The Past, Present, and Future of Economic Convergence

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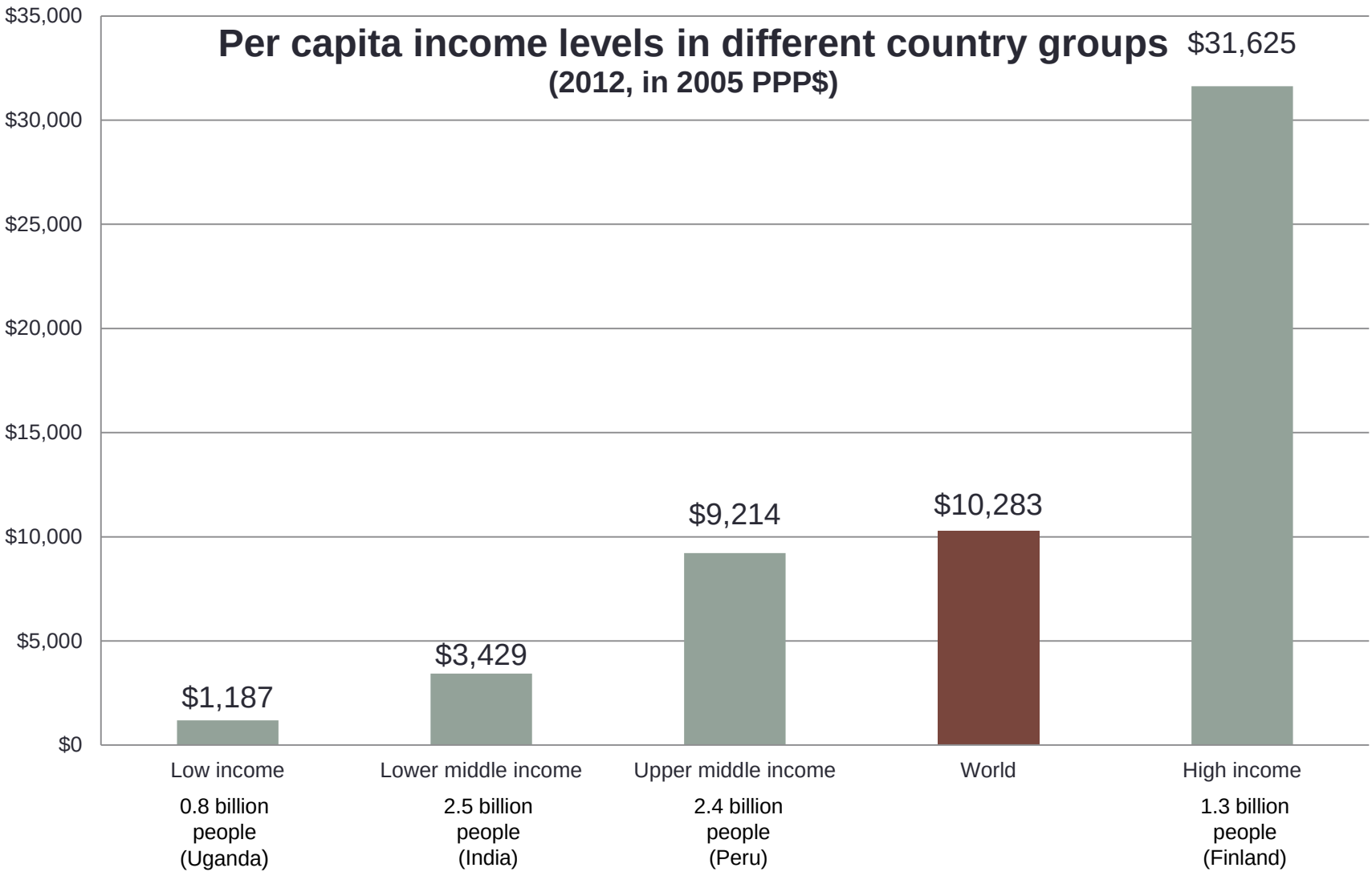
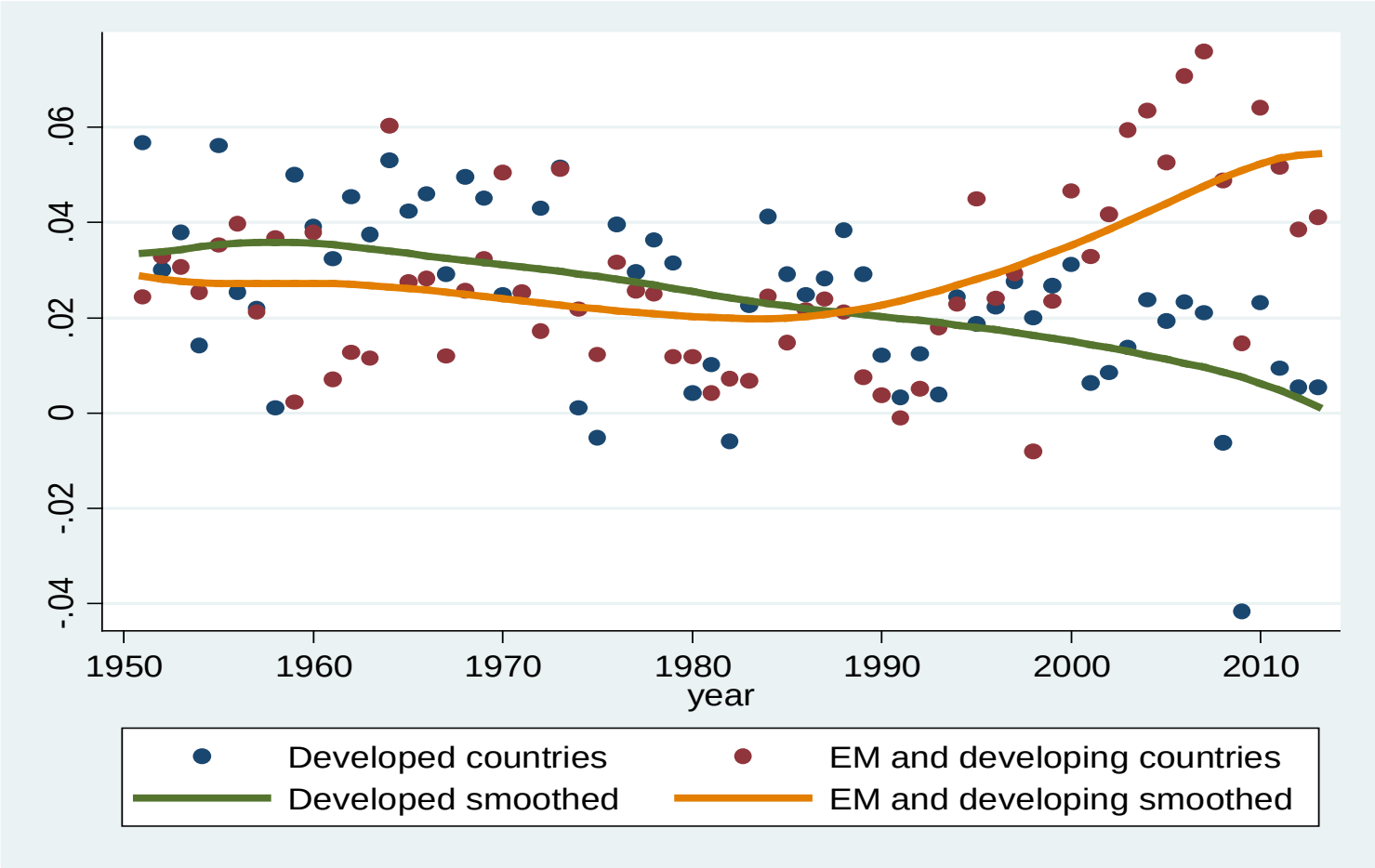
Global income disparities

