

Distributional effects of international trade: Facts and misconceptions

Erhan Artuc

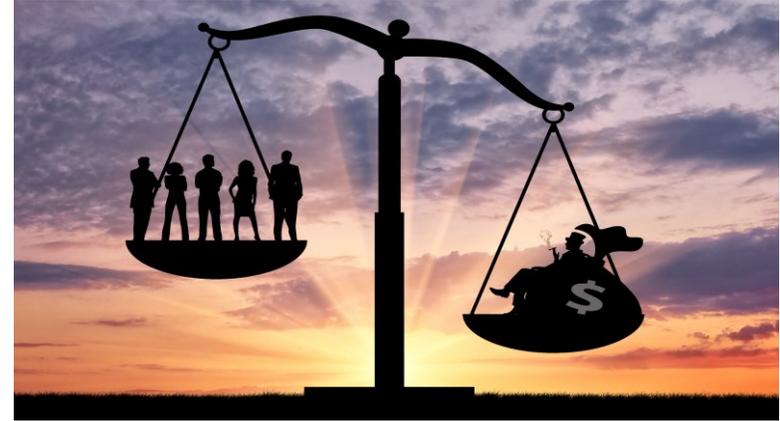
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Distributional effects of trade: Why do we care?

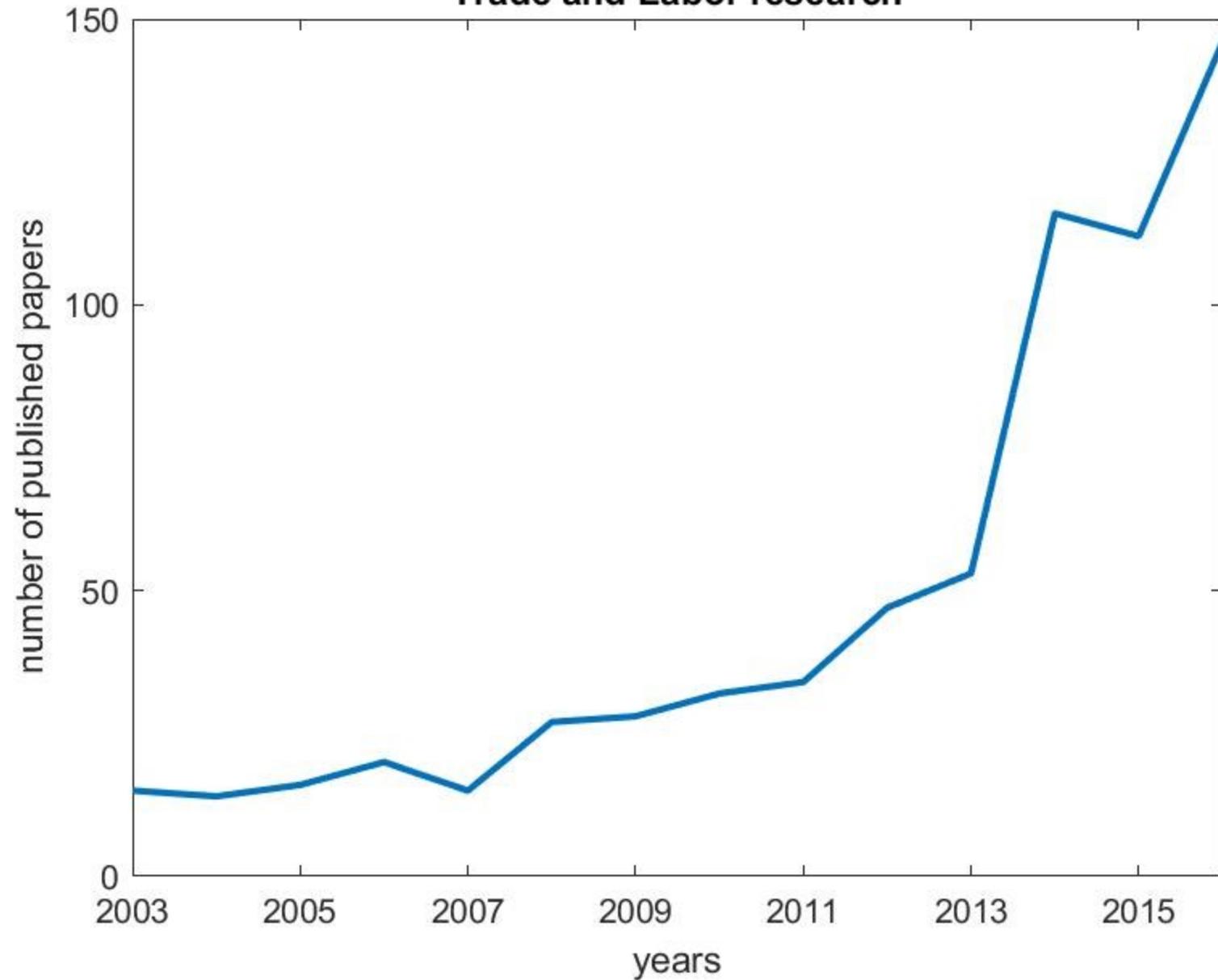
International trade

- Efficiency increase
- Knowledge spillovers
- Aggregate income growth
- Creates winners and losers



- Need to identify distributional effects because we care about:
 - Inequality
 - Poverty
- Need to get policy recipes right

Trade and Labor research





David Autor (MIT)



A Nation Engaged

SPARKING CONVERSATIONS THAT MATTER

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China Killed 1 Million U.S. Jobs, But Don't Blame Trade Deals

April 18, 2016 · 7:01 AM ET

Heard on [All Things Considered](#)

Trade with China is bad (!)

TPP is not the culprit



David Autor (MIT)

This is the magic of trade. With two countries doing what they're best at with the same number of workers and money and materials invested, together, they can create more, higher-quality stuff than either of them could separately. In that sense, it creates wealth for both countries.

China was different, though. For one thing, it's huge. And it began exporting all kinds of things U.S. manufacturers were already making, but China was selling them cheaper. That might not have been such a big deal if China wasn't so big. And more quickly than economists predicted, China was able to transform its rural society of nearly 1 billion low-wage workers into a cheap-labor manufacturing superpower.

"It was the proverbial boulder sitting on the top of a mountain for 100 years, and one day it started to roll down, and, you know, it is rather disruptive to those in the valley below," Autor says.

Disruptive because the Chinese boulder squashed a lot of American manufacturing jobs.

Still, "I don't want to go too far with that analogy," says Autor, "because we still win from trade with China."



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Report: Trade deficit with China has cost millions of U.S. jobs

By **SABRINA RODRIGUEZ** | 10/23/2018 10:00 AM EDT

With help from Megan Cassella

Editor's Note: This edition of Morning Trade is published weekdays at 10 a.m.

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- Selective presentation of results in the media
- Complexity of research magnifies the problem, creating misconceptions

Common misconceptions

- Measuring gains and losses from international trade accurately is possible (thanks to recent micro-datasets)
- We can identify losers using empirical analysis, but it is prohibitively costly to compensate them
- Recent empirical research, such as local labor markets approach, can give an unbiased account of wage and employment effects

Dissecting misconceptions

- A good policy recipe based on research requires
 - Understanding limitations of research
 - Seeing beyond the common misconceptions
- Major sources of misconceptions are
 - Measurement challenges
 - Ignoring labor mobility dynamics

Measuring direct effects of international trade



Income channel

- Wages change
- Crop prices change for farmers
- Tariff revenue

Consumption channel

- Prices of imported goods decline
→ Overall decline in consumer prices



- Consumption channel is particularly difficult to measure

Labor mobility matters

- (1) Labor mobility determines income effects
 - (2) Empirical identification of gains/losses relies on mobility frictions
- Prohibitive mobility frictions
 - Initial industry/occupation/region determines gains and losses
 - International trade directly linked to changes in wages and employment
 - No mobility frictions
 - Factor price equalization: Pre-shock job does **not** matter
 - Wages in import-competing industries increase as much as export industries
 - No variation: Regression is **not** feasible based on industry, occupation or location
- Matters for both transmission and identification of gains or losses

What do we need to inform policy?

