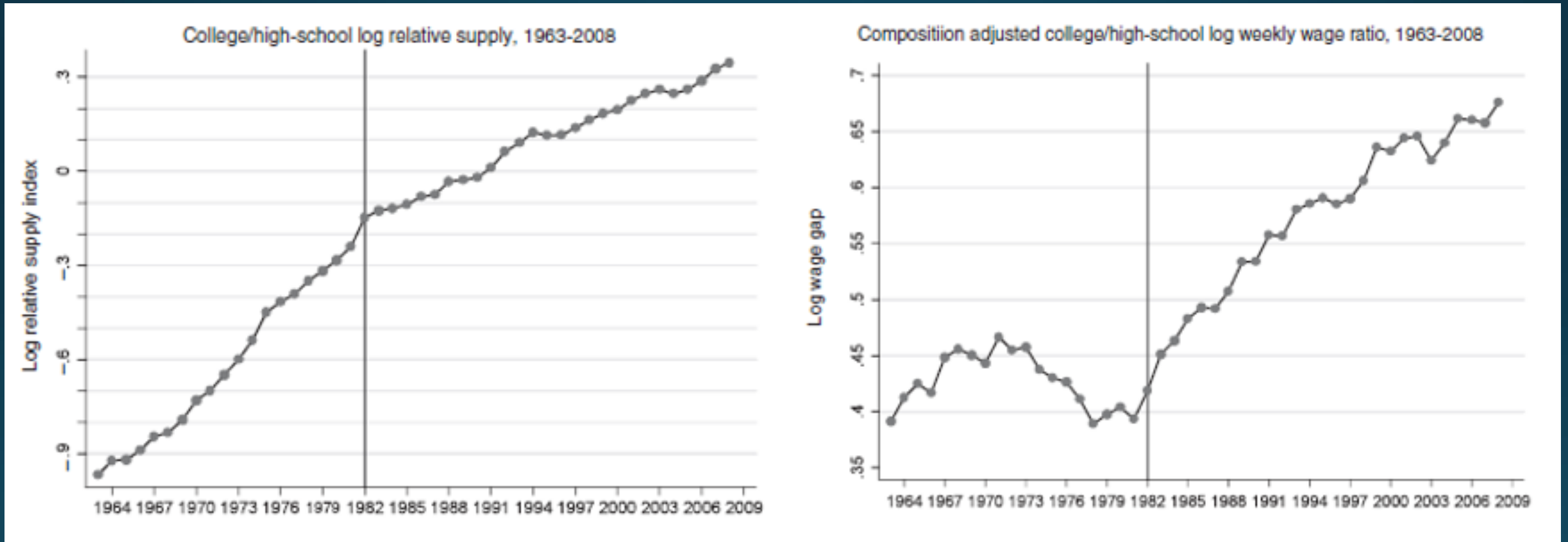
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# Global Inequality Evolution: Explanations

- While there are many theories (Kuznets 1955, Ahluwalia 1976, Cornia 2004) on the evolution of inequality, let's consider two that focus on the labor markets:
- (a) The race between education (supply) and technology (demand) [Timbergen 1974, Goldin and Katz 2009, Acemoglu and Autor, 2011]
- (b) Another strand of the literature looks at trade [many authors, see Freeman R. (the *great doubling*)]

# Global Inequality Evolution: Explanations

- (a) The race between education (supply) and technology (demand)



Figs 1 and 2 from Acemoglu and Autor, 2011

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Q: Who is winning the race?

# Global Inequality Evolution: Explanations

- (b) Trade and the rise of a global labor market

“The Great Doubling” – Millions of economically active people

	New entrants*	LDC	Advanced	World
Before entry		460	1000	1460
After entry (2000)	1470	460	1000	2930

From Freeman (2011); \* China 760, India 440, Ex Soviet 270

# Where is global inequality going? The education wave

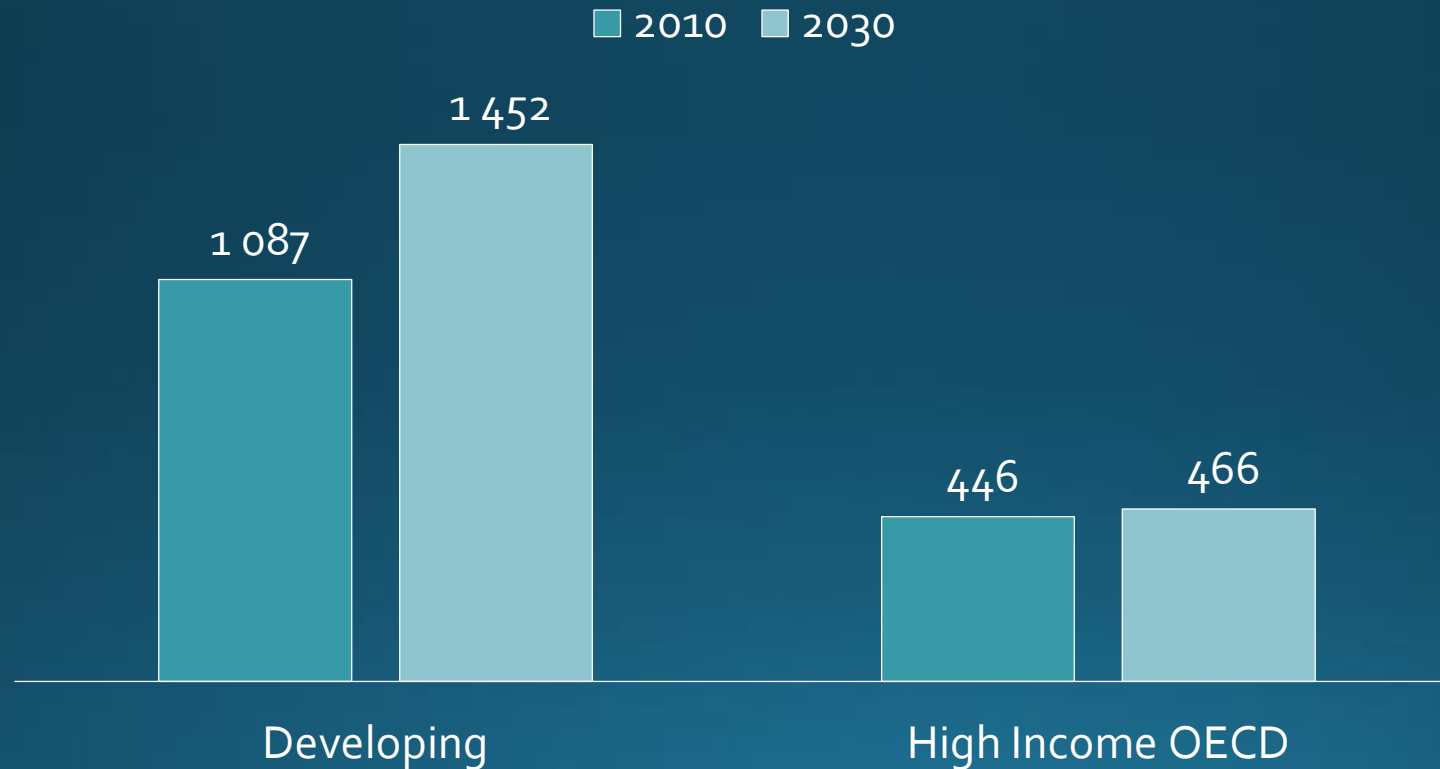
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# Reshaping the World: the education wave

