



# Pinelopi Koujianou Goldberg

Elihu Professor of Economics, Yale University, and departing Chief Economist of the World Bank Group, delivering the 30th annual Kuznets Lecture:

## “Poverty Reduction in the Era of Waning Globalization”



@YaleEGC #Kuznets2020

*Please silence your phones.*

*Be aware that lecture and Q&A will be videotaped and made public.*

Yale *Economic Growth Center*

Women at  
50 Yale 150

# Introduction

- A. A view from the WB Chief Economist's office.
  
- B. Motivation
  - 1. Quest for a new vision for development
  - 2. Demand for more equality (or less inequality)
    - BUT: Tradeoff between growth and equality?
    - Kuznets Curve

# Road Map

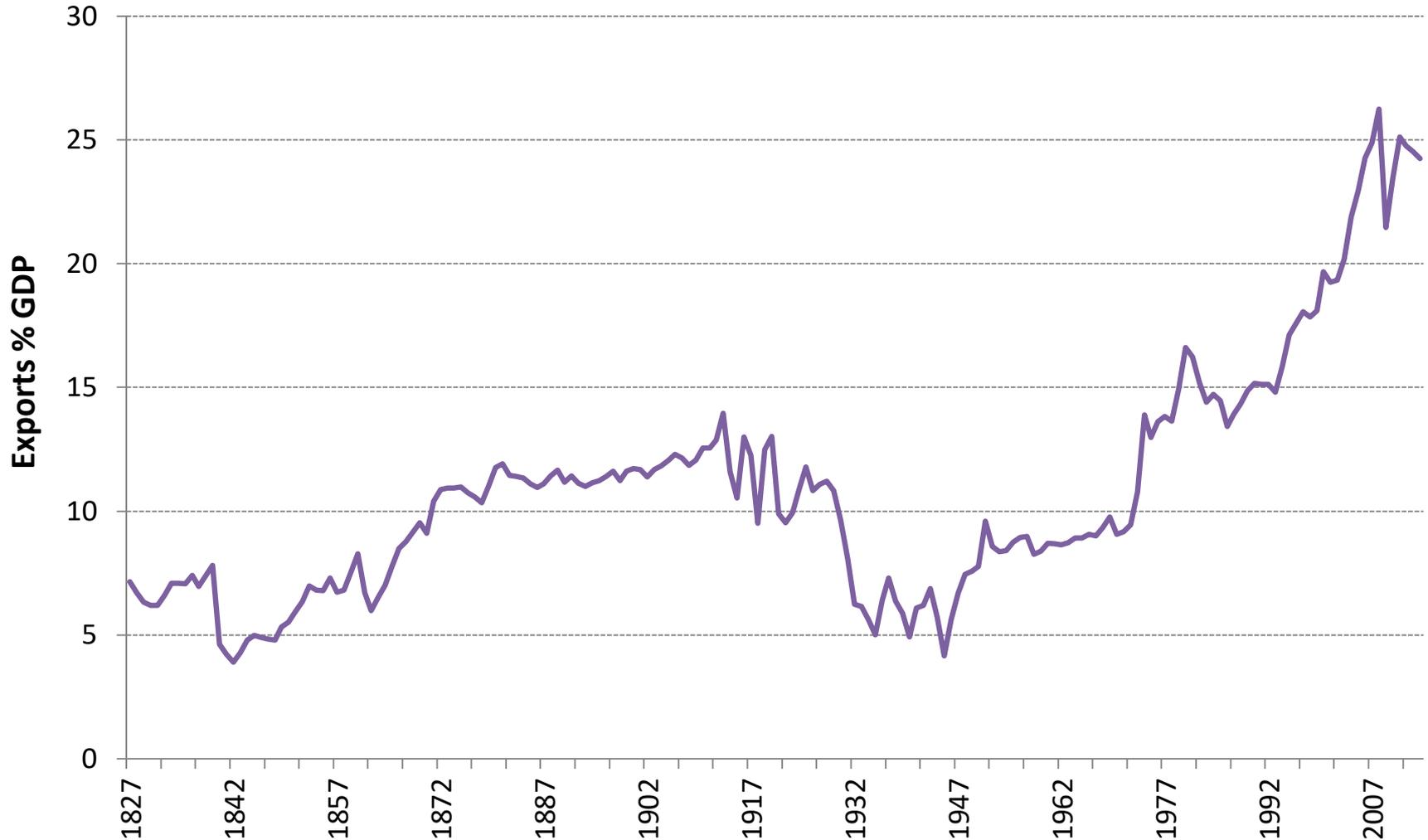
- A. The “old” development model based on export-led industrialization
- B. The retreat from globalization and multilateralism
- C. The need for a new model/vision
  - Leapfrogging into services?
  - Urbanization-led development?
  - The role of the domestic market and inequality?
- D. Operationalizing the role of the domestic market
  - Theoretical framework
  - Empirical implementation → Threshold model
  - Preliminary results
- E. Conclusions
  - For a small country, nearly impossible to eliminate poverty if closed
  - Openness an important pre-condition. But need deep integration
  - Alternatively, push for larger middle class, more equality.

## A. The “old” model of export-led industrialization

- Developing countries are abundant in low-skill labor
- Comparative advantage in basic manufacturing
- Exports to higher income countries allow them to:
  - Utilize comparative advantage
  - Tap into the purchasing power of higher income consumers
  - Realize economies of scale from selling to the global market → industrialize
  - Use the export revenue to finance infrastructure and other investments (e.g. in human capital) that further promote growth
- Model = logically consistent  
supported by causal observation/evidence
- The story in a few pictures:

# The Age of Globalization

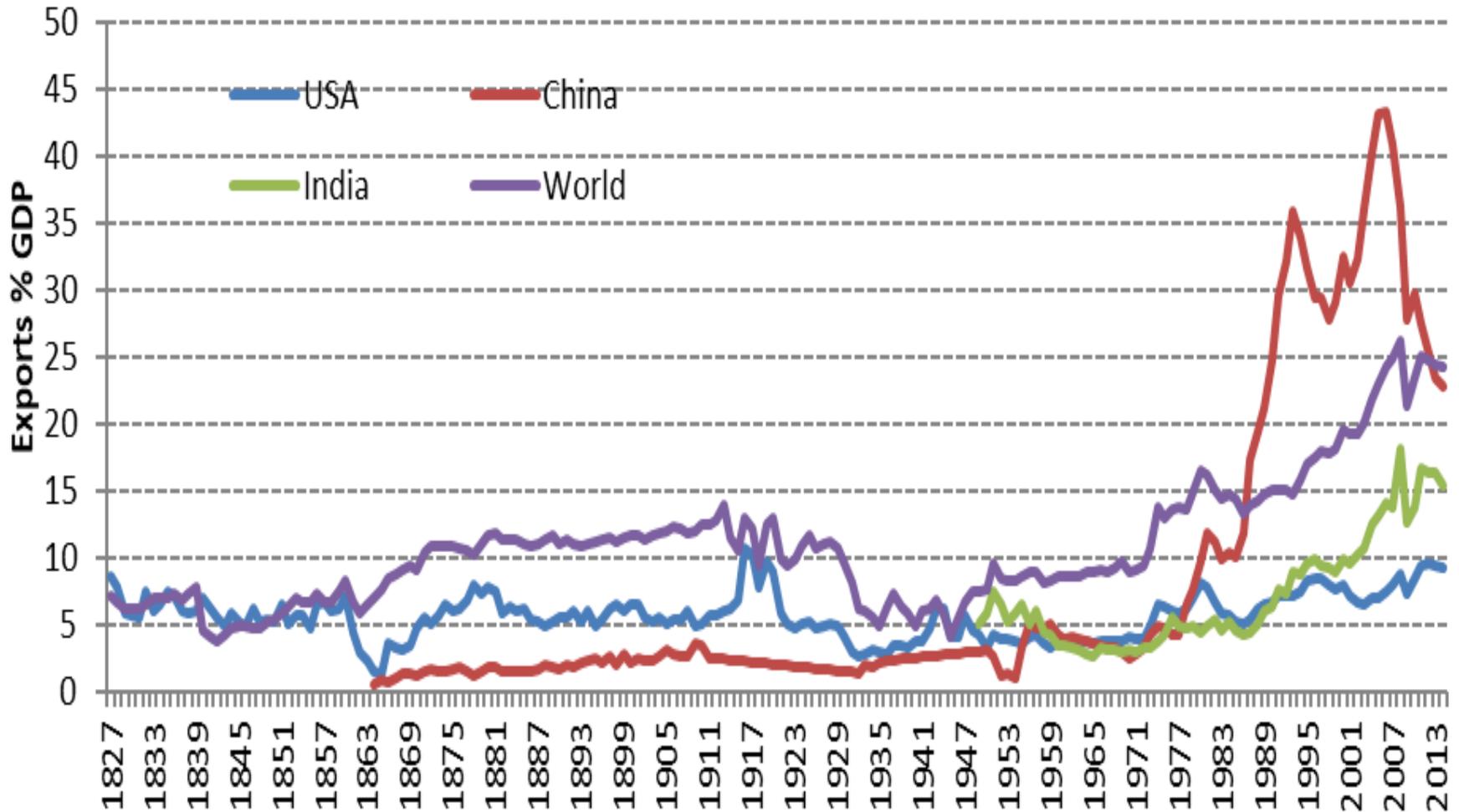
Exports as % of GDP, 1827-2014



Source: Fouquin and Hugot; CEPII 2016; National data

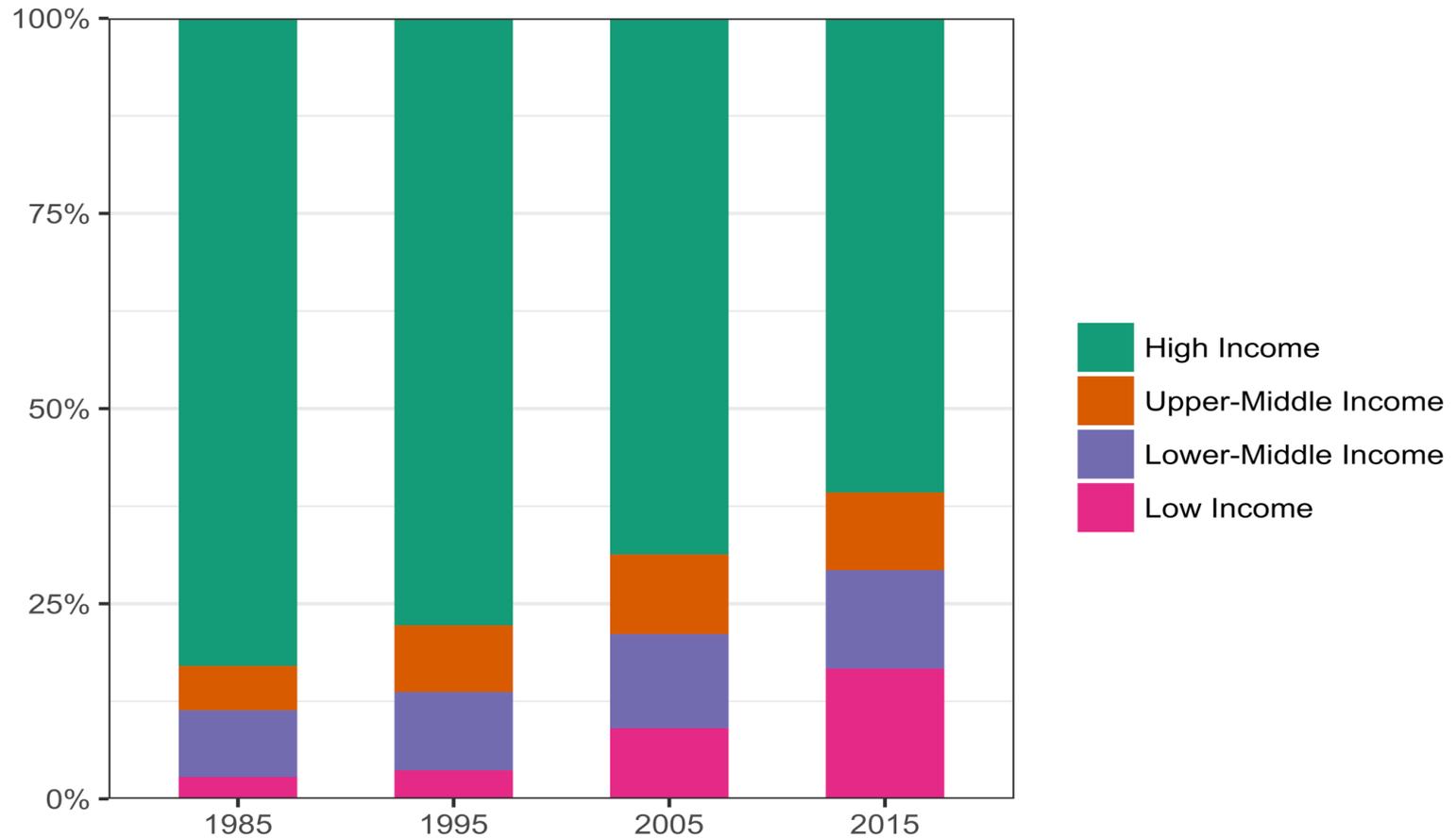
# The Age of Globalization

Exports as % of GDP, 1827-2013



Source: Fouquin and Hugot; CEPII 2016; National data

# Composition of World Exports by Income Group

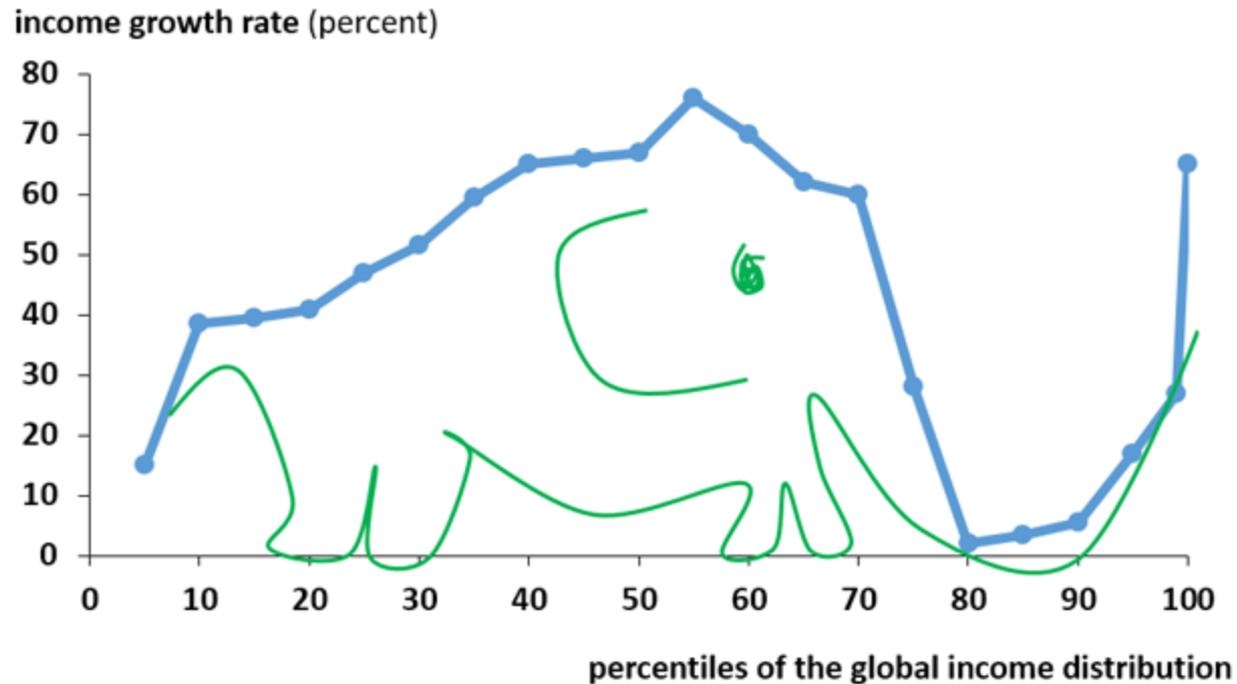


# Implications for Growth, Poverty and (In)equality

- Global poverty and inequality have been reduced dramatically post-World War II
- Deaton (“The Great Escape”); World Bank (WDR 2006); Branko Milanovic (“Global Inequality....”)
- Globalization, and in particular the integration of China and East Asian economies into the world trading system played an important role
- Tradeoff between global and within-country inequality?