1) Careful measurement of gains & losses → Simulations/model

Household impacts of tariffs

2) Direct and detailed evidence → Econometric analysis

Exports to Jobs

3) Careful treatment of labor mobility → Dynamic framework

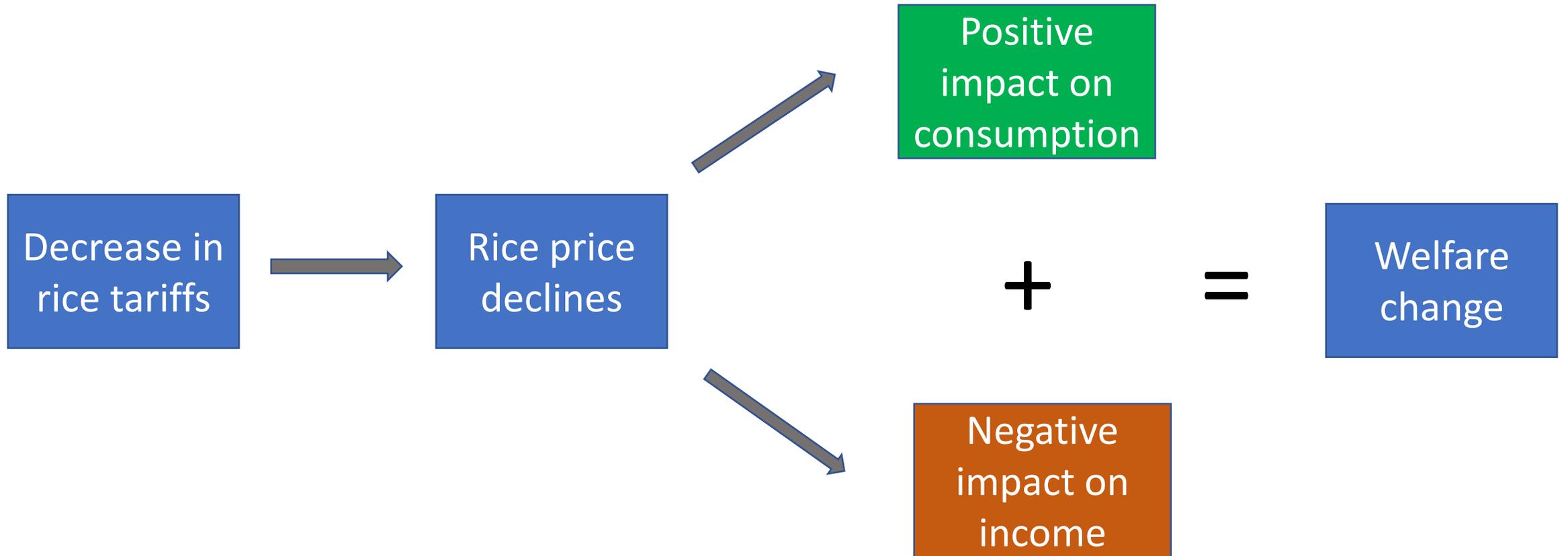
Trade, Jobs and Worker Welfare

Examples for each + a novel research agenda that combines all

1. Forward-looking analysis: *Household Impacts of Trade*



What happens if we remove tariffs on rice?



Household impacts of tariffs: A quantitative approach

Artuc, Porto and Rijkers (2019)

- Factors, production and consumption decisions are fixed (*short-run*)
→ Only need data on industry shares of production and consumption
- 54 countries and 50 products with focus on agriculture
- Household level income and consumption data
- Harmonized tariff data
- Web-based simulation tool: Impact of tariff cuts on welfare and inequality

Household Impacts of Tariffs (HIT)



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[Household Impacts of Tariffs: Data and Results from Agricultural Trade Protection](#)

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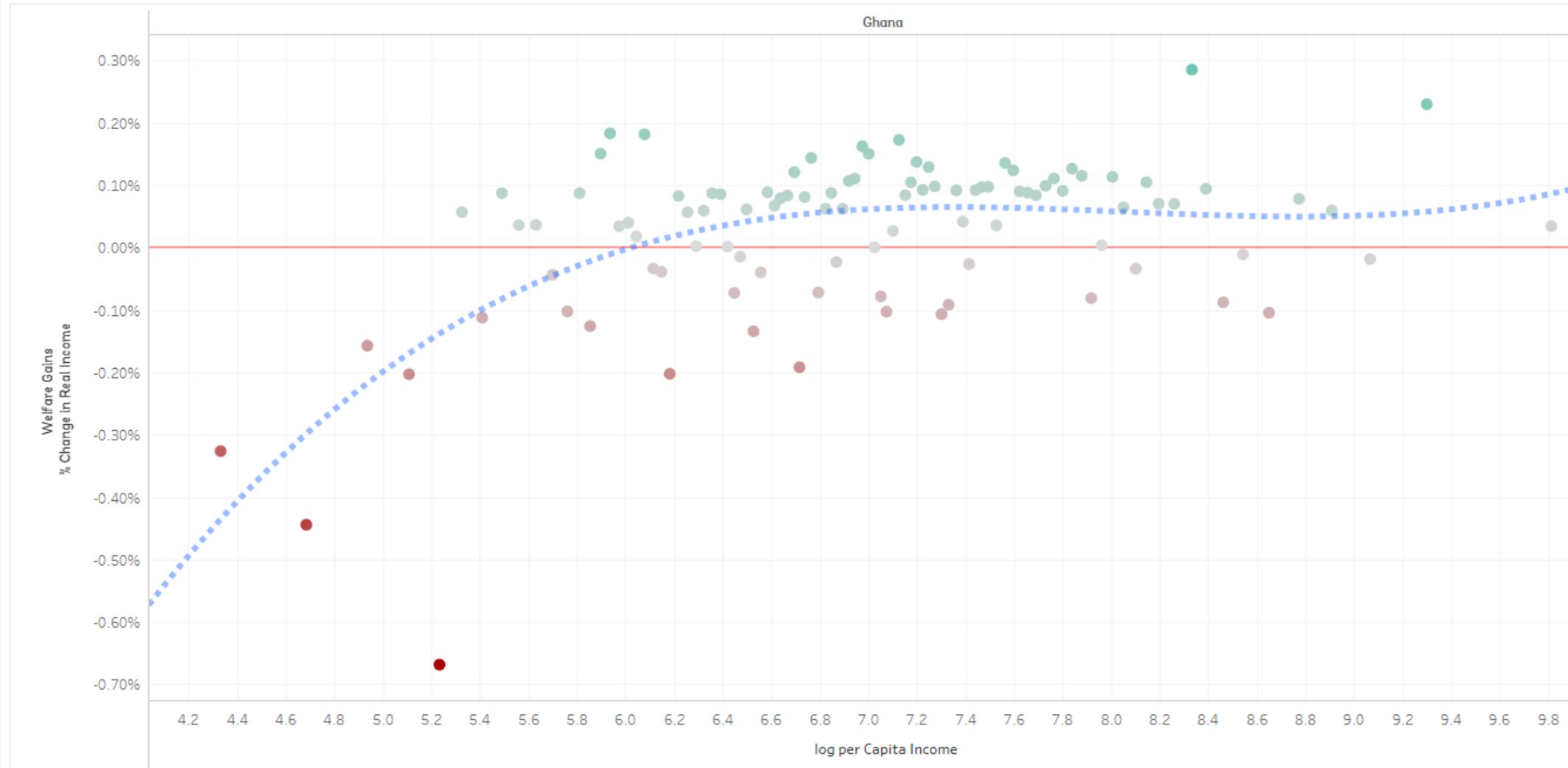
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About the Household Impacts of Tariffs (HIT) Simulation Tool

The Household Impacts of Tariffs (HIT) simulation tool enables users to simulate how changes in import tariffs impact the incomes of households across the income distribution. The website provides estimates of (i) price changes induced by tariff reforms, and (ii) the resulting impact on the real income of households in different percentiles of the income distribution via their impact on (iii) the cost of consumption and (iv) their incomes using detailed data on households' income and consumption portfolios derived from representative household surveys harmonized with tariff data.

www.worldbank.org/en/research/brief/hit

Household welfare in Ghana (rice tariff cut)

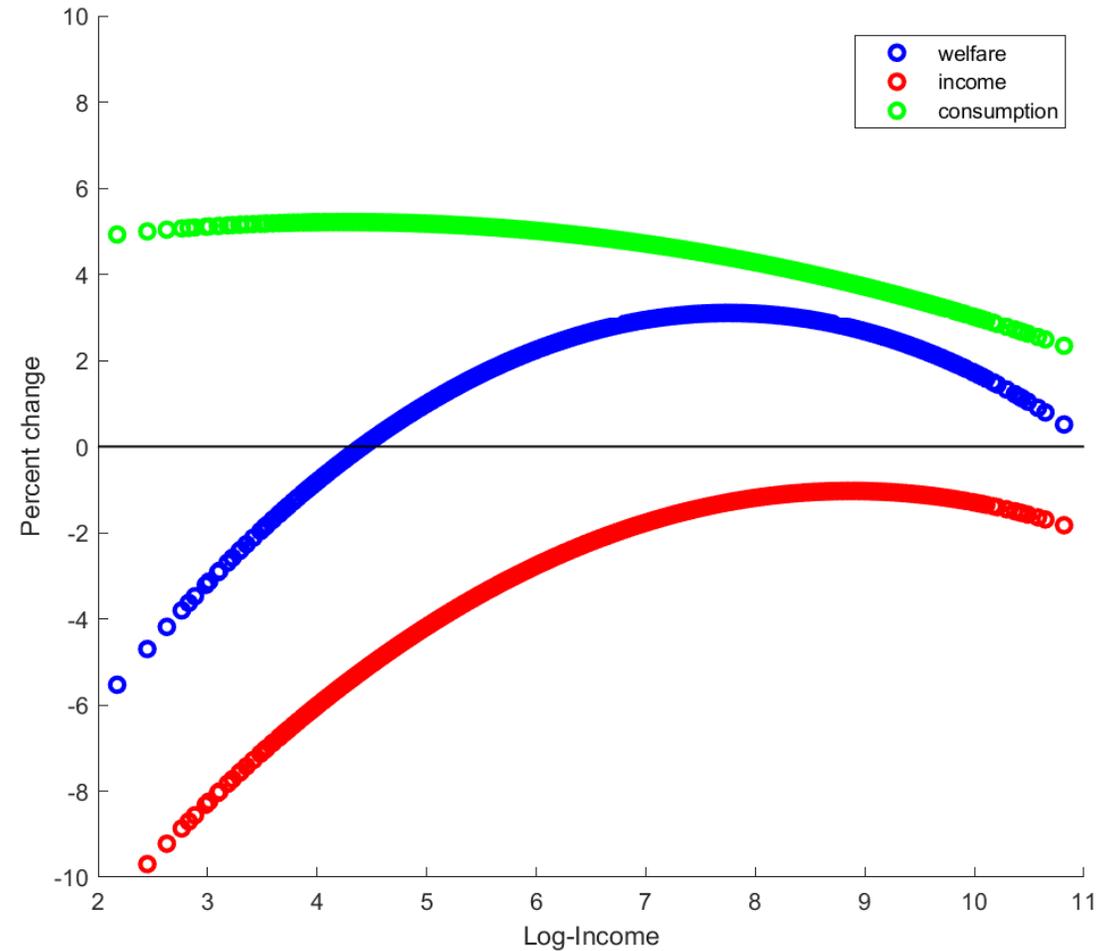


Facts and misconceptions - 1

- **Misconception:** Measuring gains and losses from international trade accurately is possible (thanks to recent micro-datasets)
- **Fact:** Identification of the gains is more difficult than losses
 - Unilateral tariff cuts:
 - Negative income effects: Concentrated and uneven
 - Positive consumption effects: Diffuse and evenly distributed