- Aging and education: as the population ages, younger, better-educated, cohorts enter the workforce and older, less educated, ones leave.
- Two mechanisms of the education transition:
  - intergenerational education gap and
  - intergenerational size difference
- This education transition (or education wave) will not be uniform across countries. And developing countries will play the leading role

Almost all the growth of global skilled population will come from developing countries (94%)

### Skilled Working-Age Population, millions



Source: GIDD projections

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# Methodology

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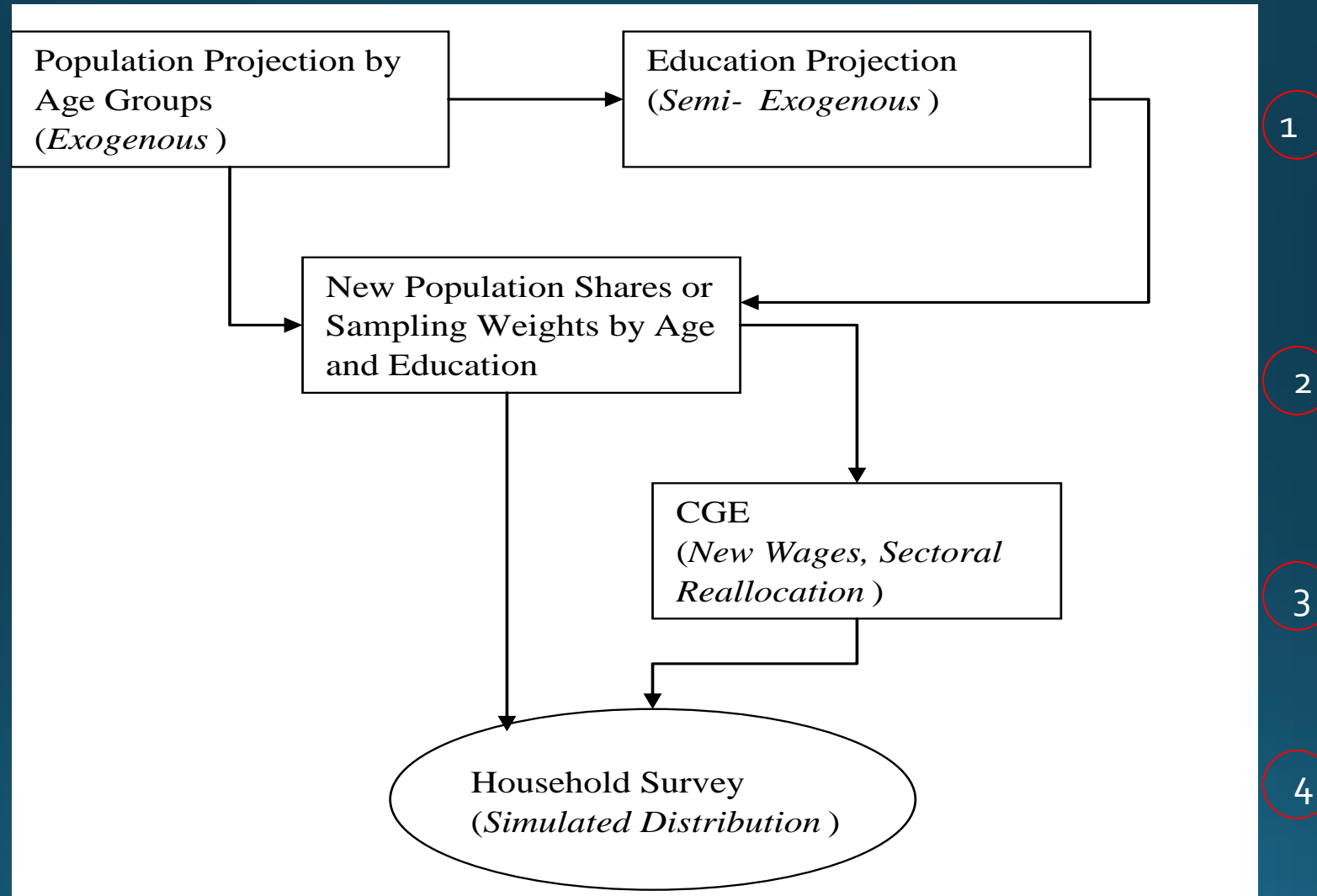
# What does this mean for inequality?

- The Supply Side
  - An increase in the entrance of educated people should reduce the skill premia and inequality (within and between countries)
- The Demand Side
  - Skill biased technological change

# How to approach inequality dynamics with a forward looking perspective?

- It is necessary to put together the demand and the supply side in a general equilibrium setting;
- Need to provide education shocks to a CGE model and get from it the price effects;
- Use these at the micro-level (microsimulation).