# The (old) Elephant Curve

Global inequality has declined: Growth incidence curve, 1988-2008

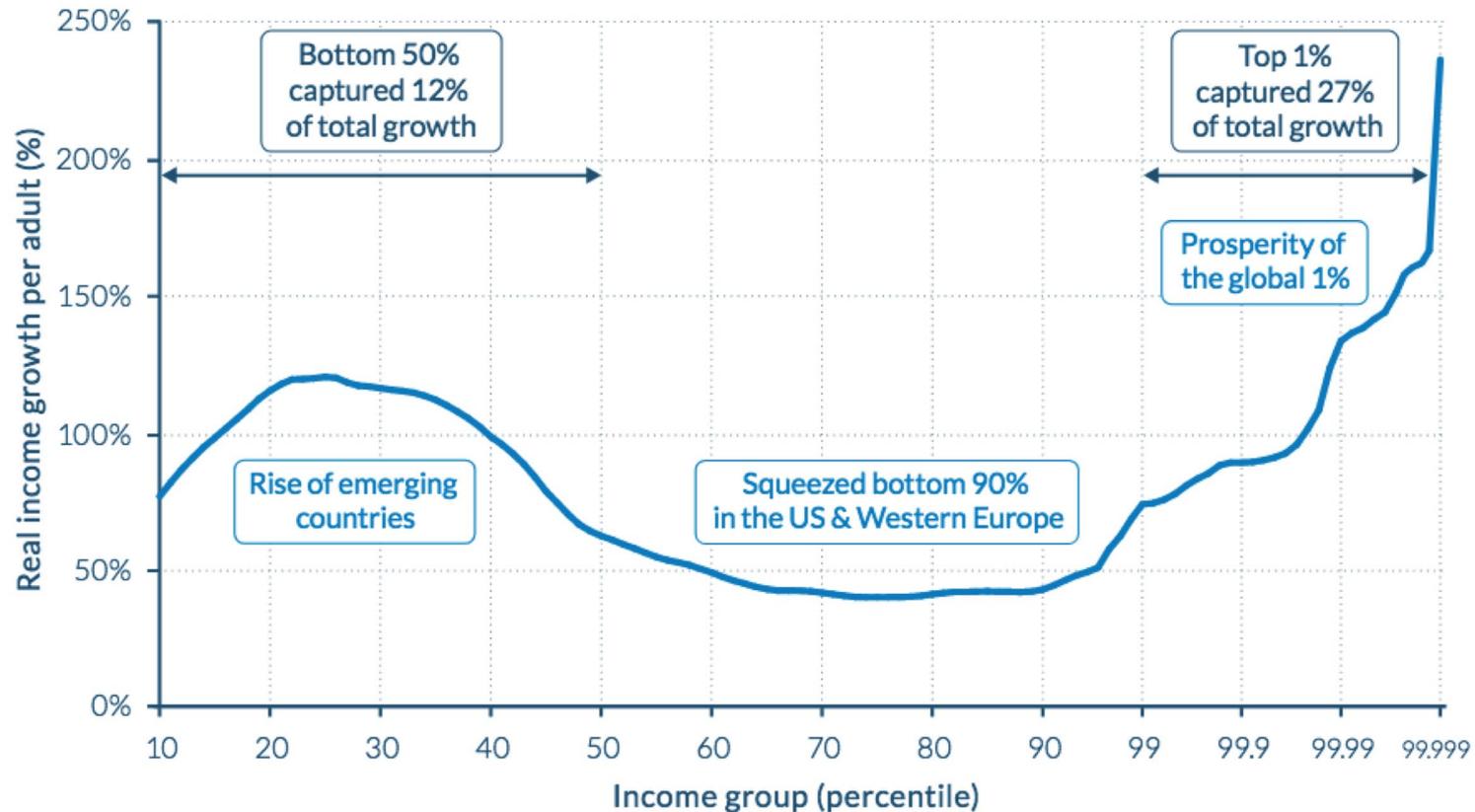


Source: Branko Milanovic and C. Lakner. Elephant added by C. Freund

# The (new) Elephant Curve

**Figure 2.1.4**

Total income growth by percentile across all world regions, 1980–2016



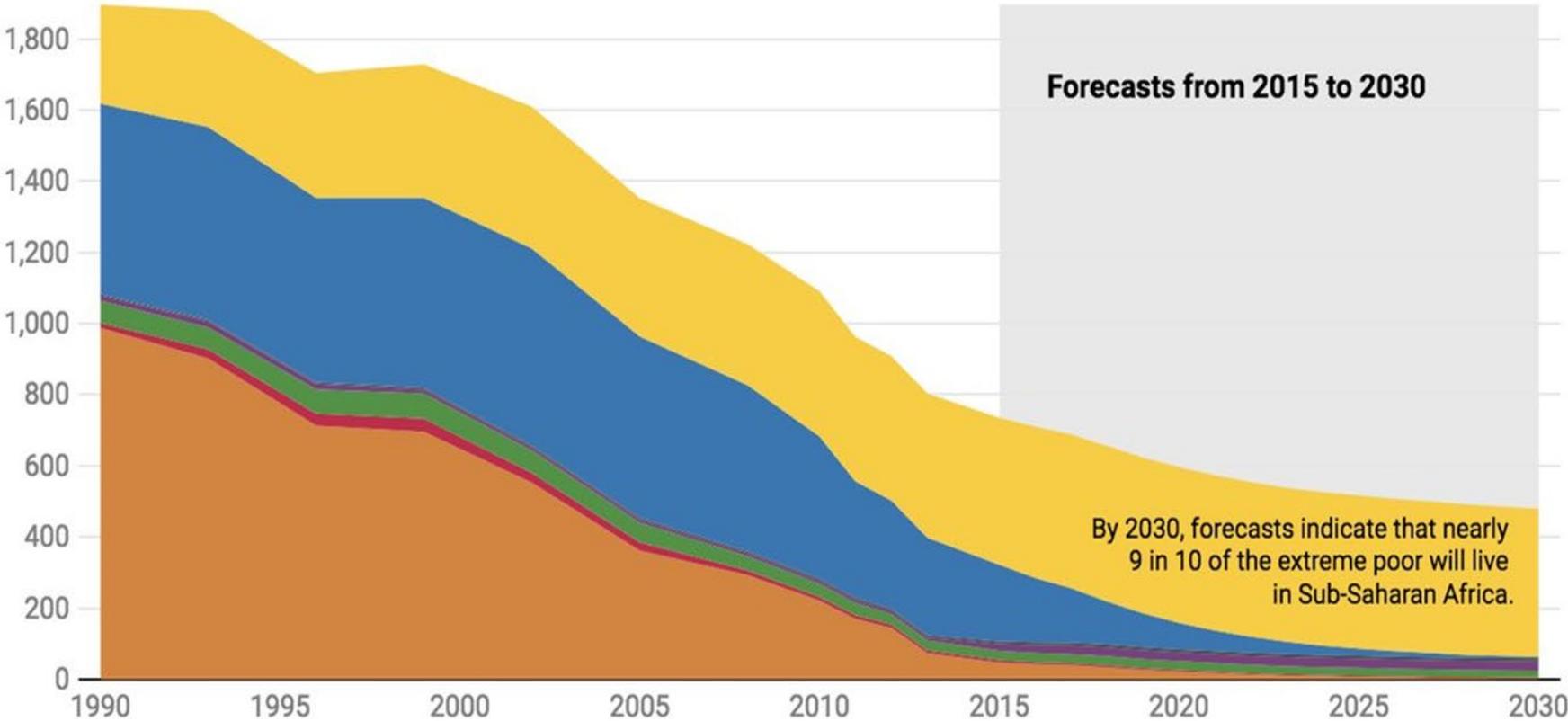
Source: WID.world (2017). See [wir2018.wid.world](#) for more details.

On the horizontal axis, the world population is divided into a hundred groups of equal population size and sorted in ascending order from left to right, according to each group's income level. The Top 1% group is divided into ten groups, the richest of these groups is also divided into ten groups, and the very top group is again divided into ten groups of equal population size. The vertical axis shows the total income growth of an average individual in each group between 1980 and 2016. For percentile group p99p99.1 (the poorest 10% among the world's richest 1%), growth was 74% between 1980 and 2016. The Top 1% captured 27% of total growth over this period. Income estimates account for differences in the cost of living between countries. Values are net of inflation.

# Global Poverty

People in extreme poverty (millions)

- East Asia and Pacific
- Europe and Central Asia
- Latin America and the Caribbean
- Middle East and North Africa
- Rest of the world
- South Asia
- Sub-Saharan Africa



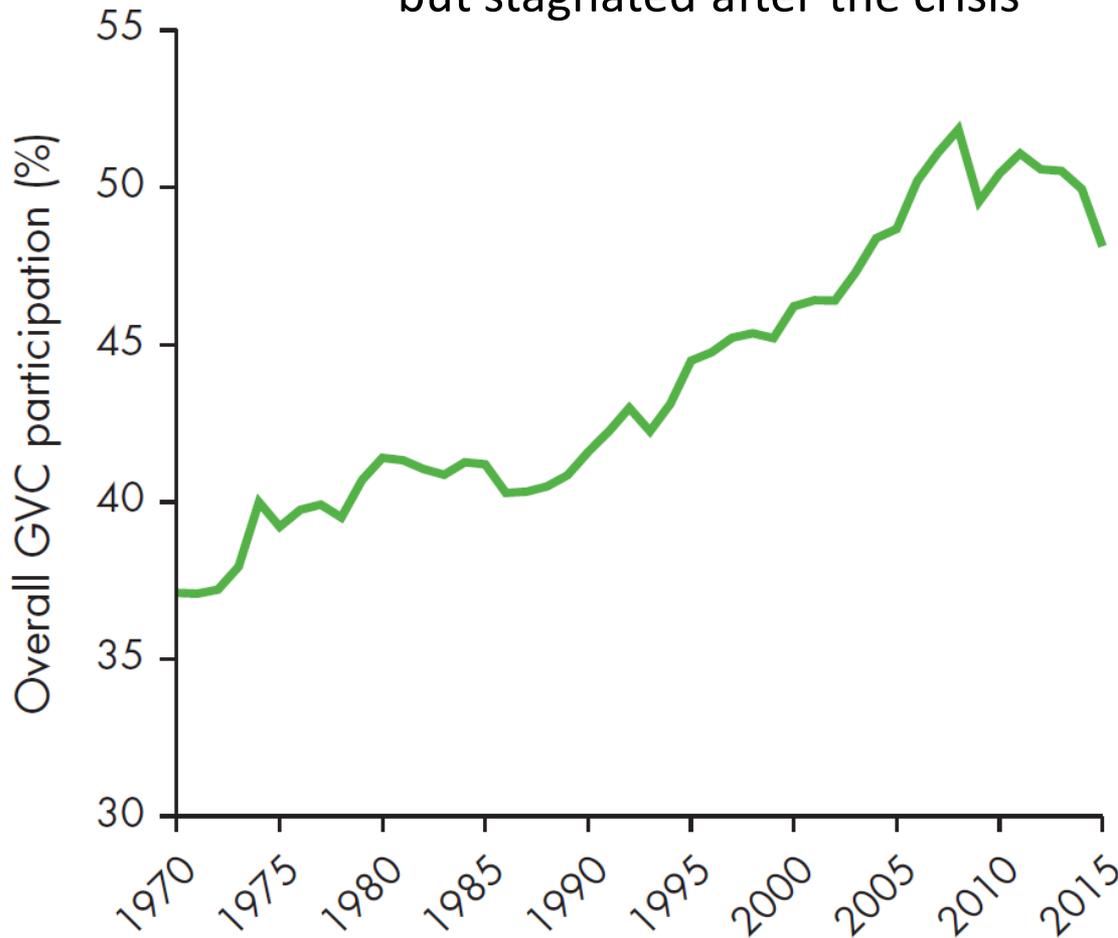
Source: World Bank PovcalNet and Poverty & Equity Data Portal

## **B. The retreat from globalization and multilateralism**

- Global trade has slowed down after the 2008 financial crisis
- Secular slowdown?
  - Has international fragmentation run its course?

# The Slowdown of GVC Trade

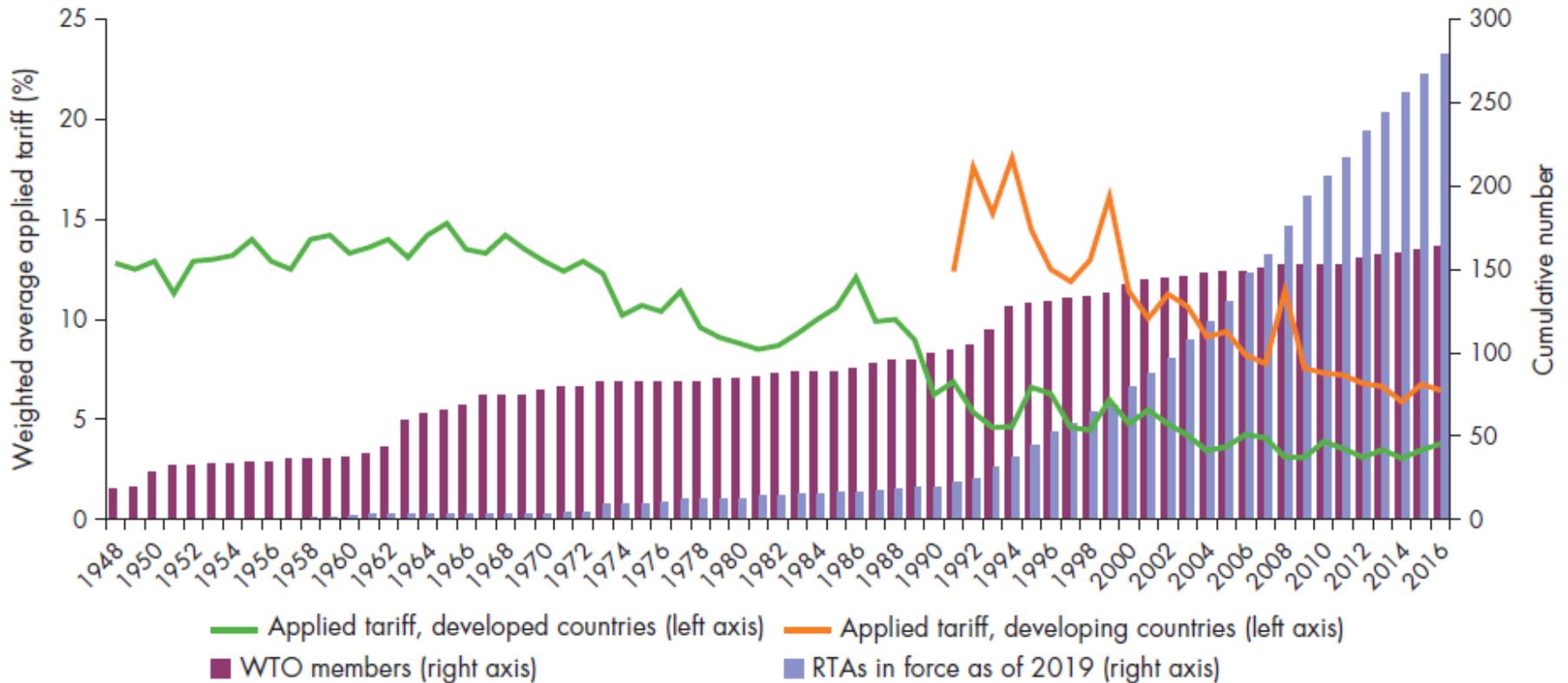
GVC trade grew fastest in the “long 1990s”,  
but stagnated after the crisis