Facts and misconceptions - 1

Welfare impact of unilateral tariff liberalization



2. Backward-looking analysis: *Exports to Jobs*

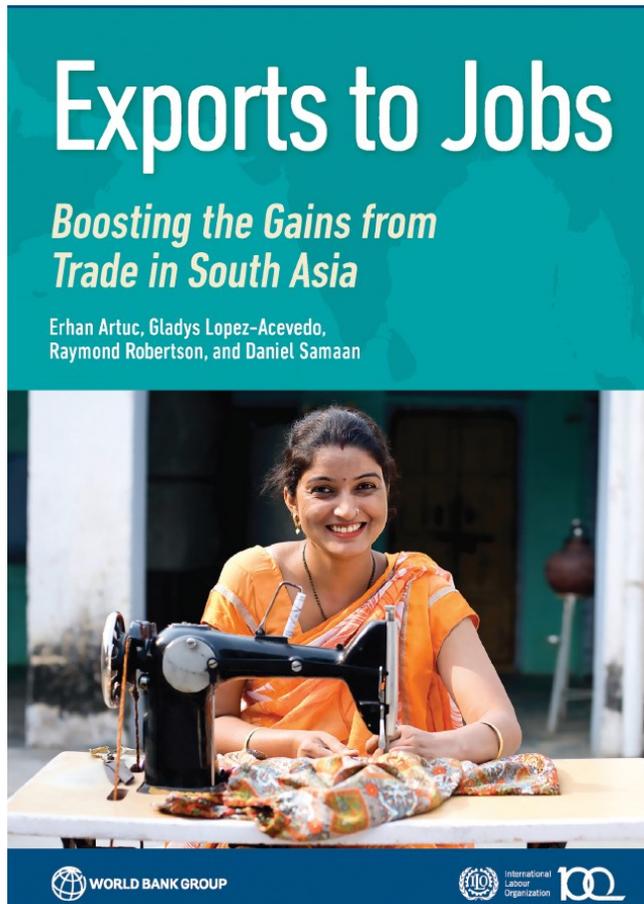


Local labor markets: Empirical analysis

- Heavy spatial concentration import competing industries
 - Trade liberalization affects regions (commuting-zone, zila, micro-region, etc.)
- Rapid growth of China in the 2000s, US employment and wages
 - Autor Dorn and Hanson (2013)
- Trade liberalization in India and Brazil: Poverty, employment and wages
 - Topalova (2010) and Kovak (2013)
- Mostly about negative long-run effects (easier to identify)

A new perspective on the local labor markets

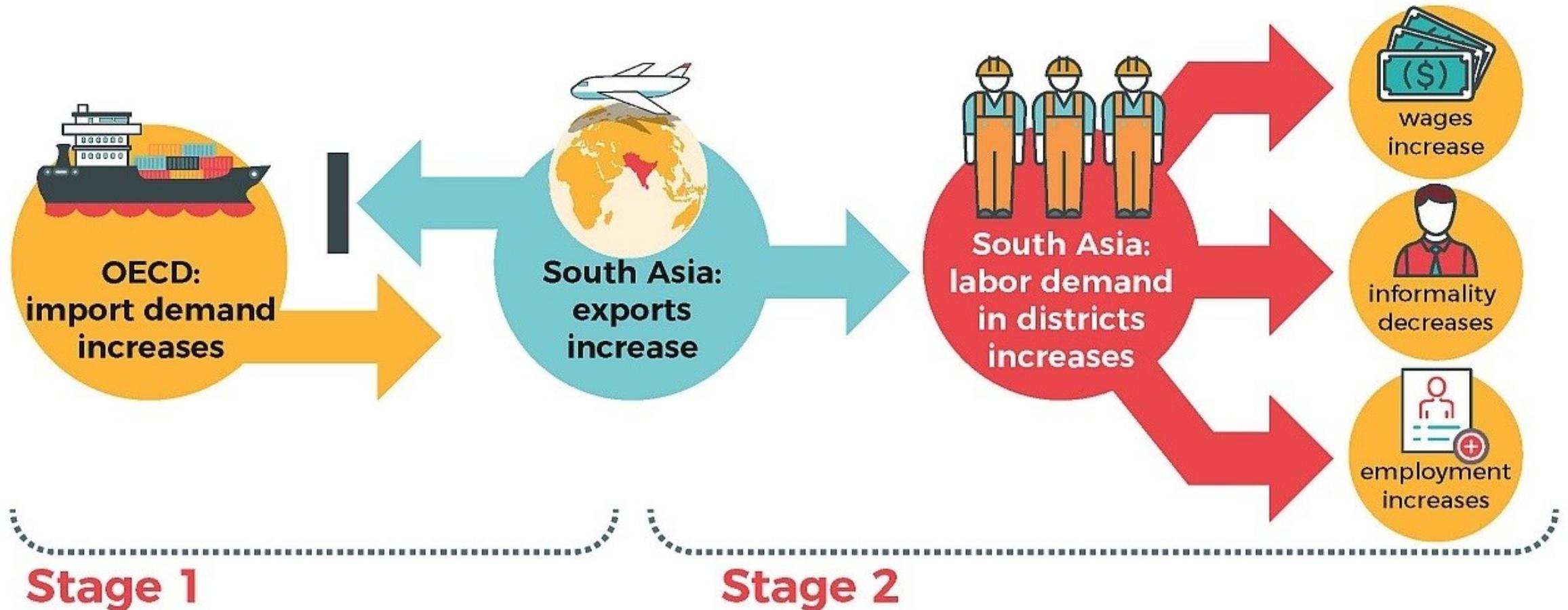
Artuc, Lopez-Acevedo, Robertson and Samaan (2019)



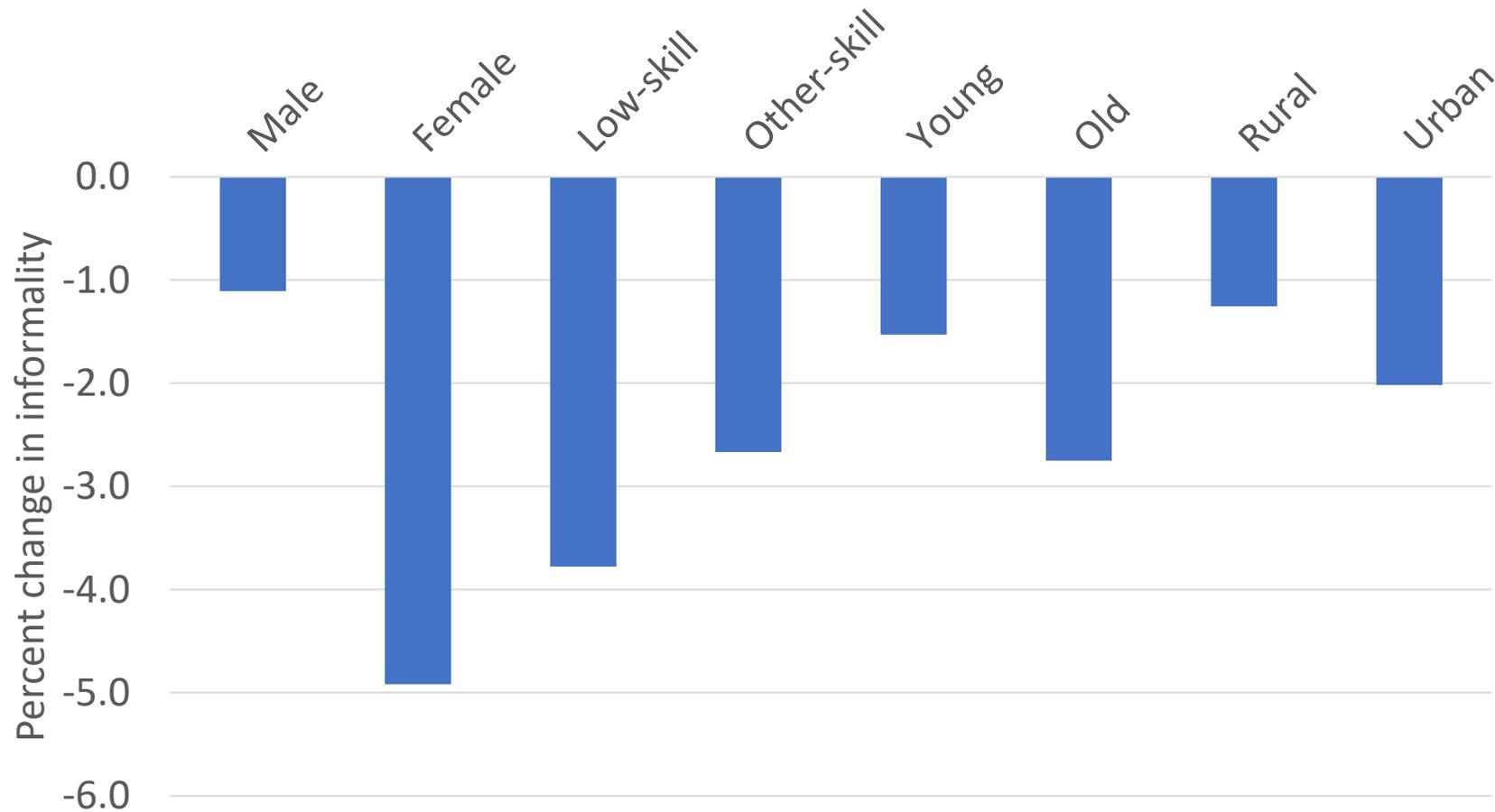
Let's flip the question:

- How do exports to OECD countries affect wages and employment in South Asia (particularly in India)?