# The GIDD method: A “Global CGE-Microsimulation System”



The big shock

# Results

# The big shock: Growth rates of employment by skill, sector and country/region



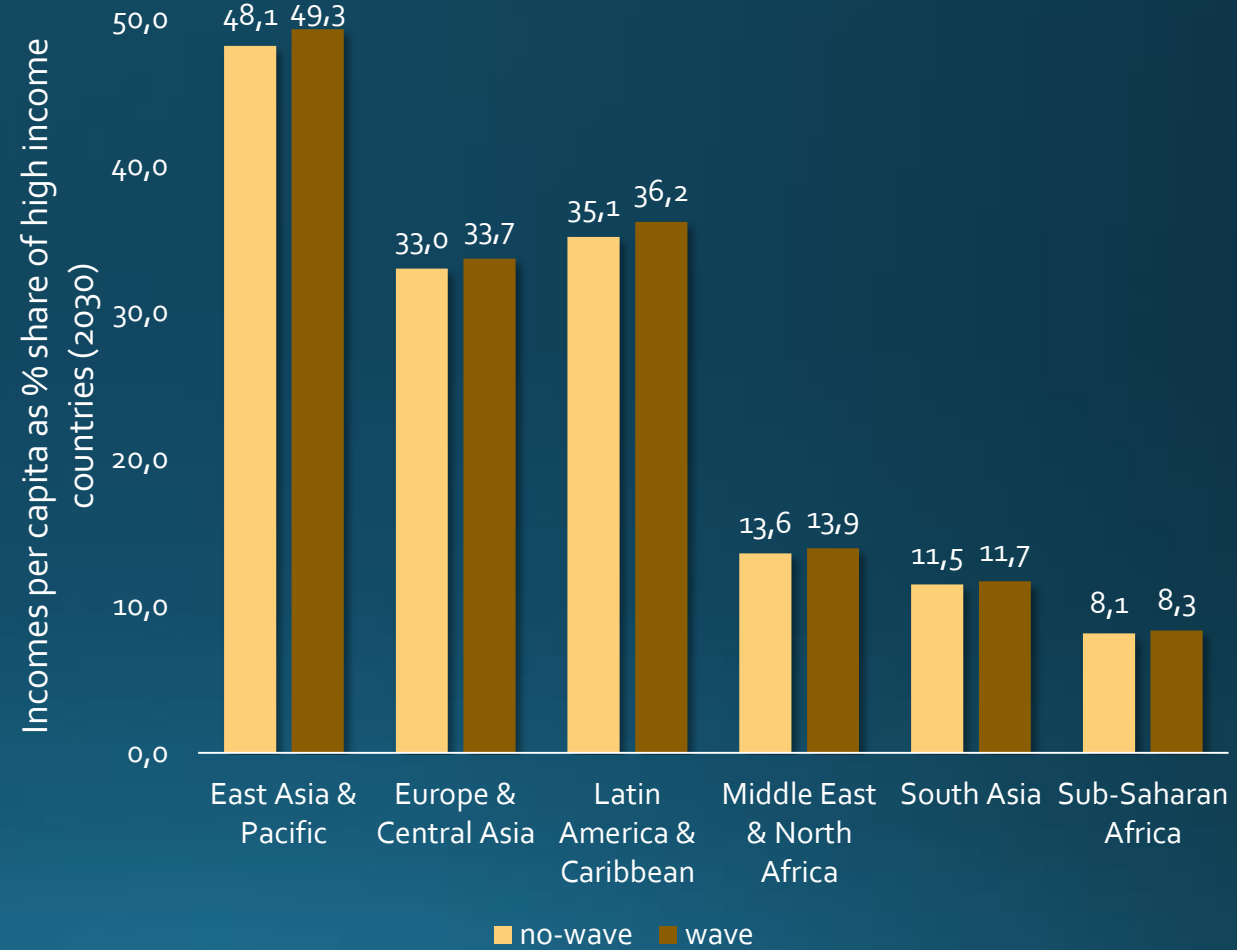
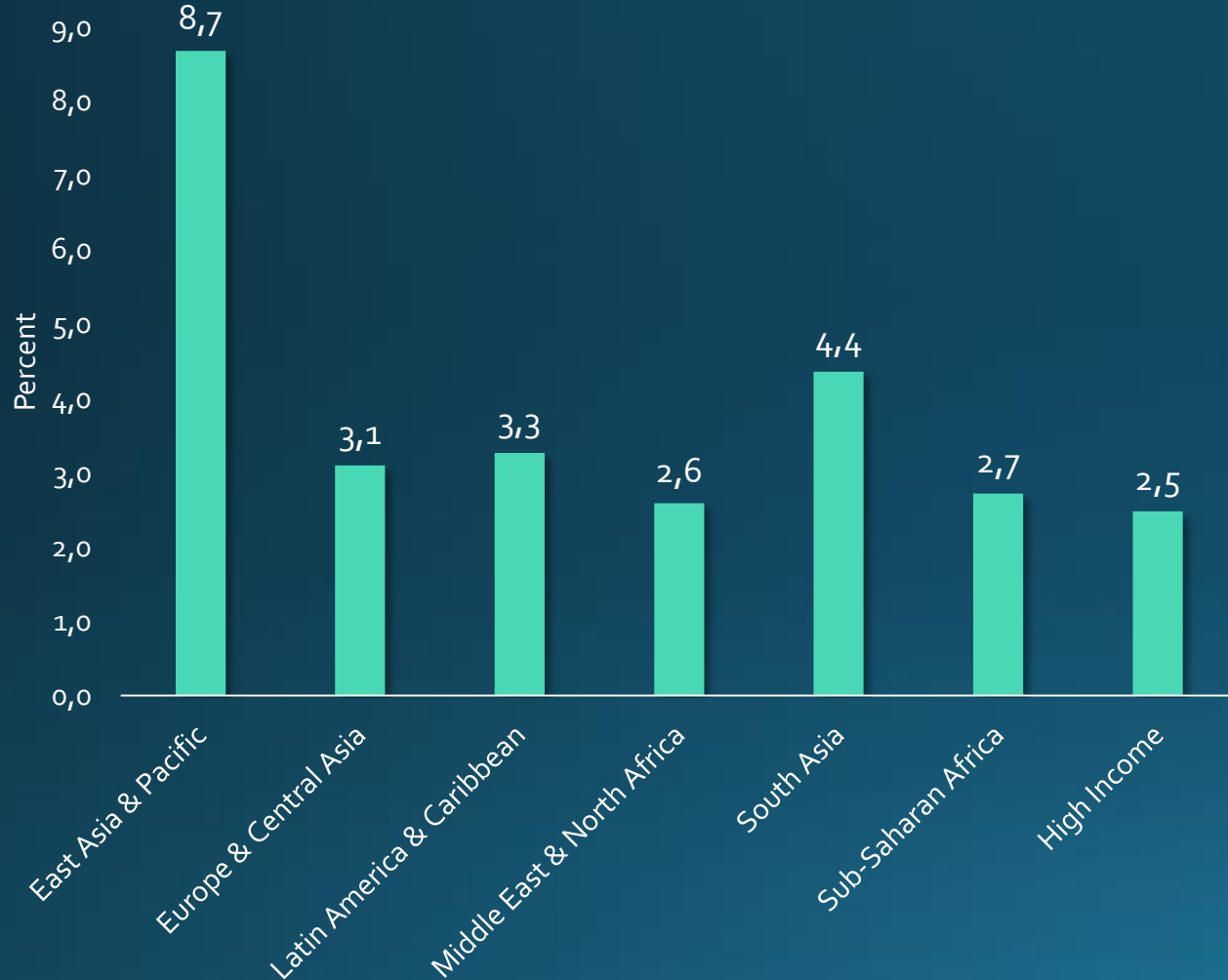
Source: Authors' calculations based on GIDD projections. Note: the growth rates are expressed as the cumulative growth for the period 2030-2012. The red dots represent regions, the blue dots are individual countries.