# The Policy Backlash

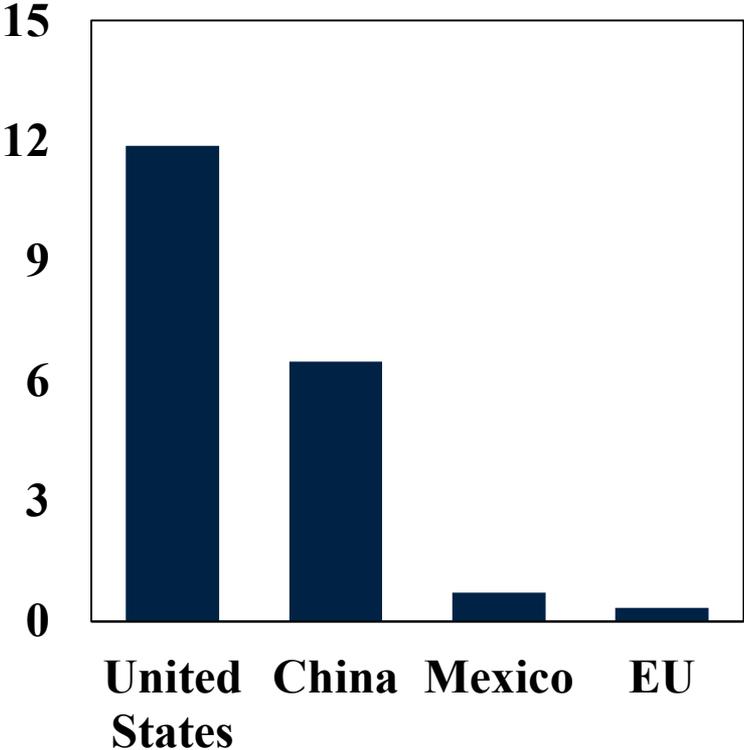
- Revolt of the public in many (developed) countries against free trade and immigration
- Not specific to a particular country  
US: Return to Protectionism; UK: Brexit
- Paralyzed WTO
- Uneven liberalization of agricultural trade
- Limited opening of services trade
- Rising behind-the-border measures and other distortions

# From 1948 to 2016, tariffs dropped thanks to multilateral and regional trade agreements

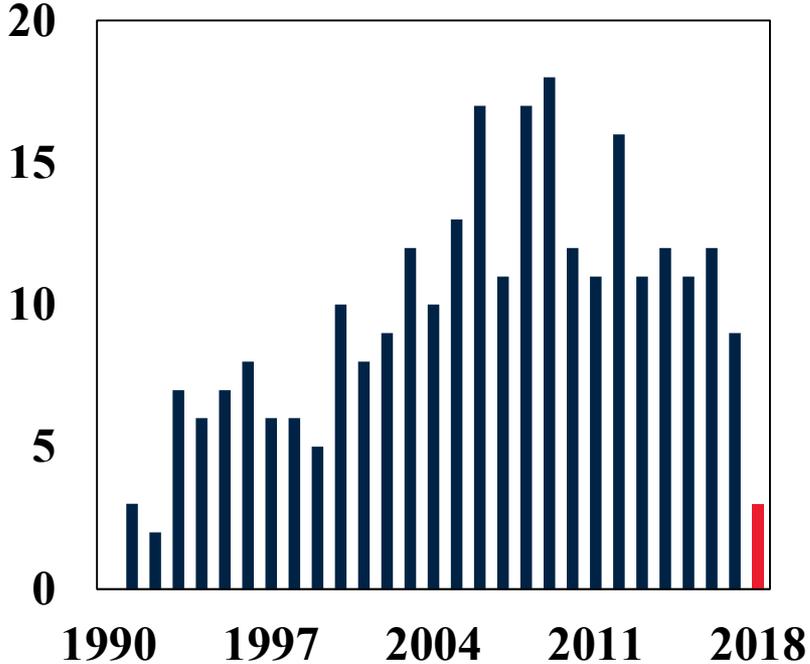


# The New Policy Environment

Goods imports affected by new tariffs  
*(Percent share, 2018)*



New regional trade agreements  
*(Number)*

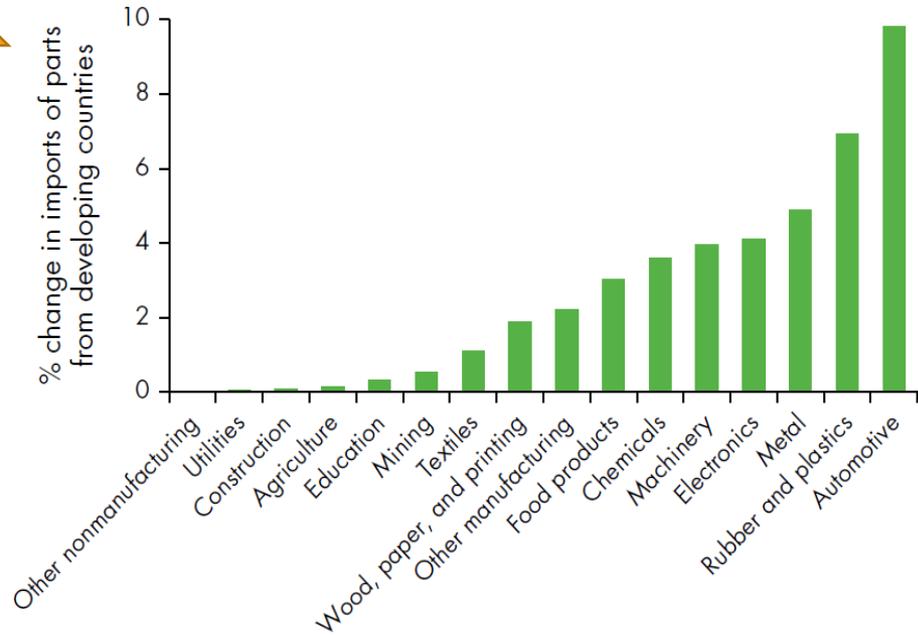


# Additional Challenge: New Technologies

- Fear that robots will make low-wage labor in developing countries redundant → reshoring
- So far, no evidence of negative effects of automation on trade with developing countries
  - World Development Report 2020:

Increased adoption of industrial robots in the North has promoted imports from the South

% change imports of inputs from developing countries



Industries in order of increasing automation

More automation

## C. The need for a new vision

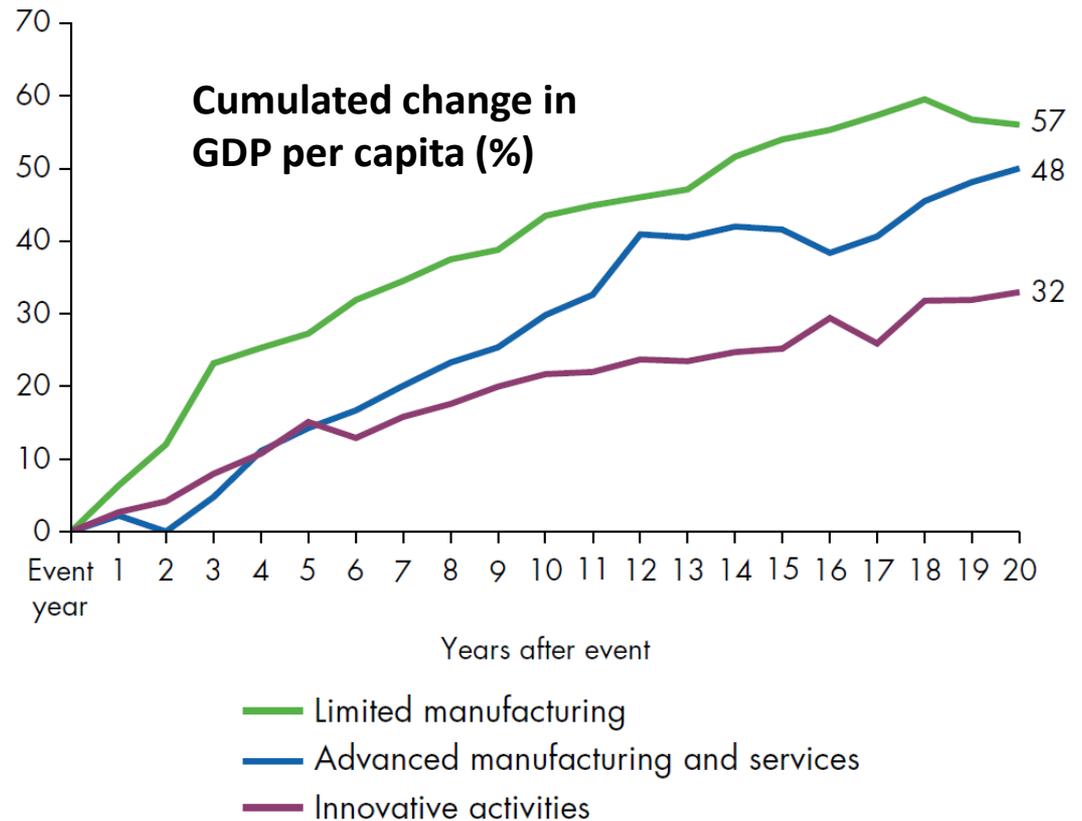
- Summary so far: Development today faces two challenges:
  - Backlash against free trade in developed countries
  - Fear of automation
- Against this background, applicability of “old” model questionable
- What is the alternative?