Local labor markets: Exports to jobs



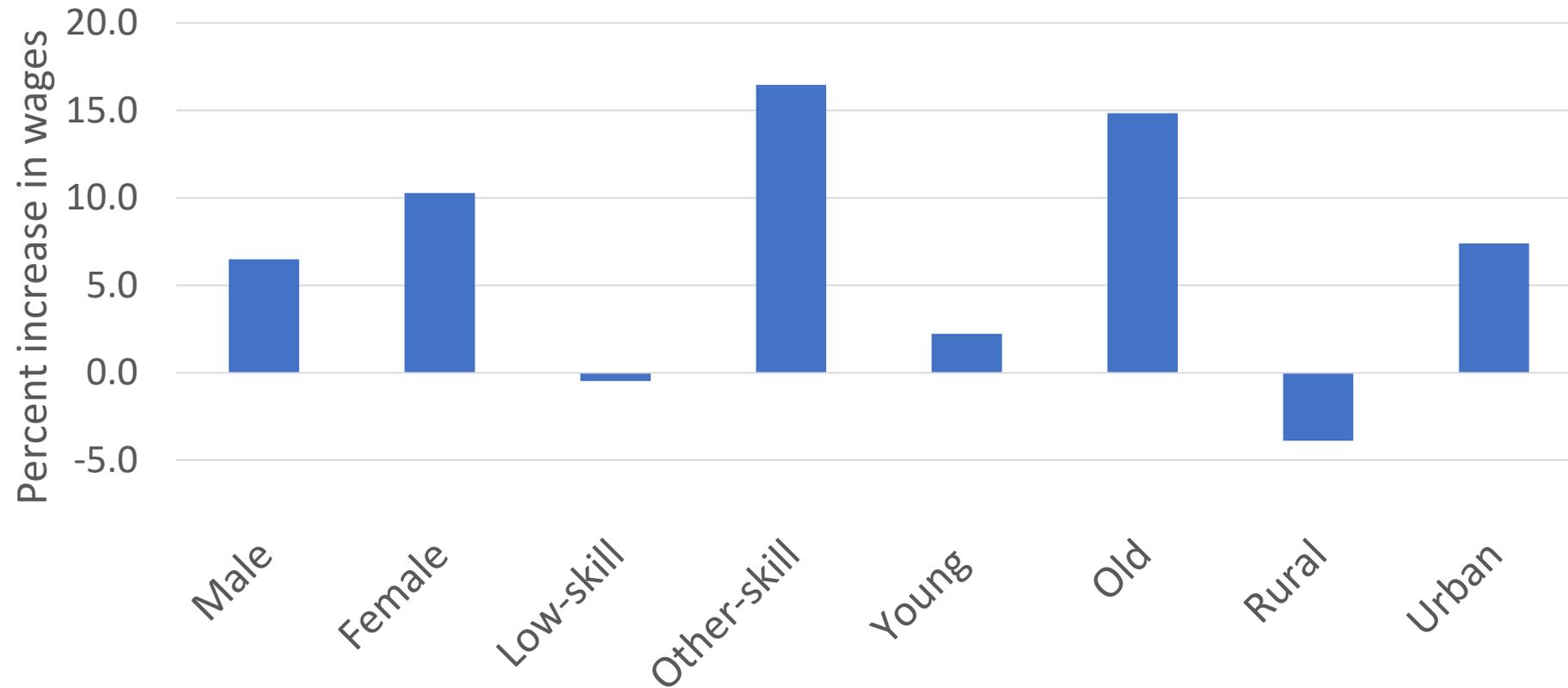
Exports reduce informality in India*



*Impact on a district at 75th percentile relative to 25th percentile exposure

Source: Artuc, Lopez-Acevedo, Robertson, Samaan (2019)

Heterogenous impact of exports on wages in India*



*Impact on a district at 75th percentile relative to 25th percentile exposure

Source: Artuc, Lopez-Acevedo, Robertson, Samaan (2019)

Facts and misconceptions - 2

- **Misconception:** We can identify losers using empirical analysis, but it is prohibitively costly to compensate them
- **Fact:** Only relative winners and losers are identified
 - No true control group
 - Price changes affect everybody (unidentified)
 - Migration and labor mobility are not accounted
 - New technologies, ideas and opportunities (dynamic effects) are ignored

Facts and misconceptions - 2

- How costly was the China syndrome?
 - Autor Dorn and Hanson (2013)
- Income impact of \$1 additional imports from China: roughly -4¢ relative to the unexposed (total \$21.5 billion)
- Compensation is feasible:
 - USA GDP about \$20 trillion
 - 0.1 percent tax suffices



- **Bill Gates: *'I've paid over \$10 billion in taxes. ... I've paid more than anyone in taxes, but I'm glad to — if I'd had to pay \$20 billion, it's fine'***

Bill Gates can compensate all wage losses!

3. Transition dynamics: *Trade, Jobs and Worker Welfare*



Facts and misconceptions - 3

- **Misconception:** Recent empirical literature, such local labor markets approach, provides an unbiased account of wage & employment effects
- **Fact:** Local labor market effects of trade are only identified when there are labor market frictions, so there is selection bias

Low labor market frictions mean

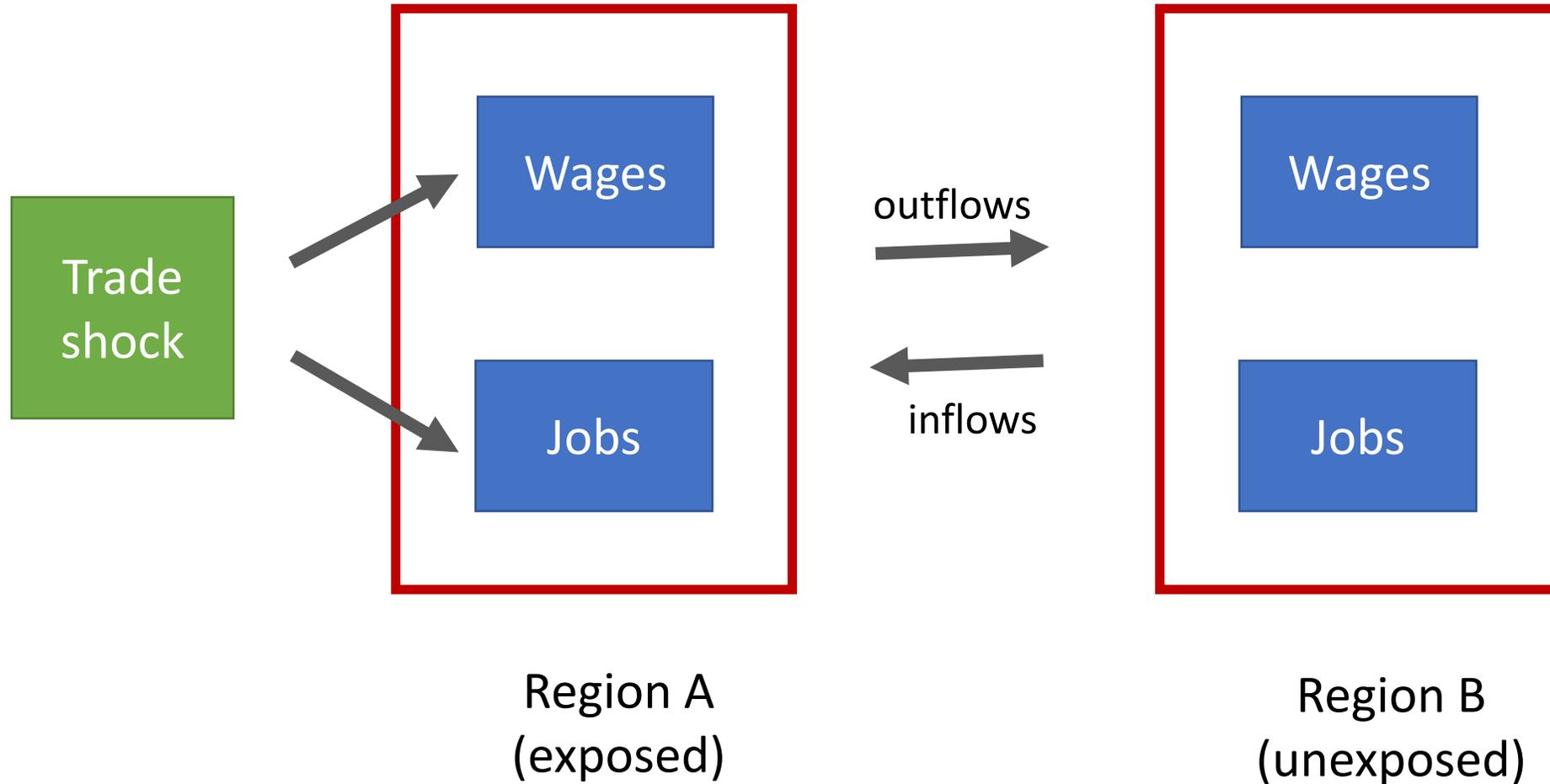
- Even distribution of gains, pre-shock job does not matter
 - Larger gains from trade thanks to quick adjustment
 - But impact of trade cannot be identified
- We need a find a different way to think about the problem