Aggregate results

# Results

# Growth and Convergence

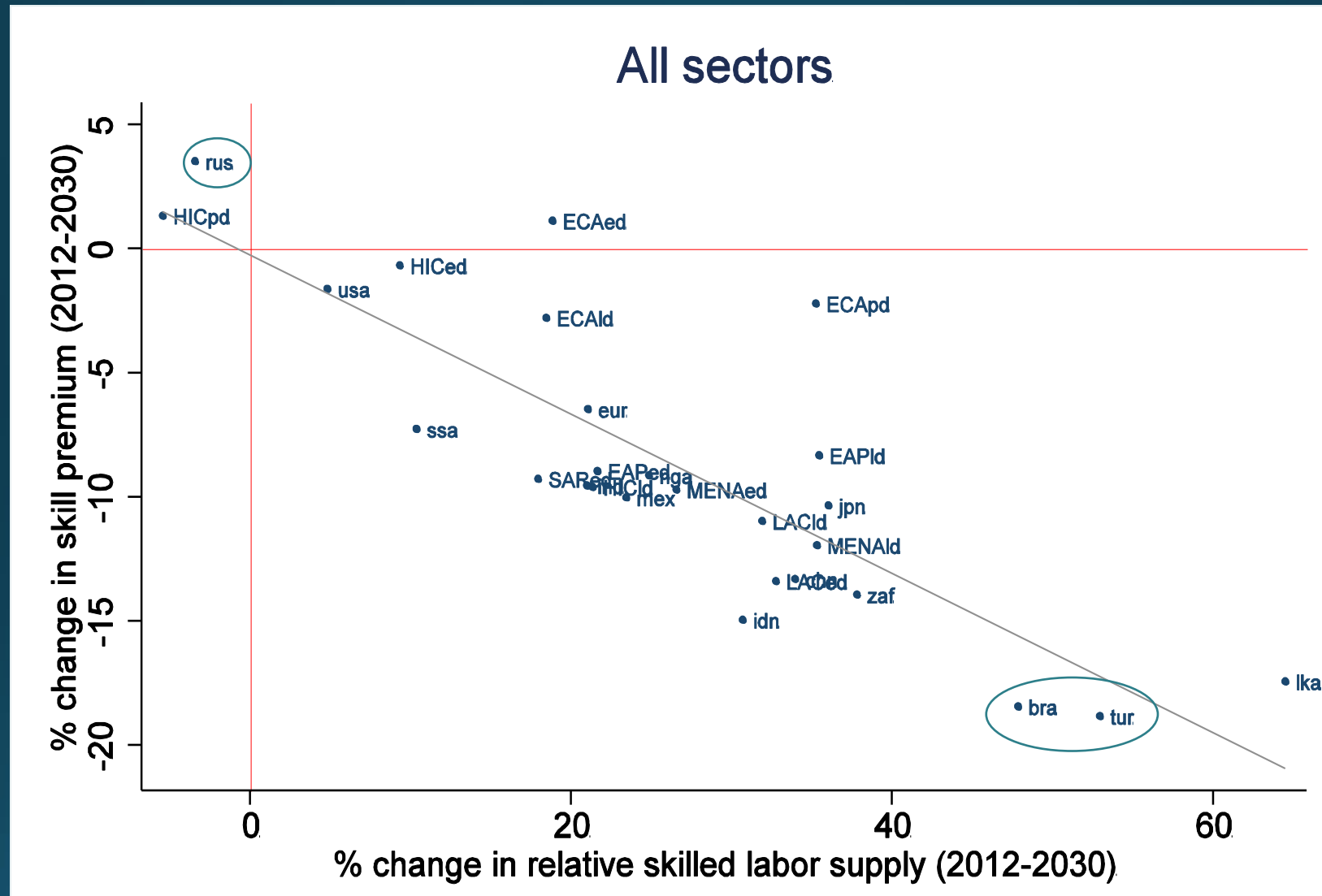
Annual average growth rates of income per capita (2012-2030)



Source: GIDD and LINKAGE scenarios

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# Main result: Skill premia will decline (mostly)



Source: GIDD simulations. Note: Relative skill premium changes are calculated as:  $[(Wage\_skill\_2030/Wage\_unsk\_2030) / (W\_skill\_2012/W\_unsk\_2012) - 1] \times 100$ , and the same formula is used for relative labor supplies.