# Leapfrogging into services

- Leap from agriculture directly to services
- Theoretical model?
- Empirical challenges:
  - “services” broad and heterogenous category
  - So far, no evidence of “leapfrogging”
    - WDR 2020

Incomes grow  
most when  
countries break  
into simple  
manufacturing

No leapfrogging



# Urbanization

- Development has been traditionally accompanied by urbanization
- Increasing urbanization in many developing countries
- However, evidence suggests “urbanization without industrialization” is not associated with good development outcomes (Gollin, Jedwab and Vollrath, 2016).
  - Difference between “consumption” and “production” cities
  - Consumption cities associated with higher poverty, slums, higher prices

# Large Domestic Market and Middle Class

- Observation: India has been growing fast, and growth has not been driven by trade
- Hypothesis: Large domestic market makes it easier to develop when economy is closed.
- Reason: Potential to realize internal economies of scale
- Counterexample: Nigeria. Large country, rich in natural resources. Periods of fast growth, but no sustained development and poverty reduction
- Additional hypothesis: Development requires a certain degree of “equality”, so that a positive shock (e.g. through oil exports) can trickle down, generate demand, foster the growth of a middle class which generates multiplier effects, and so on.
- Note: In this story, a certain degree of equality is prerequisite for development.

# Questions

- How do we operationalize this idea?
- What does it mean to say “large market”?
- What is the meaning of “equality” in this context?
- What is development?
- How large does a market need to be for this mechanism to be relevant?
- What is a small country supposed to do if trade is not an option?

→ Need to develop a conceptual framework for thinking about these questions.

## D. Income Distribution, International Integration, and Sustained Poverty Reduction

- Joint project with Tristan Reed of the World Bank – preliminary draft
- Theoretical framework inspired by paper by Murphy, Shleifer and Vishny (1989) – formalization of earlier ideas by several Devo economists, most importantly Arthur Lewis.
- Gives rise to empirical threshold crossing model, similar to Bresnahan and Reiss (1991).
- Estimate with panel data from multiple countries
- Use it to calculate (among other things) how “large” a large market needs to be in order to benefit from domestic economies of scale

# Theoretical Framework (Murphy et al)

- **Closed economy (can be relaxed)**
- **Two sectors:** Agriculture and Manufacturing
- **Preferences:**
  - Agricultural good (i.e. food) is a necessity
  - Consumer spends all income on food until she reaches  $z$
  - For income levels  $> z$ , consume manufactures
  - Well-defined ordering of goods in terms of desirability
  - Consumption increases = increases in diversity of goods consumed, and not increases in quantity consumed of the same goods.

# Theoretical Framework (contd.)

- **Technology**
  - Inputs: Labor and Land – Land is the fixed factor
  - Agriculture: DRS
  - Manufacturing: Two technologies
    - CRS (Backstop) – no fixed costs
    - IRS – fixed costs, but lower variable costs
- **Industrialization:** Substitution of IRS for CRS technology
- **Market Structure**
  - Agriculture: Perfect Competition
  - Manufacturing- Backstop: Perfect Competition
  - Manufacturing – Industrialized: Monopoly

# Theoretical Framework (contd.)

- **Distribution → Inequality**
  - Most people own neither rents nor profits. Are laborers
  - Minimum share ownership for those owning shares
- **Poverty**
  - Wage arbitrage:  $w$  in AG =  $w$  in MF
  - $w < z$

# Theoretical Framework (contd.)

- **Equilibrium with Industrialization**

- Monopolist will adopt IRS technology if variable profits cover fixed costs
- In the marginal sector, variable profits = fixed costs  
→ gives rise to a break-even condition
- Variable profits depend on sales. Sales have to be large enough to cover fixed costs.  
→ denote by  $N^*$  the minimum efficient scale
- Sales depend on:
  - Size (population) of domestic market
  - Size of “middle class”

# Theoretical Framework (contd.)

What is “middle class” here?

Middle class is the number of consumers poorer than  $N^*$  but with incomes above the subsistence level  $z$ .

So, consumption patterns in this economy are as follows:

- Consumers with income less than  $z$ , buy just food
- The middle class uses the first  $z$  units to buy food, the rest to buy industrialized goods
- The upper class buys food, industrialized goods, and backstop (luxury) goods

# Implications for Development

- A poor country needs an initial boost → wealth effect
  - Increase in agricultural productivity
  - Exports of natural resources (e.g. oil)
- This wealth effect jump starts a process of structural transformation:
  - AG Productivity and wages rise; rents rise; labor moves from AG to MF.
  - MF expands, AG shrinks → Industrialization
- Main insights:
  1. Need initial boost (AG productivity or Exports)
  2. Need large domestic market
  3. Need a certain degree of equality → middle class

# Why does Industrialization lead to Poverty Reduction?

- Wages increase, hence living standards of poor improve
- Profits increase, hence living standards of small share holders improve
- Reasons outside the model: Possible technological spillovers that become new source of growth
- Empirically, industrialization is associated with development

# Empirical Model

## Threshold Crossing Model

- Profit in the IRS sector is given by:

$$\Pi = S(\mathbf{M}, \lambda) V(\mathbf{Z}, \mathbf{W}, \beta) - F(\mathbf{W}, \gamma) + \varepsilon$$

- Probability of entry into the IRS sector (i.e. development):

$$\Pr(\Pi > 0) = \Phi(S(\mathbf{M}, \lambda) V(\mathbf{Z}, \mathbf{W}, \beta) - F(\mathbf{W}, \gamma))$$

# Empirical Model (contd.)

## Market size:

$$S(\mathbf{M}, \lambda) = \mathbf{M} \lambda = \text{pop below middle class} + \lambda_1 \text{ middle class share of pop} \\ + \lambda_2 \text{ relative pop of integrated market} \\ + \lambda_3 \text{ relative income of integrated market}$$

## Per capita variable profits:

$$V = \mathbf{X} \beta \\ = \beta_1 + \beta_2 \text{ past export growth} + \beta_3 \text{ past agricultural productivity growth}$$

## Fixed costs:

$$F = \mathbf{W}_L \gamma \\ = \gamma_1 + \gamma_2 \text{ tropical climate} + \gamma_3 \text{ desert climate} + \gamma_4 \text{ distance to coast} + \gamma_5 \\ \text{ruggedness} + \gamma_6 \text{ British legal origins} + \gamma_7 \text{ French legal origins}$$

Threshold market size:

$$\hat{S} = \frac{\bar{\mathbf{W}}_L \hat{\gamma}}{\bar{\mathbf{X}} \hat{\beta}}$$

# Empirical Implementation

## Mapping of concepts to observables:

**Development:** Sustained Poverty Reduction. Measurement:

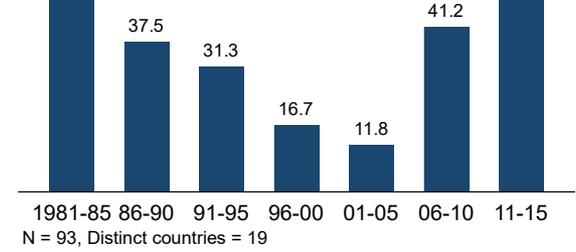
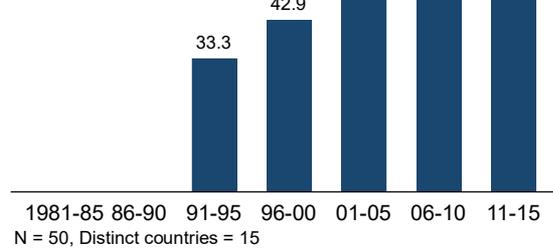
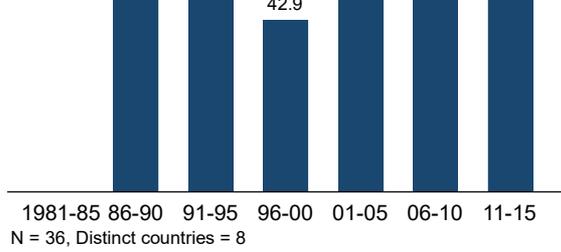
1. National Extreme Poverty Headcount from POVCALNET (percent of population living under 1.90 PPP 2011 US\$)
2. Interpolate missing data using linear trend
3. Segment data into 5-year periods, from 1981-2015: 81-85, 86-90, etc.
4. Create indicator for whether headcount is lower relative to previous year
5. Create indicator for sustained poverty: If poverty has fallen in all years within a 5-year interval, indicator=1; otherwise=0
6. Countries with headcount below 3% in all years dropped from the sample (have eliminated poverty)

**NOTE: Sustained Poverty Reduction  $\neq$  Sustained GDP Per Capita Growth**

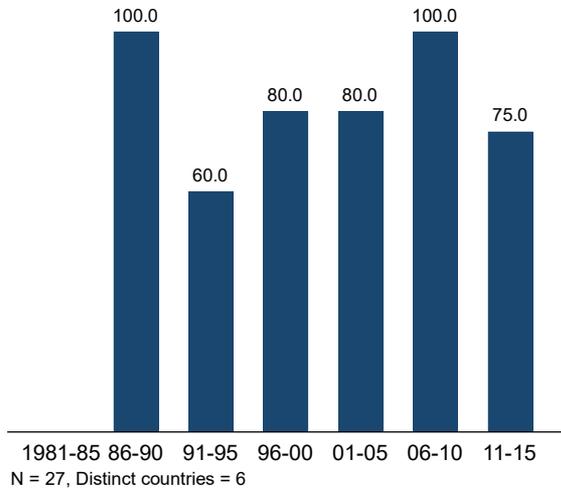
**Table 1: 5-year periods across 93 countries, from 1981-2015**

Sustained real per capita GDP  
growth

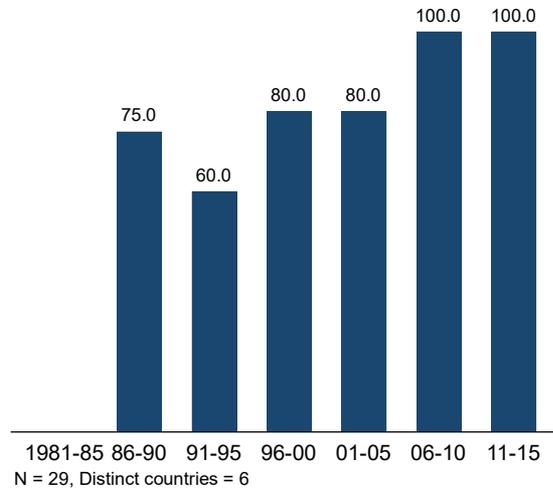
		0	1	Total
Sustained extreme poverty reduction	0	76	82	158
		48%	52%	100%
	1	45	144	189
		24%	76%	100%
Total		121	226	347
		35%	65%	100%