From short run to long run: Transition dynamics

- Adjustment speed is important but labor flows are complex
- Keep analysis tractable by borrowing insights physics
- Euler equations characterizing flow of liquids and heat



Transmission channels



Trade, jobs and worker welfare

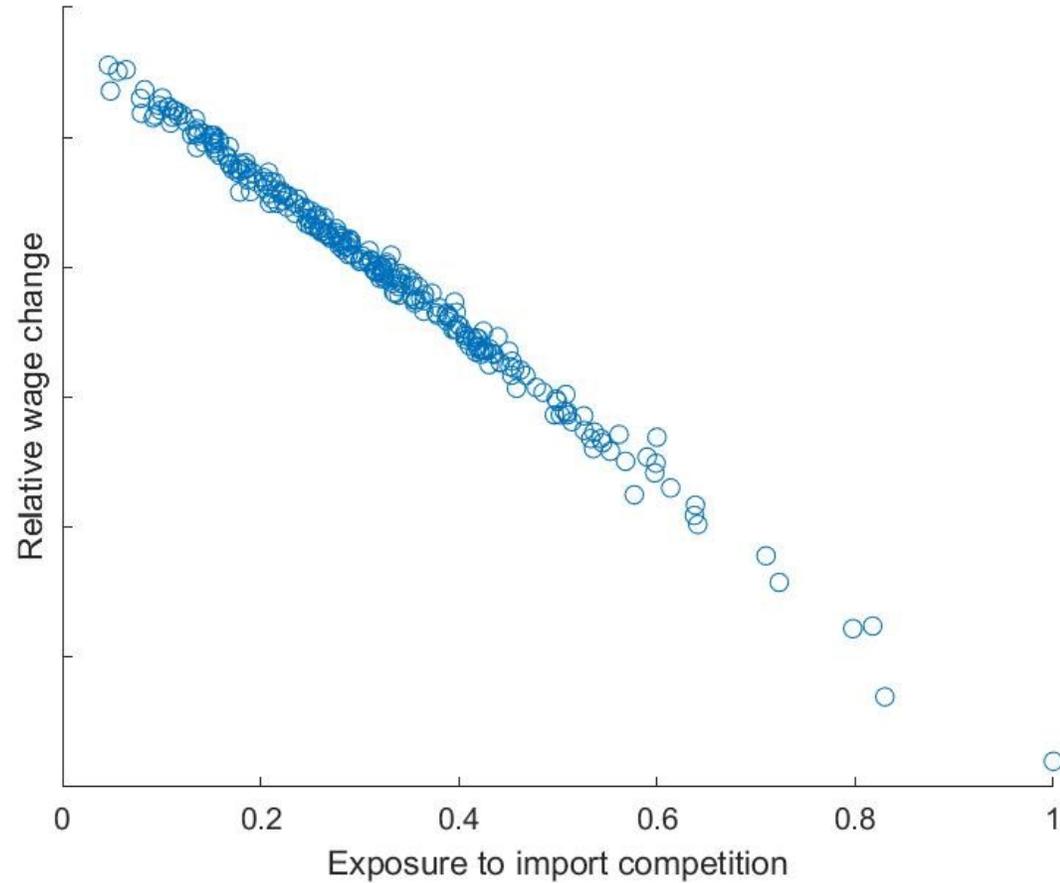
Artuc, Bastos and Lee (2020)

Combines simulations and empirical analysis with transition dynamics, using Brazilian micro data

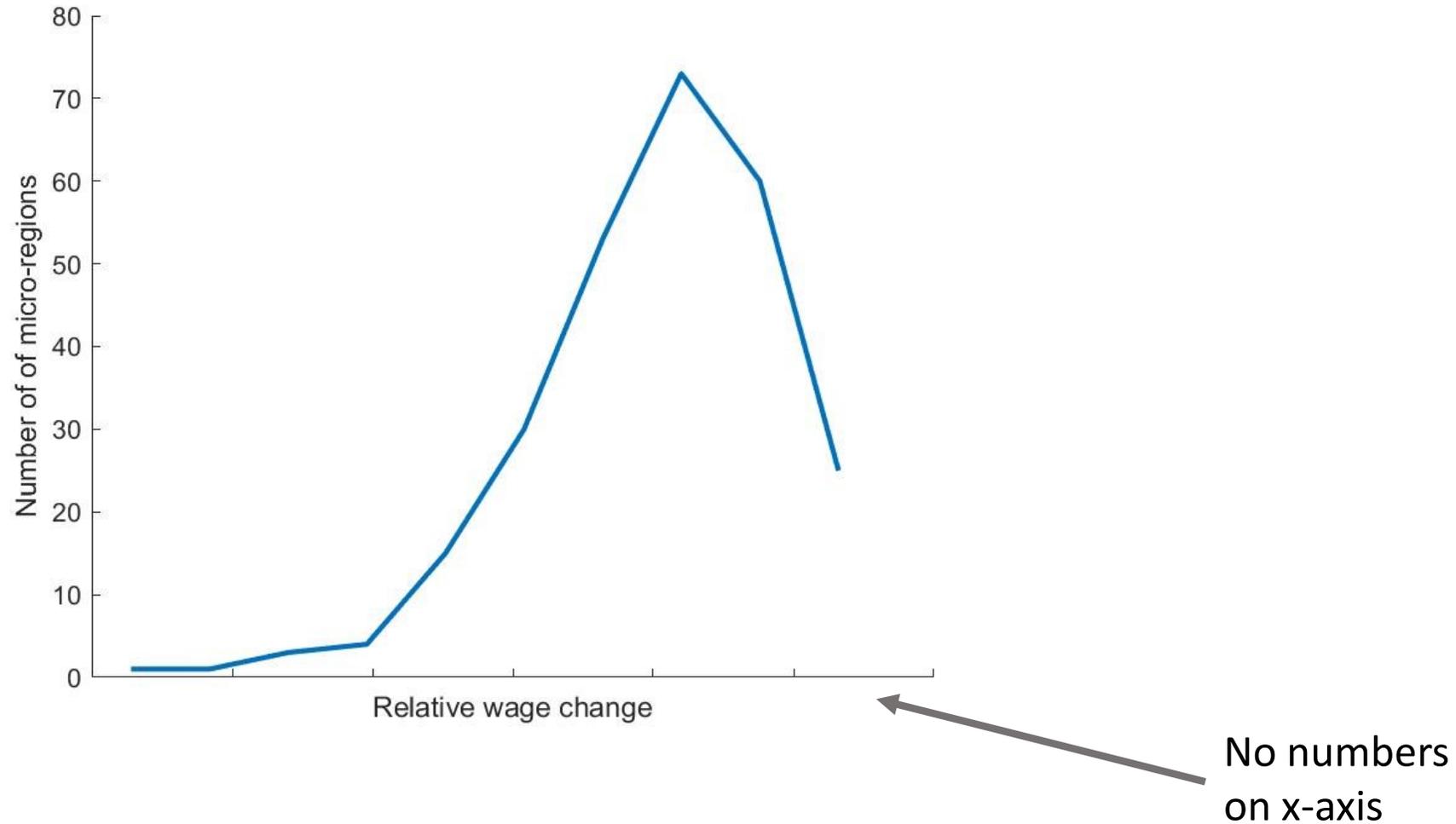
- Backward-looking analysis
 - Estimate moving costs across industries and micro-regions
 - Wage and job impact of exports
- Forward-looking analysis
 - Simulate trade shocks
 - Aggregate impact on wages, jobs and welfare

Relative wage and import competition (empirics)