Distributional results: between countries

# Results

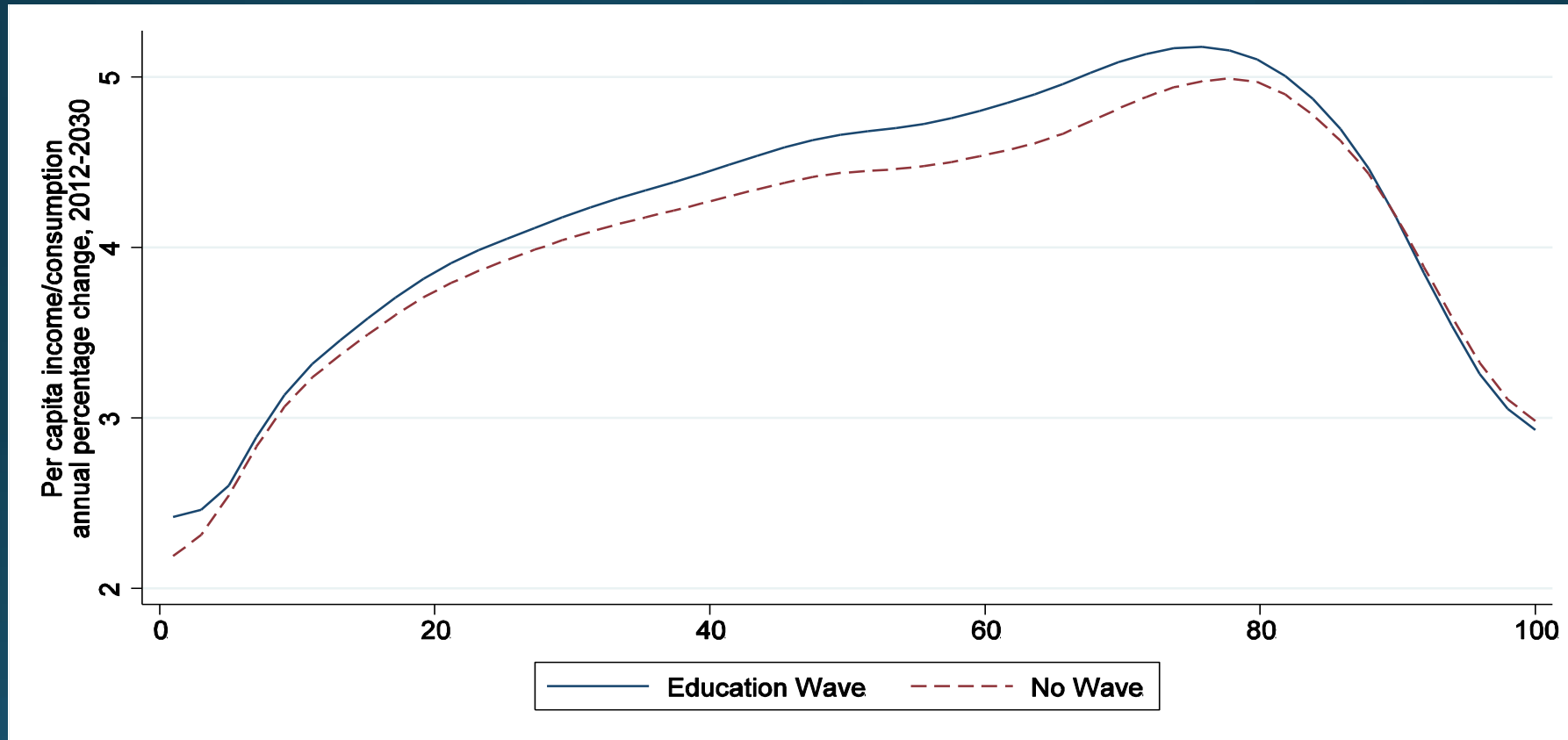
# Global inequality will go down in a more educated world

Inequality measures	2012	2030 - Education Wave		2030 - No Wave
		Demographic	Full simulation	
Gini index	65.8	65.5	62.6	63.2
Theil-L	90.7	91.0	76.6	78.6
<b>Theil Decompositions:</b>				
Between regions (%)	51.7	48.0	41.4	41.0
Within regions (%)	48.3	52.0	58.6	59.0
Between countries (%)	57.2	53.6	49.1	48.6
Within countries (%)	42.8	46.4	50.9	51.4
Percentile 75 / Percentile 25	5.5	5.4	6.7	6.6
Mean, \$(PPP)	416.9	430.3	835.2	827.4
Coeff. of variation	3.1	3.3	2.4	2.5

Source: Authors' calculations based on GIDD simulations.

# Global Growth Incidence Curve (2012-2030)

Real income growth at various percentiles of global income distribution, 2012-2030 (in 2011 PPPs)  
The elephant graph again, this time with no trunk...