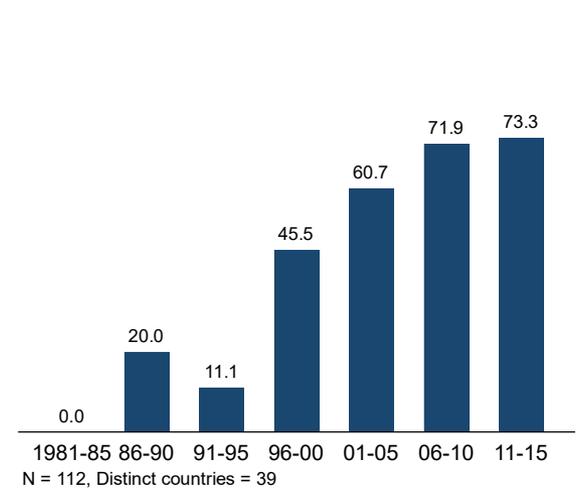
### Middle East and North Africa



### South Asia



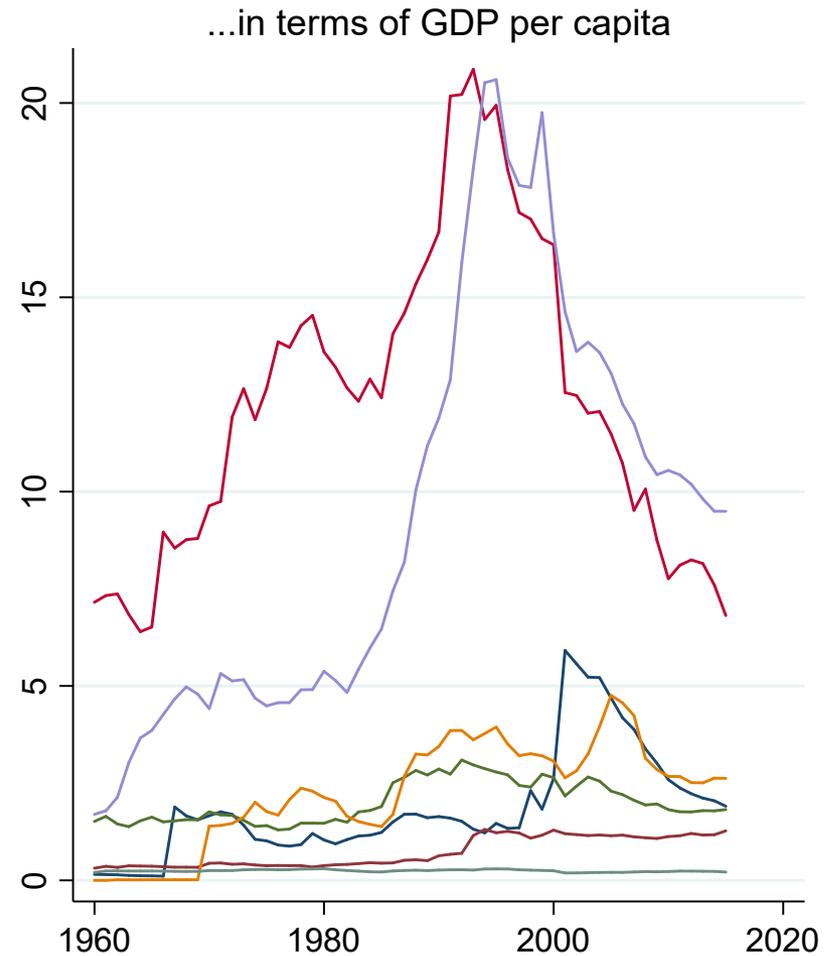
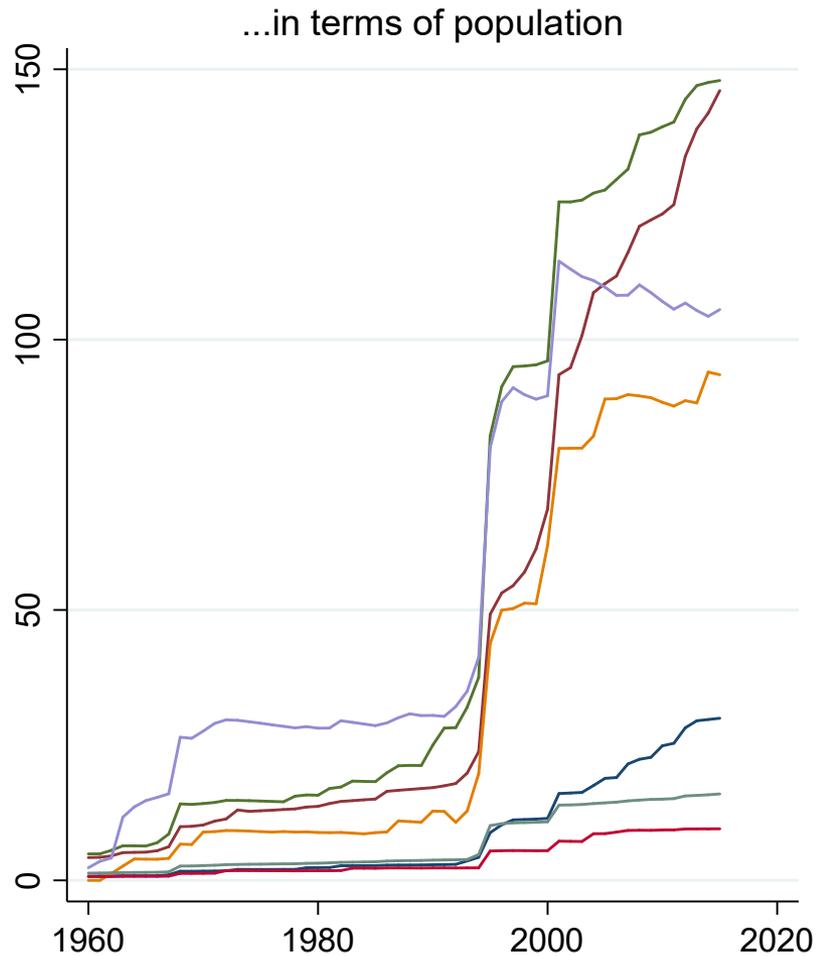
### Sub-Saharan Africa



Notes: Extreme poverty is living on <\$1.90/day PPP 2011

Source: POVCALNET

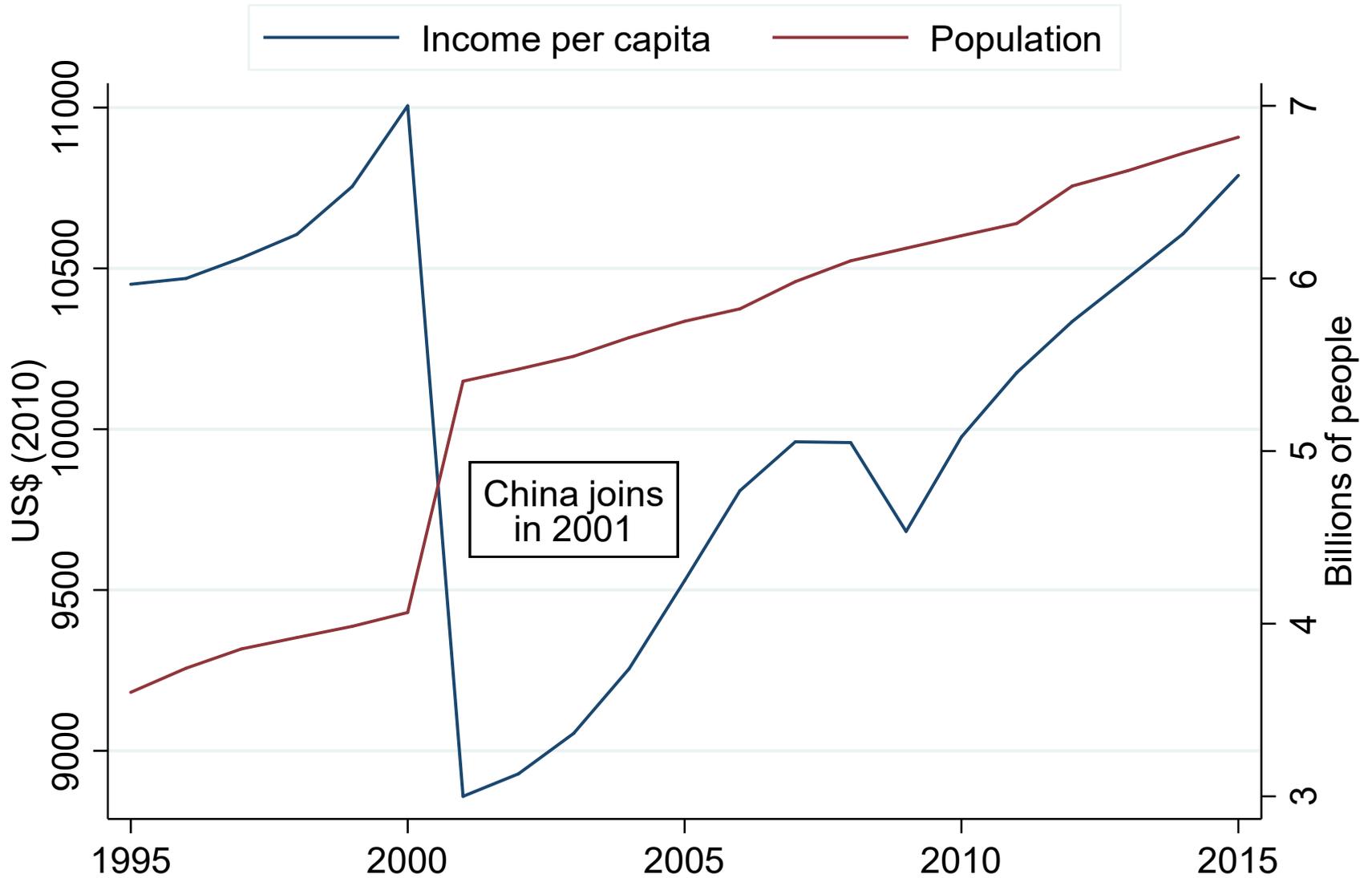
# Relative size of integrated international market