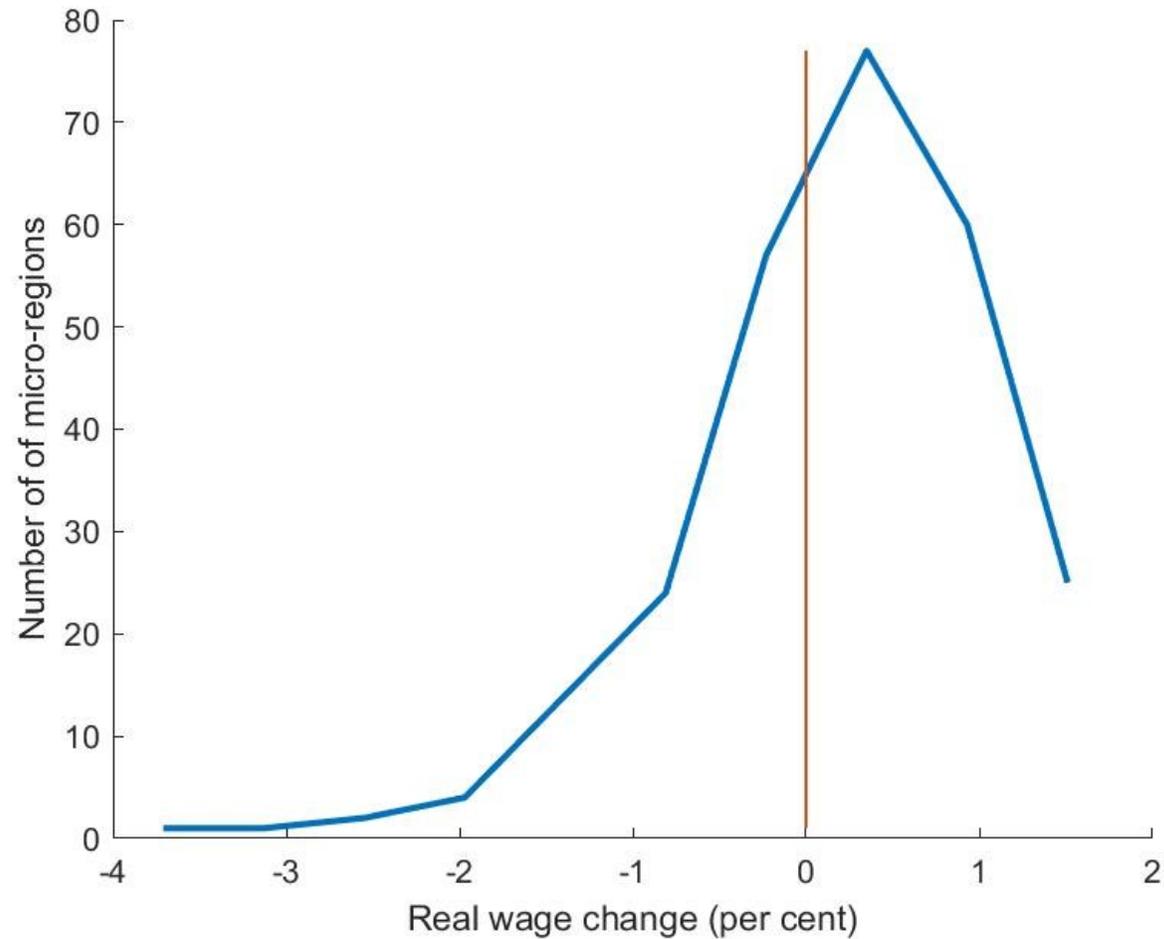
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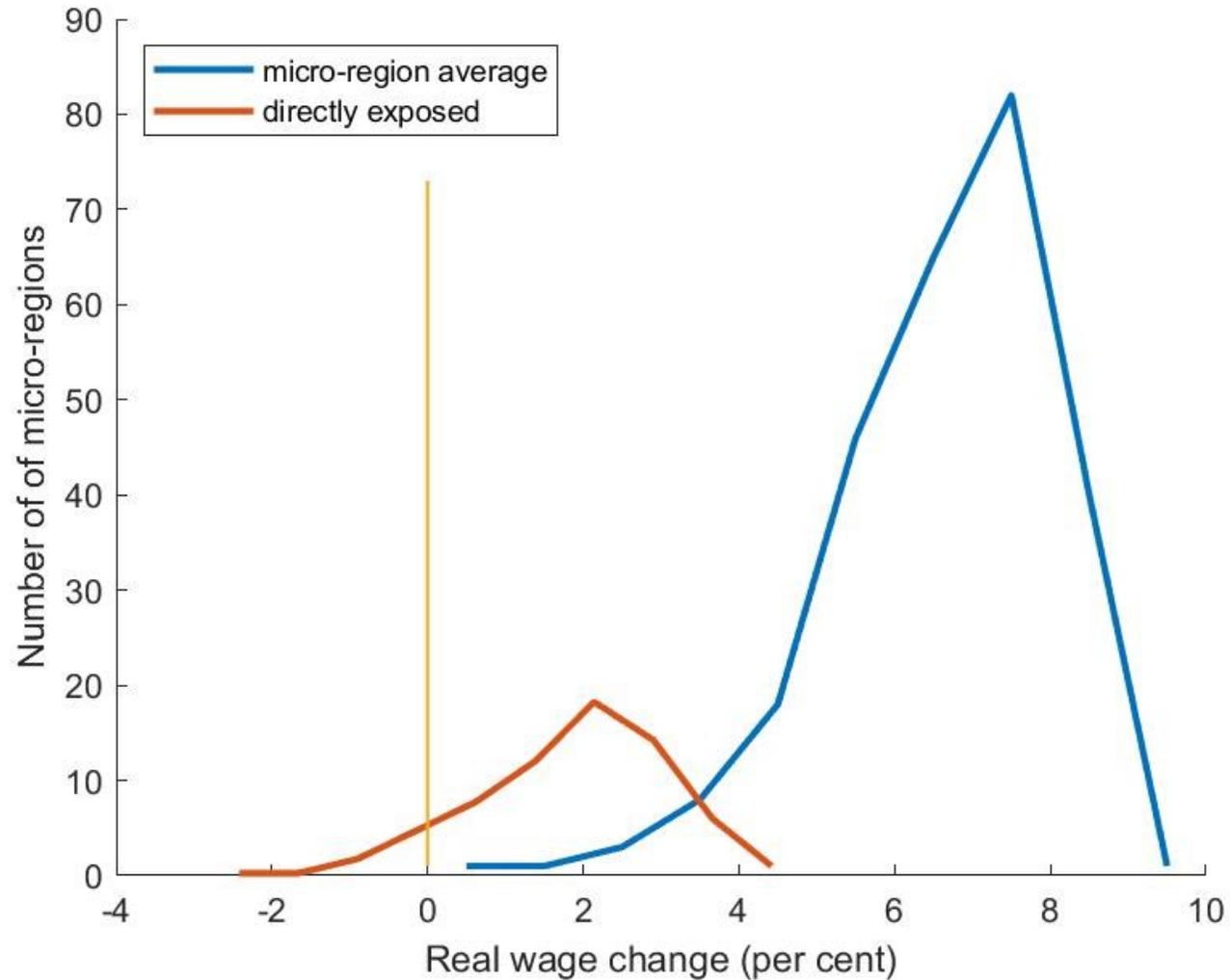
Relative wage and import competition (empirics)



Real wage and import competition (model)



Welfare and import competition (model)



Policy questions

- Should we compensate workers exposed to negative shocks?
 - What is special about inequality due to international trade policy?
- Should we compensate based on relative or absolute welfare change?
 - Can workers assess absolute welfare effects of trade?
- How should we finance the compensation?
 - Use tariff revenues (?)

Some answers

- Need to identify relative & absolute effects: jobs, wages, and welfare
- Adjustment speed matters: Plan policies in advance, no shock therapy
- Compensation:
 - Targeted: Exposure in the region + industry + worker characteristics
 - Flexible: Such as flexicurity in Denmark

Conclusion

- Identifying losers is much easier than winners
- Most results are relative, context-specific and easily misunderstood
- Compensation may be feasible, but precise identification and measurement is a challenge

- Distributional effects of trade are complex and can be severely negative for some workers, but protectionism is not the answer!