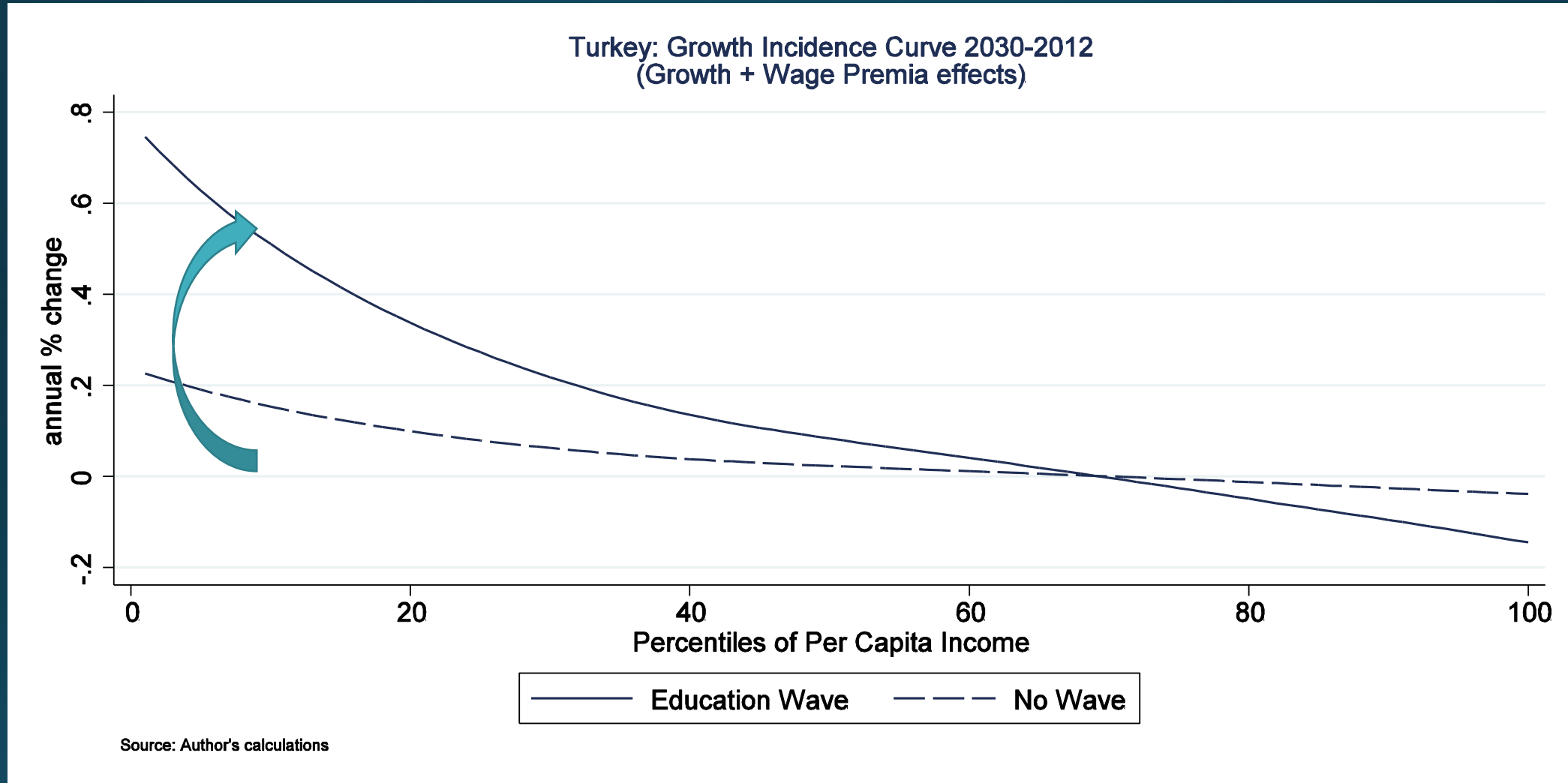
Source: GIDD microsimulations

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Distributional results: within countries

# Results

# Inequality in Turkey

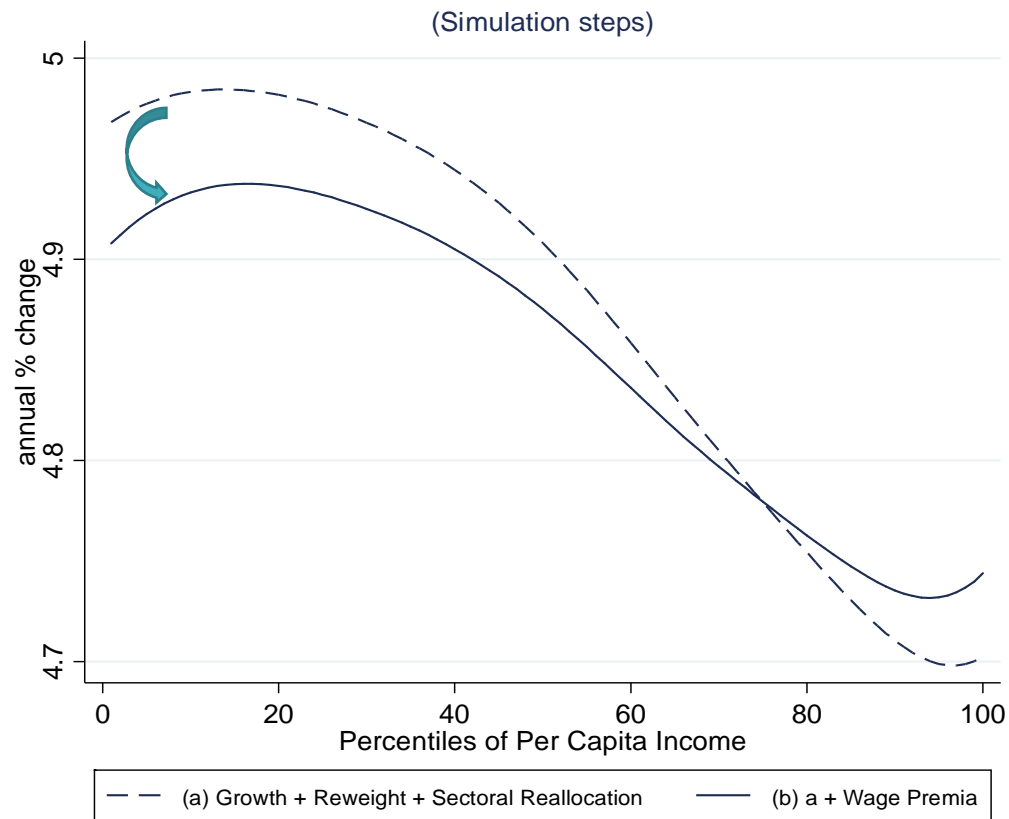


Source: Authors' calculations based on GIDD simulations.

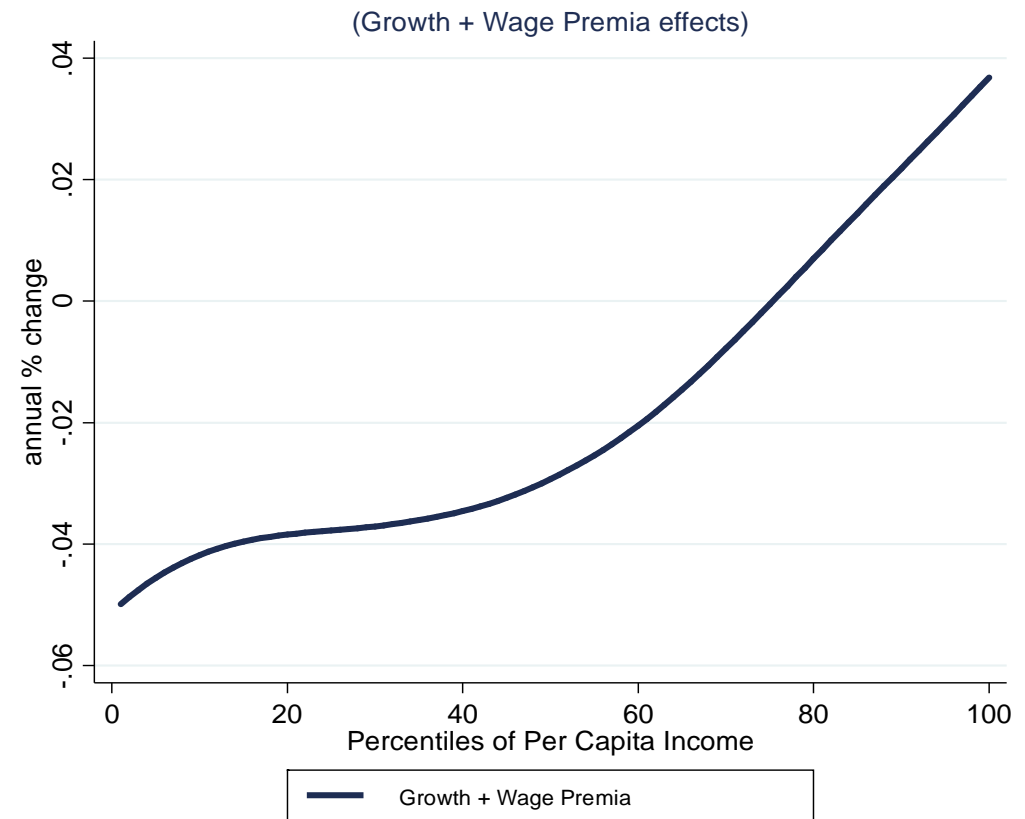
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# Inequality in Russia