Notes: Regional averages are weighted by population in each year

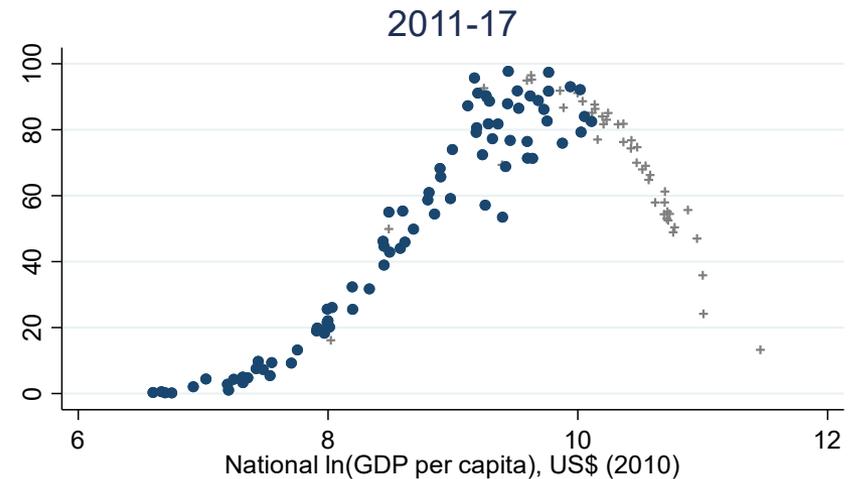
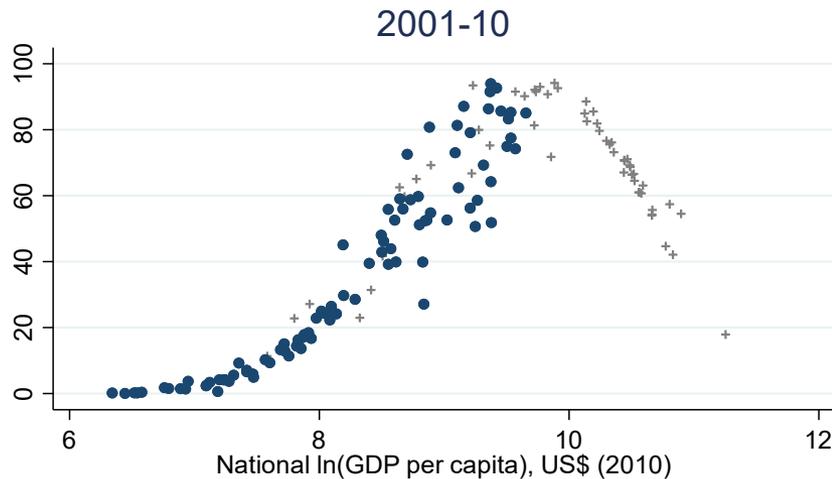
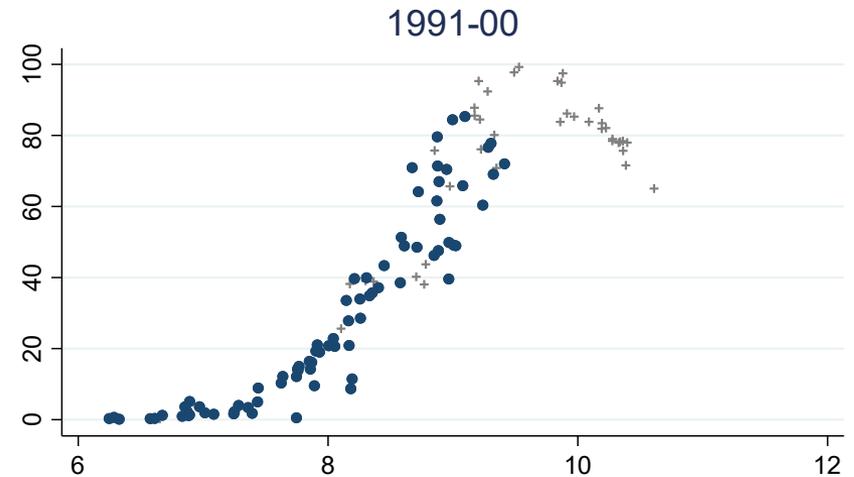
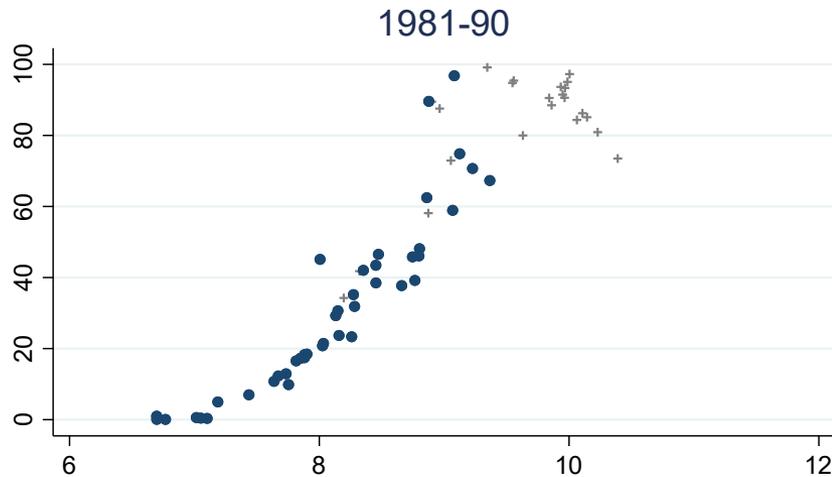
Sources: World Development Indicators. World Trade Organization and Hofmann, Osnago, and Ruta (2017).

# WTO member states



# Global middle class (% of national population)

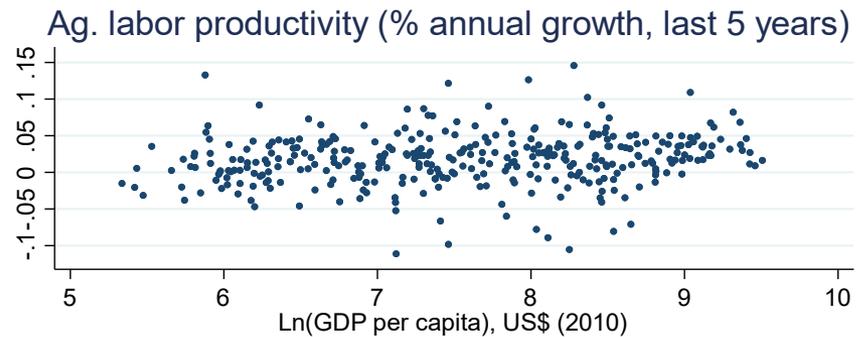
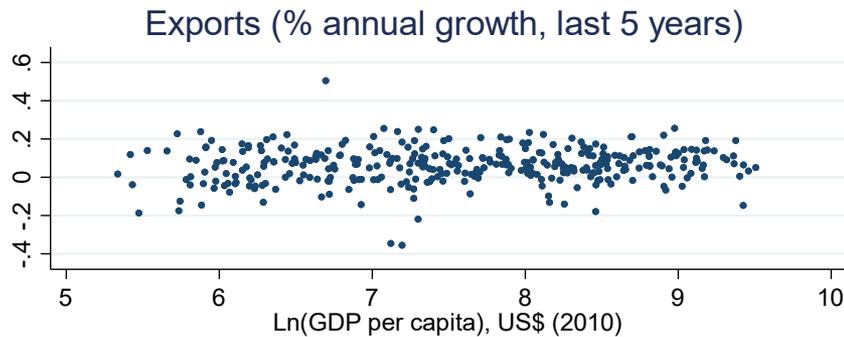
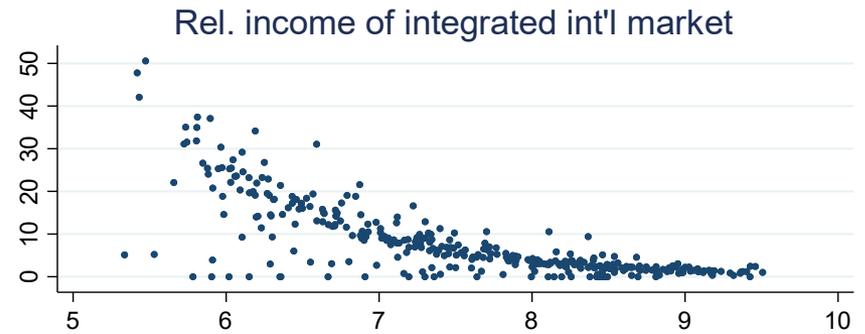
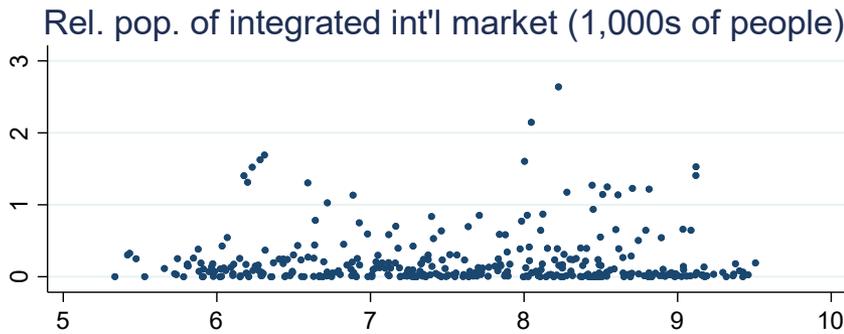
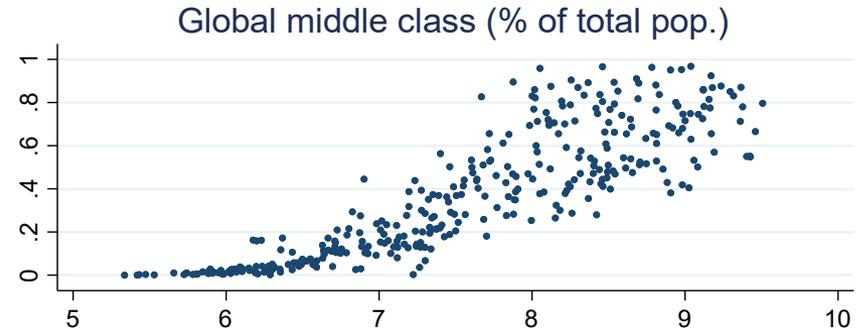
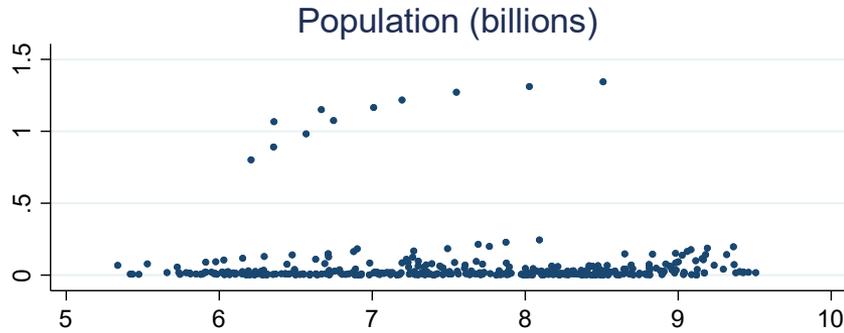
● Sustained poverty reduction sample    + Other countries