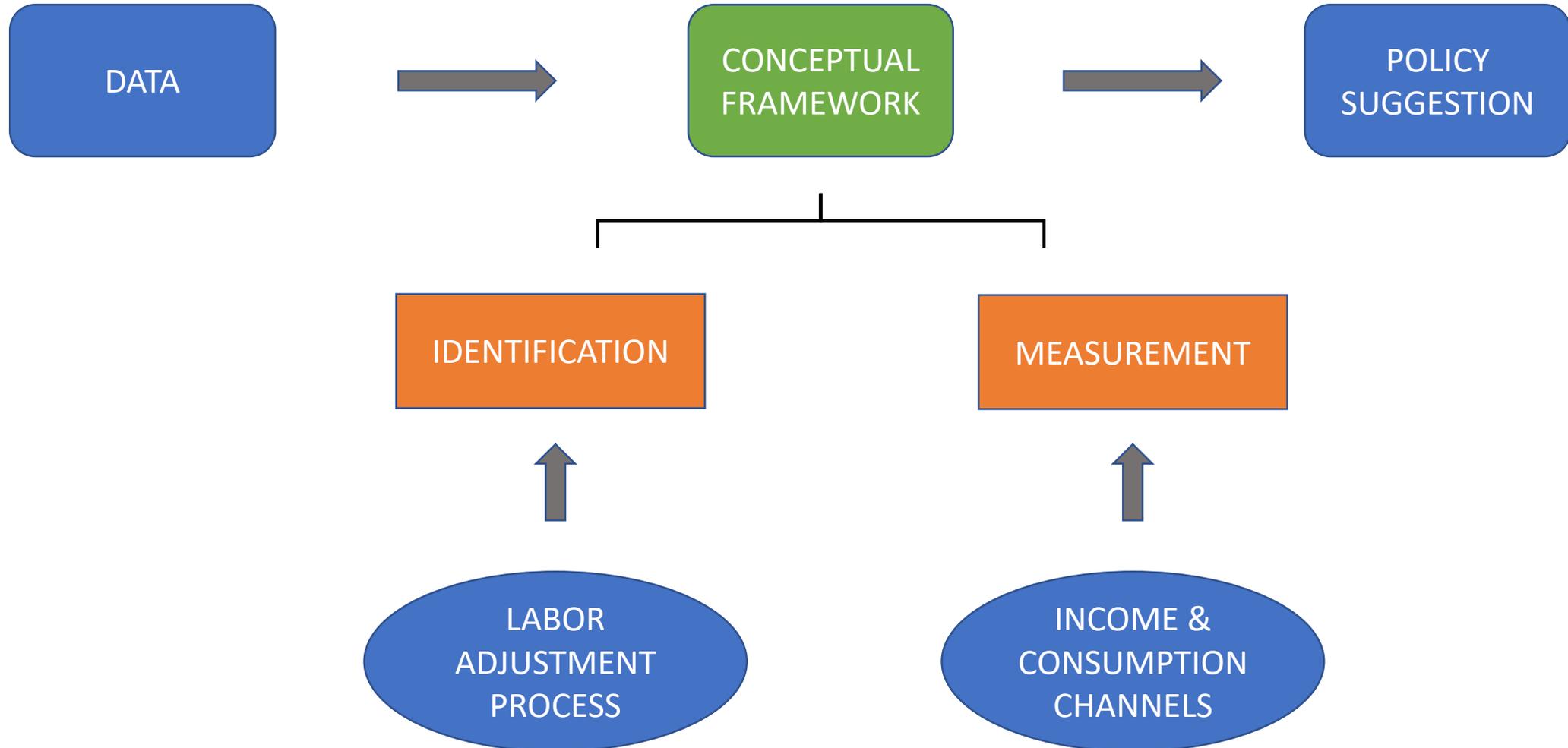
Thank you.
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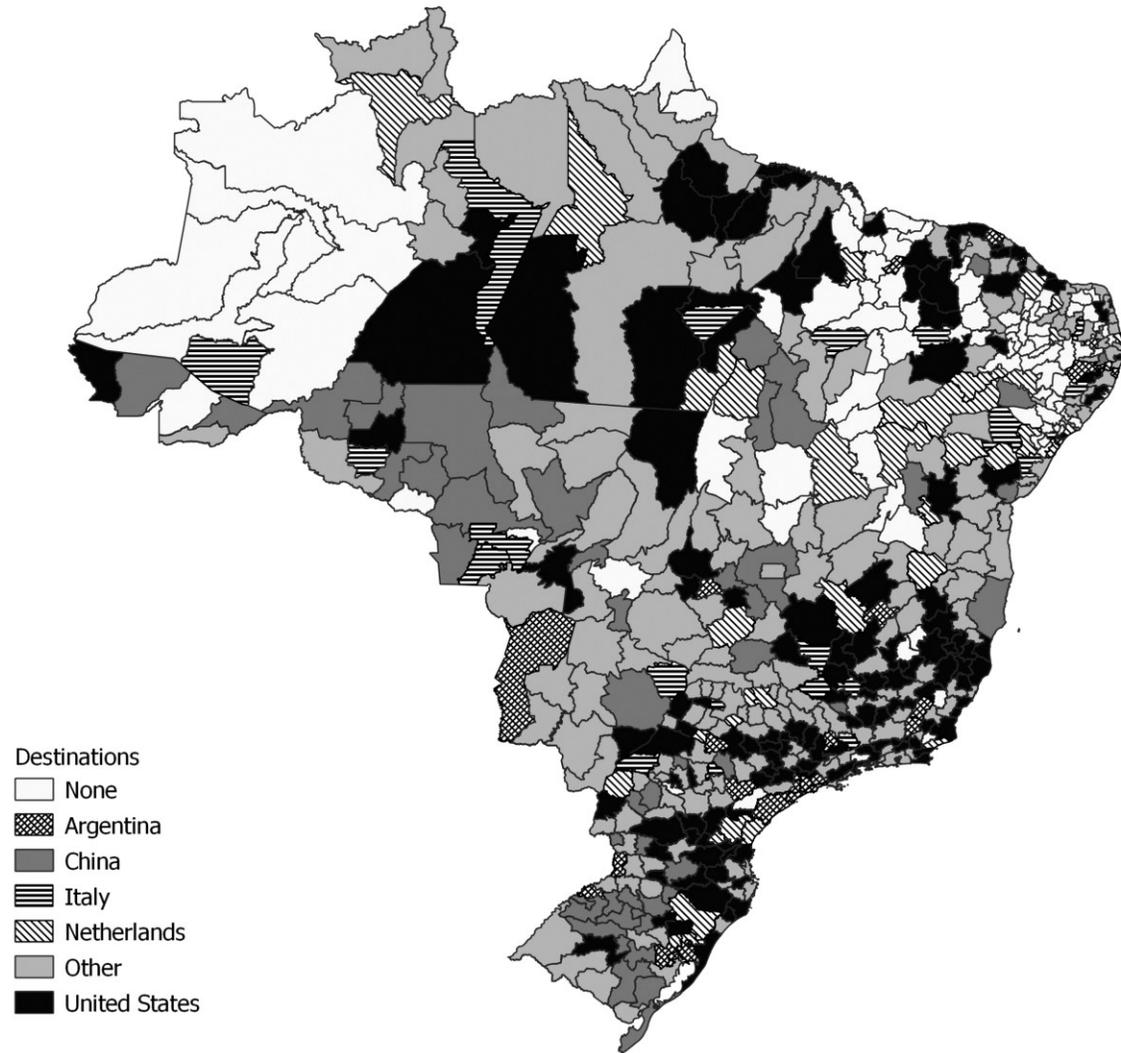
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Additional Slides

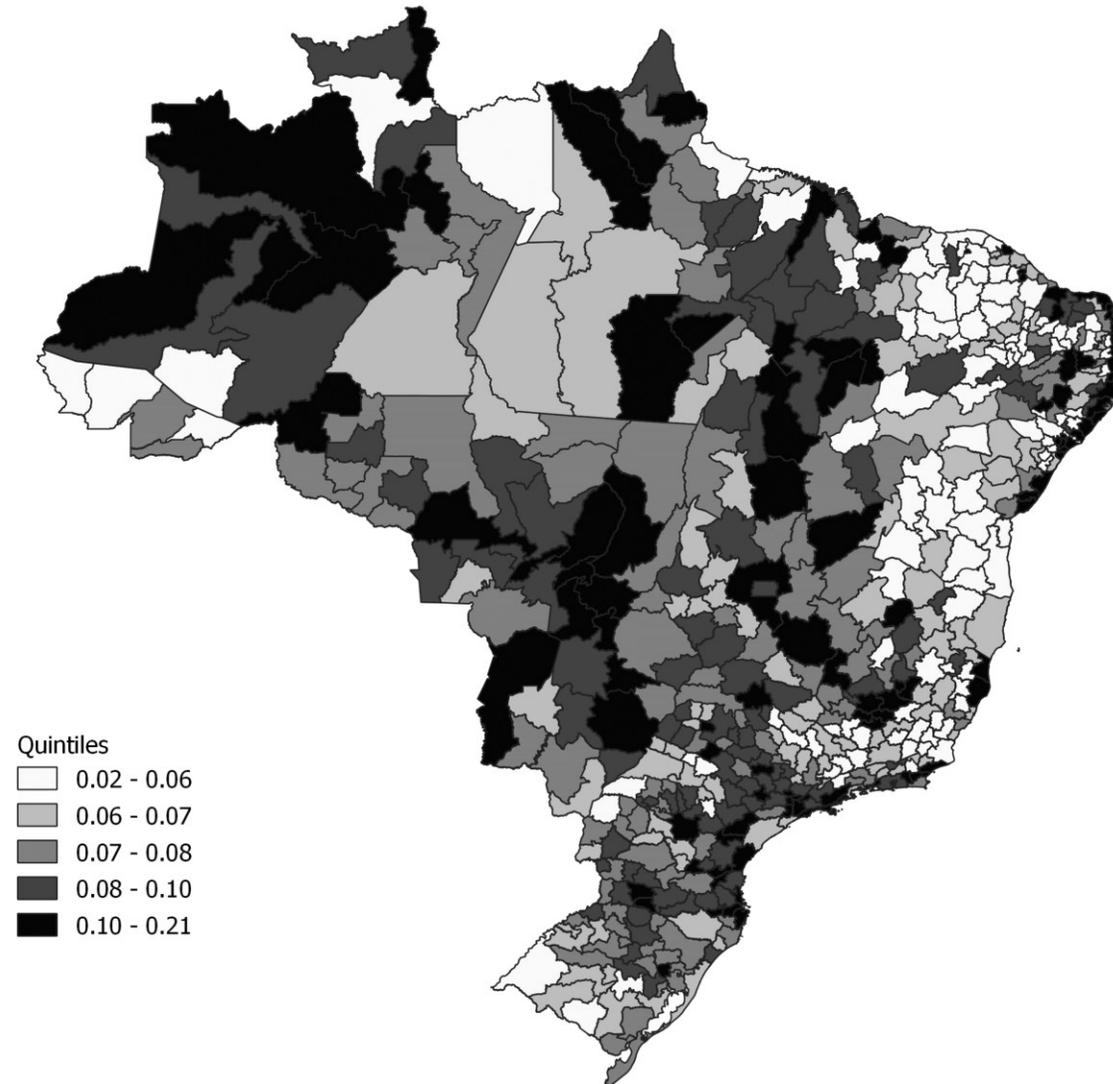
Distributional effects of trade: How to conceptualize?