Russia: Growth Incidence Curve 2030-2012  
Education Wave Scenario



Source: Author's calculations

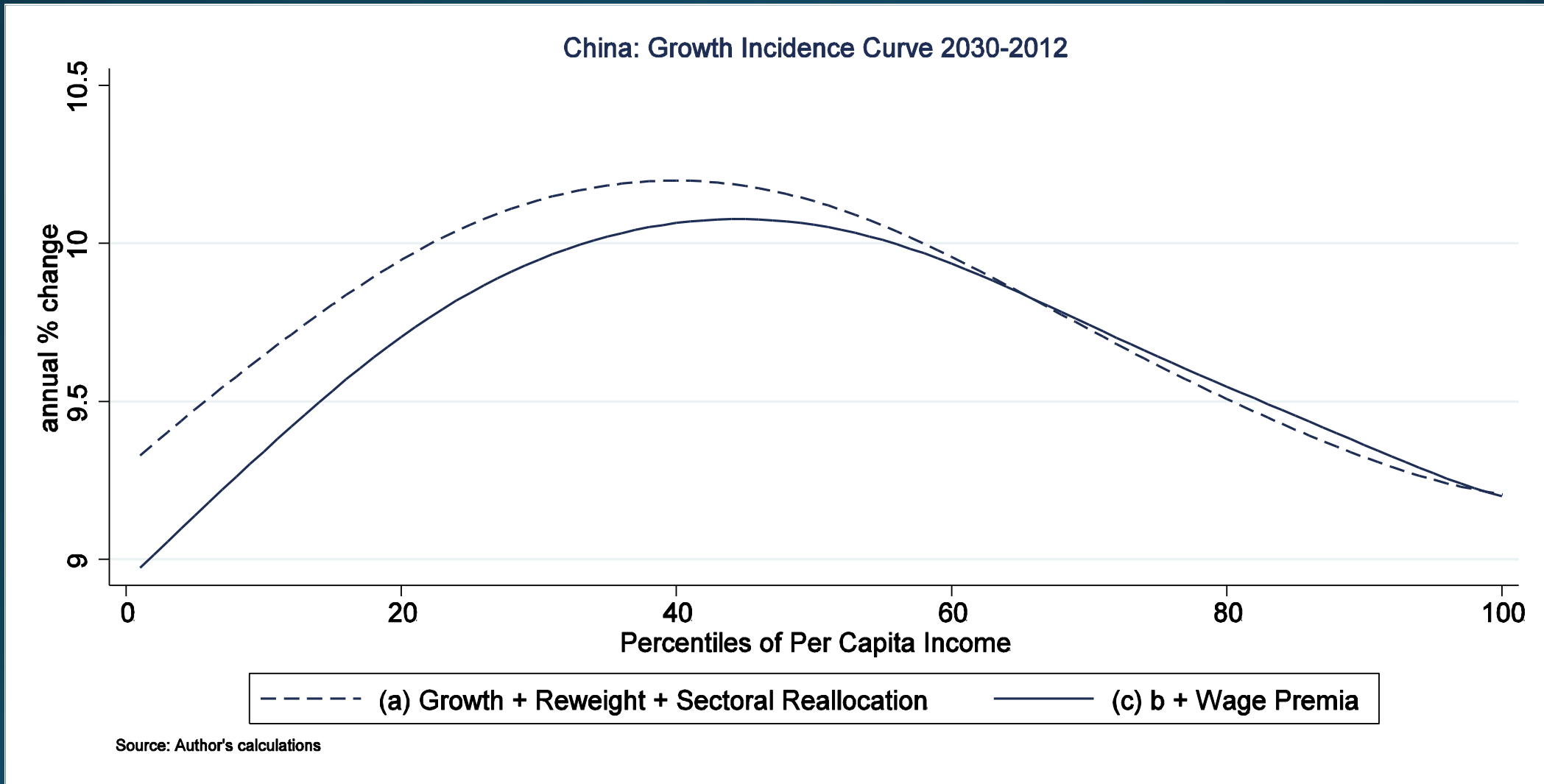


Source: Author's calculations

Source: Authors' calculations based on GIDD simulations.

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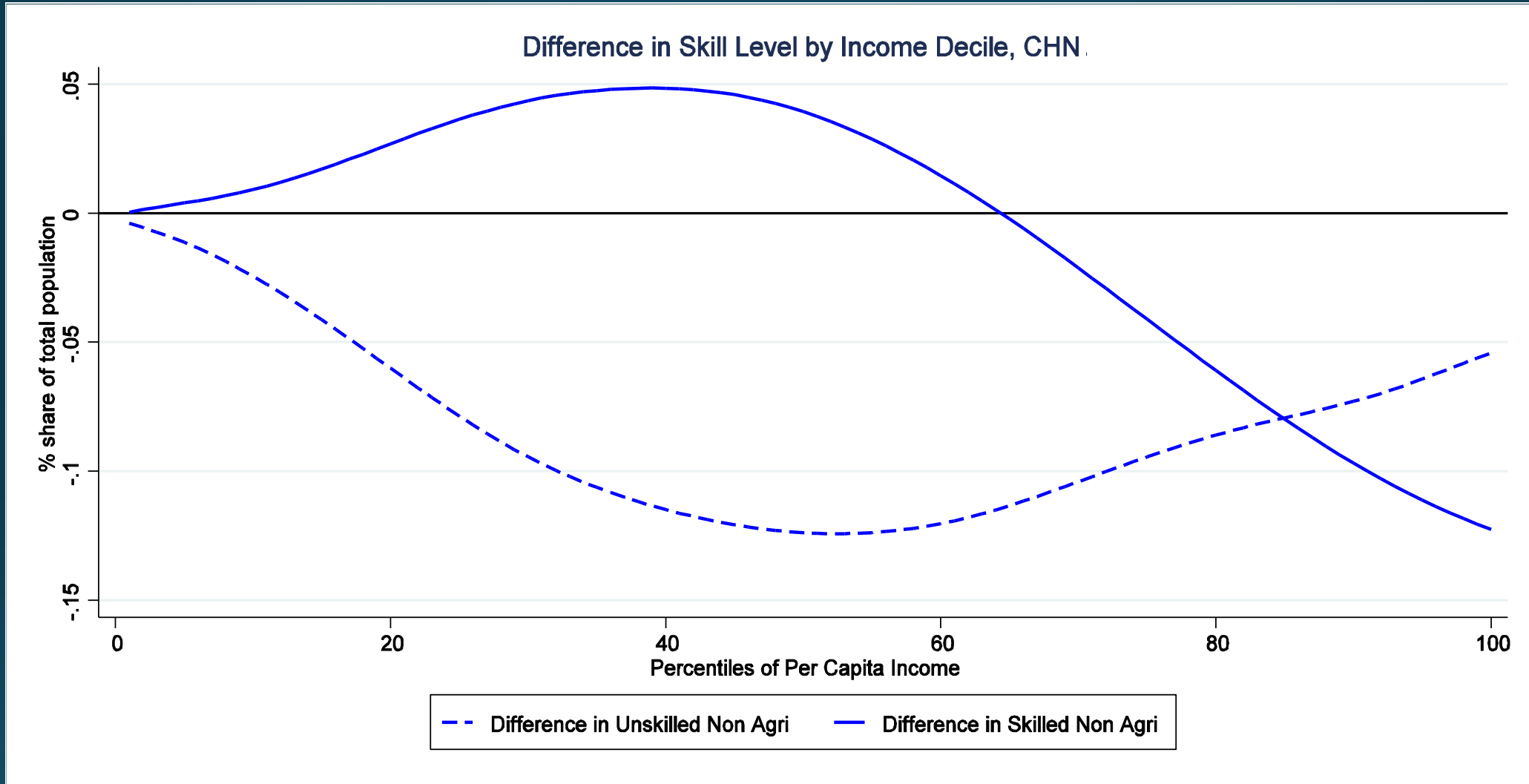
# Inequality in China