Notes: Middle class is the share of the population consuming between \$11-110/day, following Kharas (2011)

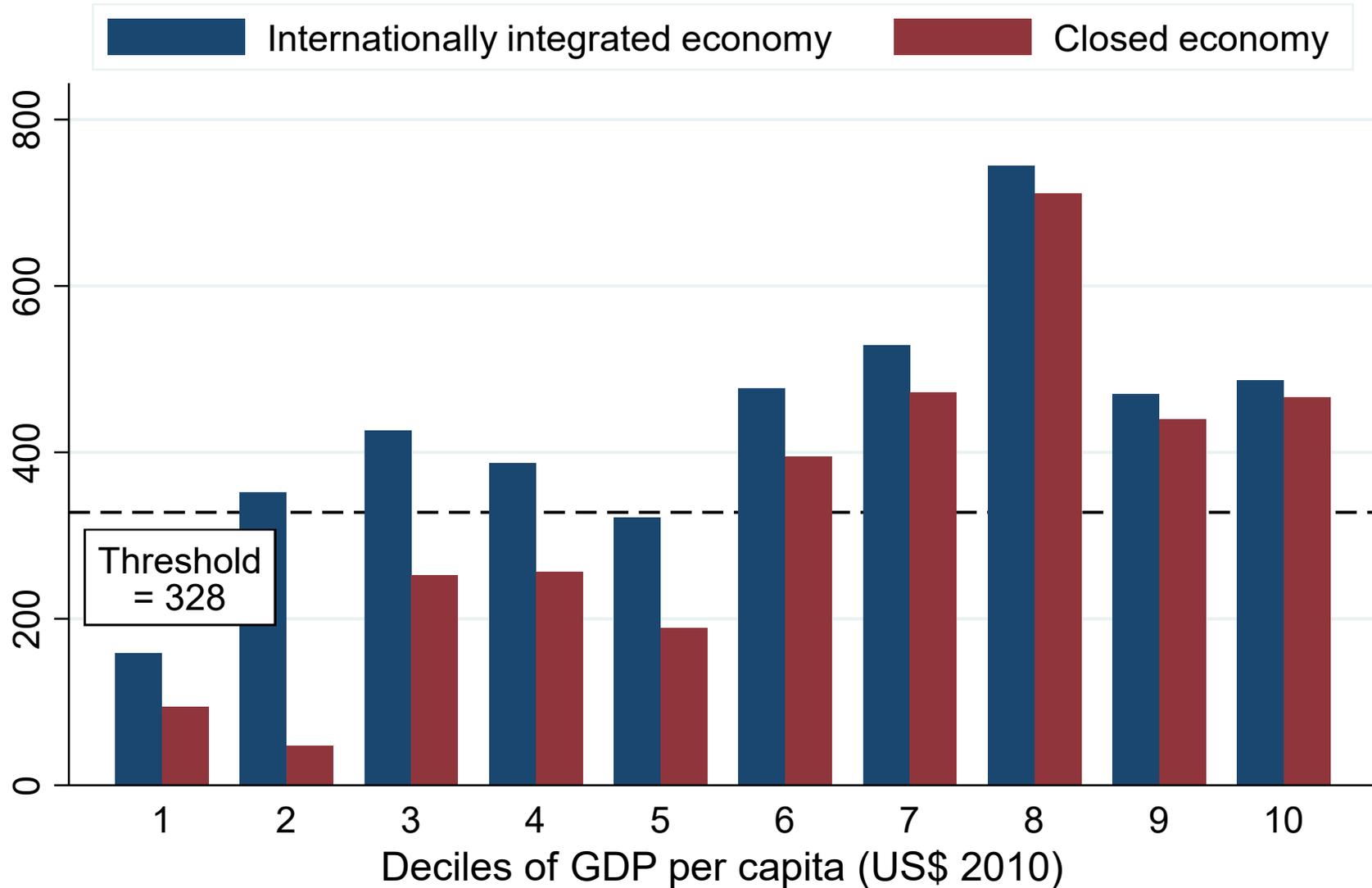
Sources: Penn World Tables, POVCALNET, Milanovic (2013)

• Sustained poverty reduction sample



Sources: Penn World Tables, POVCALNET, Milanovic (2013), World Trade Organization, Hofmann, Osnago, and Ruta (2017), World Development Indicators, IMF, United States Department of Agriculture Research Service.

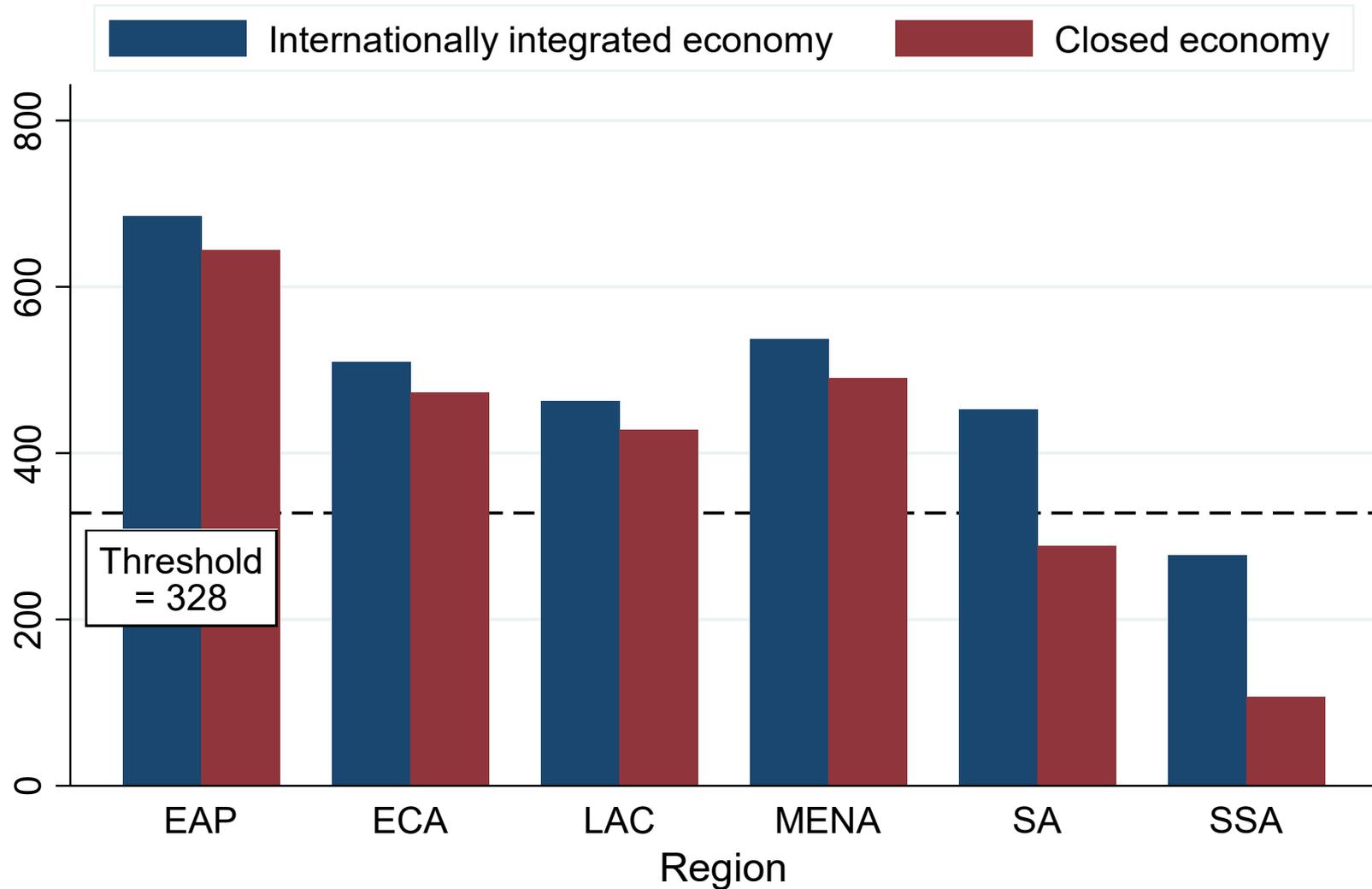
# Estimated market size (millions of people)



*Notes:* Data cover years 2011-15. Average market size by income decile is weighted by population. Market size is in units of people with income less than the middle class (<\$11/day 2011 PPP)

*Source:* Goldberg and Reed (2020)

## Estimated market size (millions of people)



*Notes:* Data cover years 2011-15. Average market size by region weighted by population. Market size is in units of people with income less than the middle class (<\$11/day 2011 PPP). EAP is East Asia and Pacific, ECA is Europe and Central Asia, LAC is Latin America and Caribbean, MENA is Middle East and North Africa, SA is South Asia, and SSA is Sub-Saharan Africa. SA excludes India, which does not report a poverty headcount after 2011.

*Source:* Goldberg and Reed (2020)

# Conclusions

- For a small country, nearly impossible to eliminate poverty if closed
- Size of domestic market can compensate for lack of trade. But our estimates suggest that domestic market needs to be VERY large (above 300 Mi) for domestic IRS to kick in
- But what is a “small” country supposed to do?
  - “Deep” integration can substitute for small domestic market. But we have never experienced this, not even in the EU
  - A certain degree of “equality”, i.e. existence of large middle class, can partially compensate for small market.
- In the current policy environment, equality may be a complement and not substitute for growth.

**THANK YOU!**