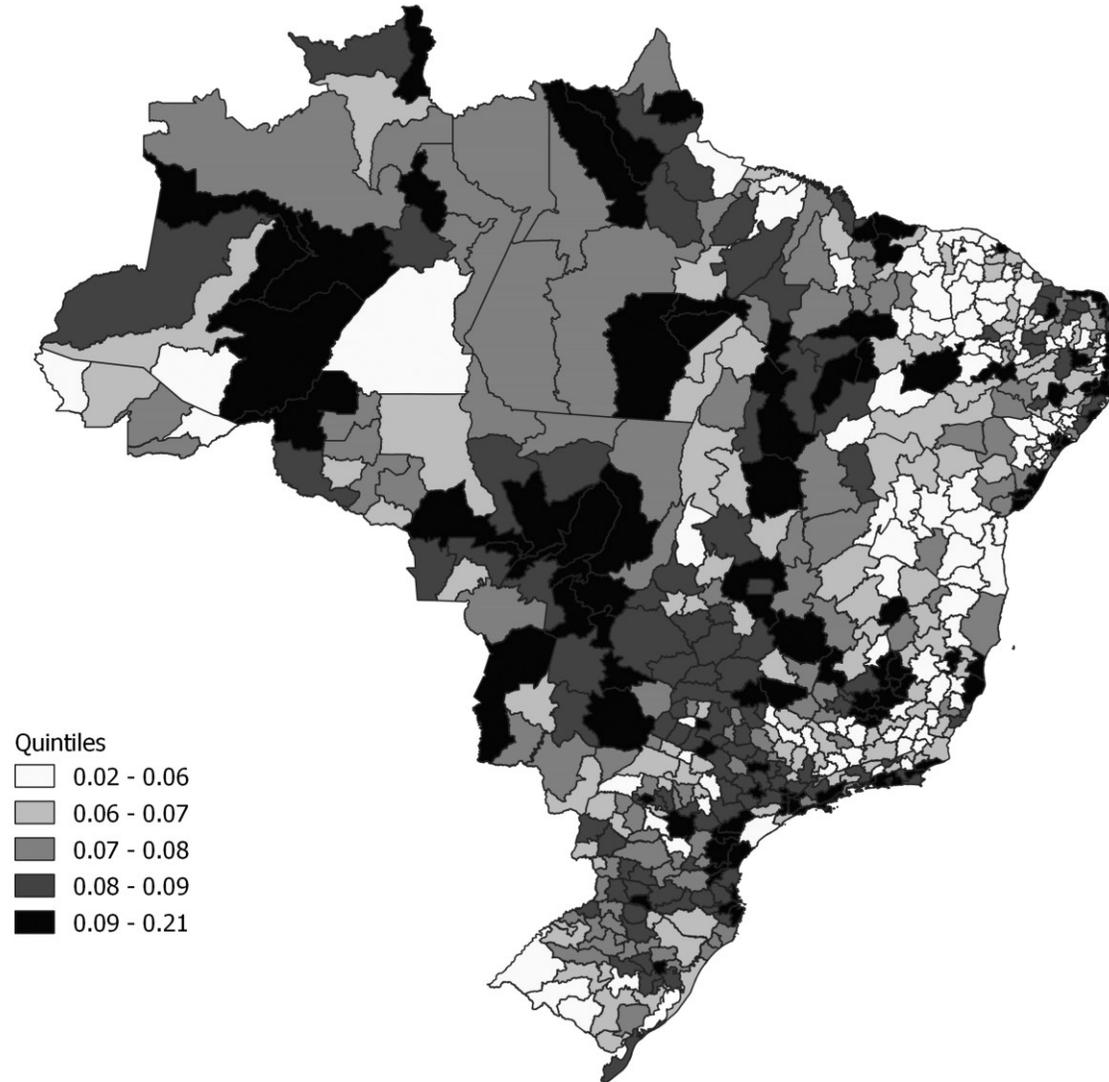
Brazil: Exports by micro-region



Brazil: Outflows



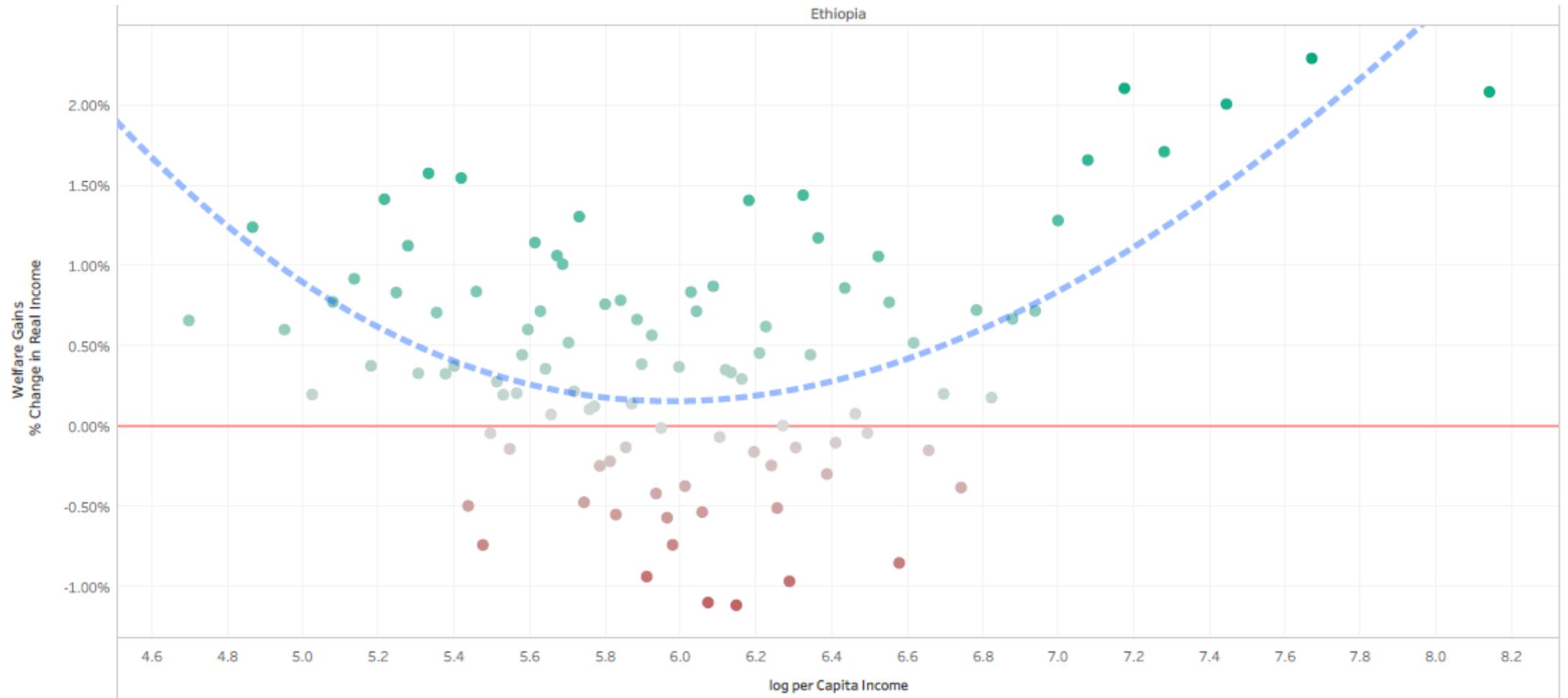
Brazil: Inflows



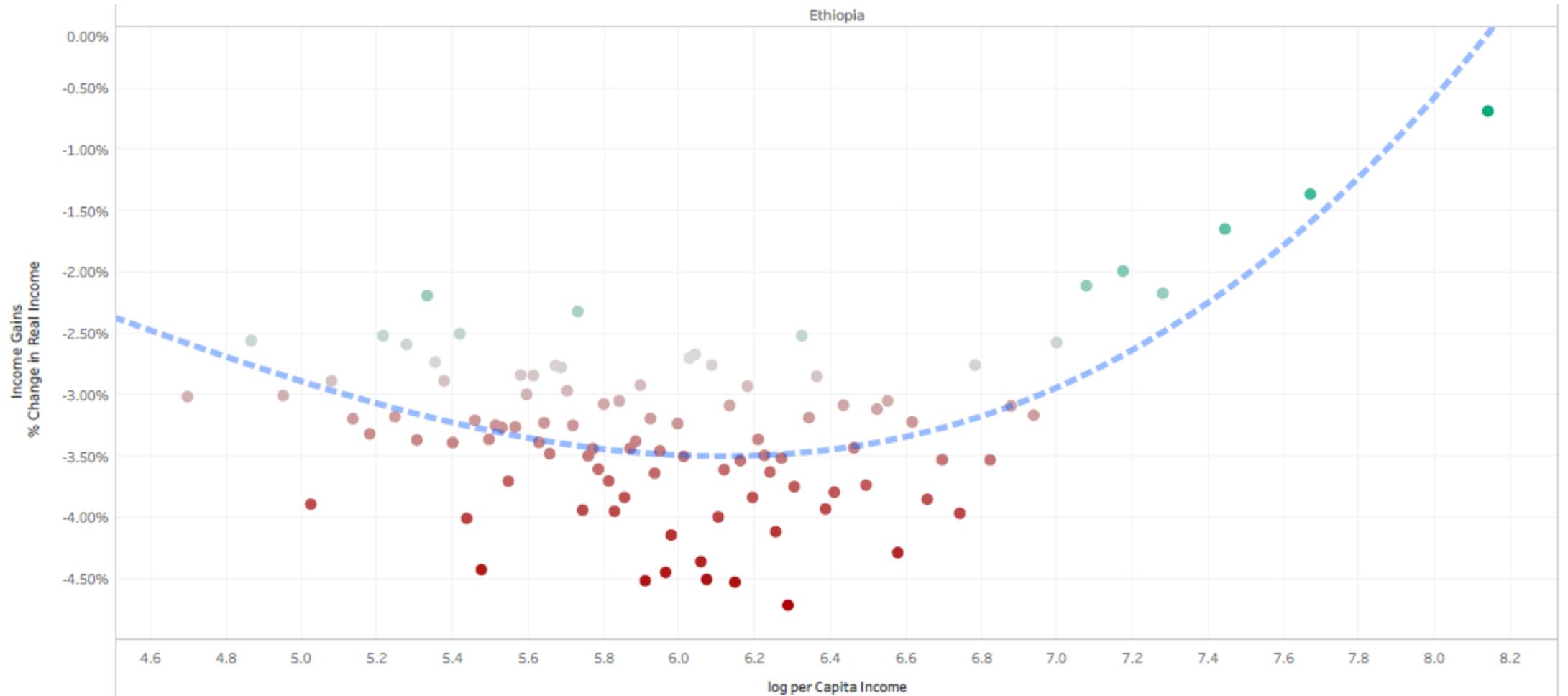
Facts and misconceptions - 2

- Artuc, Lopez-Acevedo, Robertson and Samaan (2019) find that
 - Wage impact of \$1 additional export to OECD in India is around 13¢
(only wage effects, ignoring gains from formalization)
 - This is about \$15.2 billion
- Autor Dorn and Hanson (2013) find that
 - Income impact of \$1 additional imports from China in USA is roughly -4¢
*(including wage and employment loss effects together, relative to a worker who is in a region **without** import competing industries)*
 - Total is about \$21.5 billion

Household welfare in Ethiopia (tariff cut)



Household income in Ethiopia (tariff cut)



Household consumption in Ethiopia (tariff cut)