Source: Authors' calculations based on GIDD simulations.

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# Inequality in China

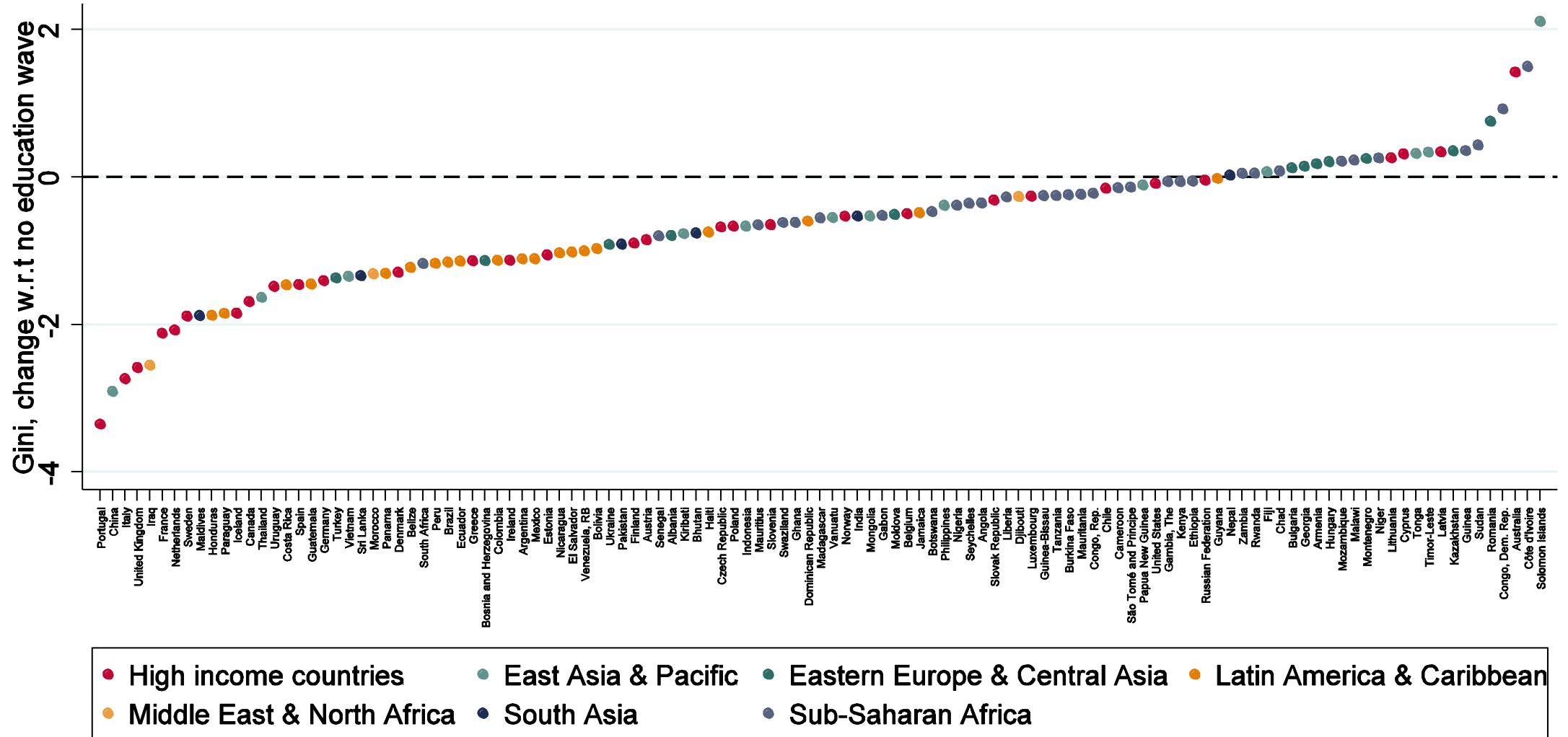


Source: Authors' calculations based on GIDD simulations.

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# GIDD Micro Results: Within countries Gini with and without Education Wave



# Discussion

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# Conclusions

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# Conclusions

- Big thought experiment
- Skilled High Income to Developing countries: now 1 to 2, soon 1 to 3;
- As shown by the 'new' elephant graph, gains are not uniform, and there may be losers;
  - the global inequality approach helps identifying both of these
- Education, as it has been in the past, still play role of equalizer;
  - However there are many additional issues that get in the way: aging (need more research on this), learning crisis, access to quality education and income inequality (intergenerational immobility);
- Global inequality changes are associated with international trade, migration, capital flows (climate change): as more multilateralism is needed less is available.

# Thank you

More info here:

GIDD web page: <https://goo.gl/ZurCOh>

Or <http://ideas.repec.org/f/pbu248.html>