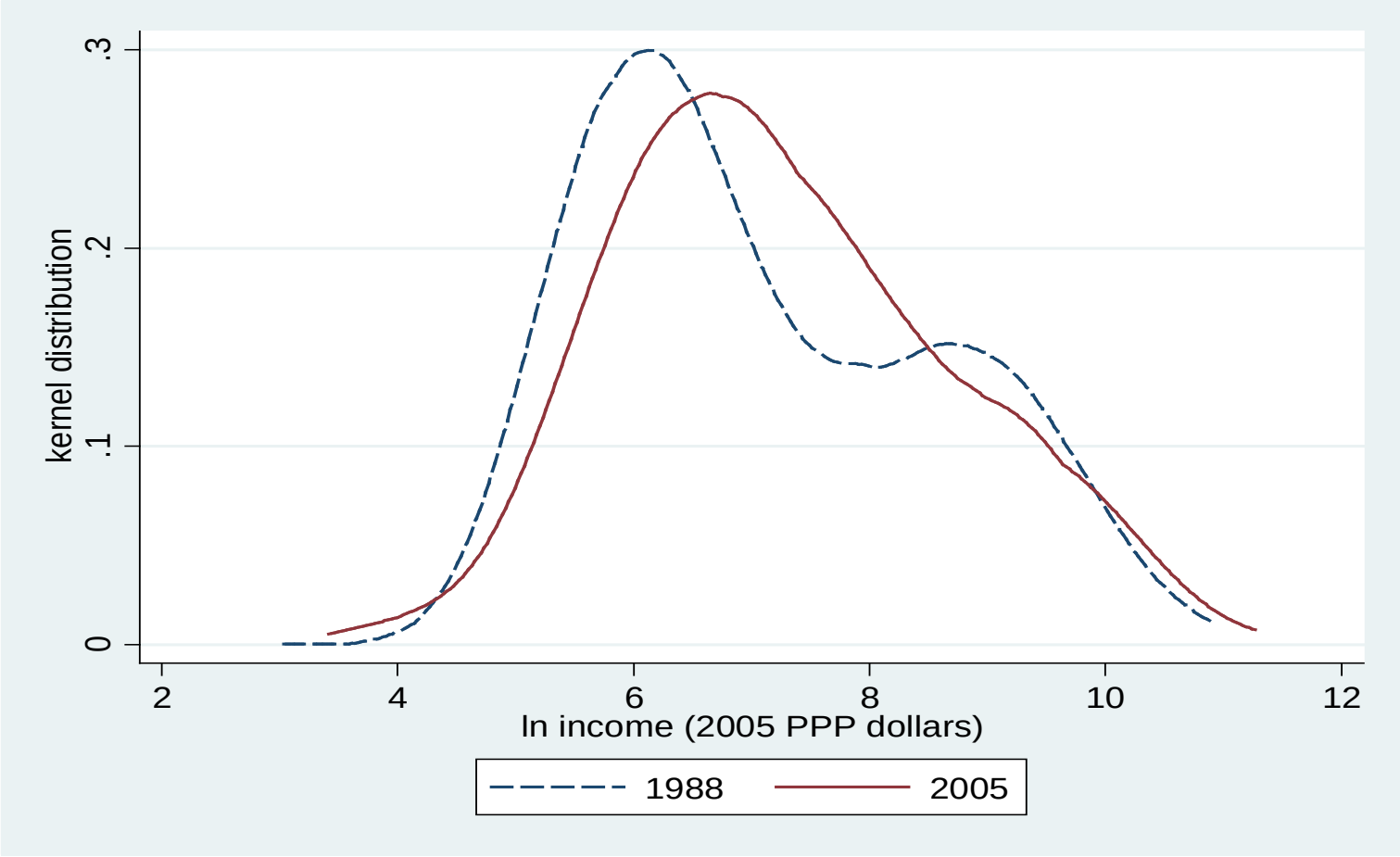


Recent evidence of convergence



Growth trends in developed and developing countries since 1950 (per-capita GDP)

The emergence of a global middle class?



Global income distribution, 1988 and 2005

Source: Rodrik (2012), via data from Milanovic (2011)

Is rapid convergence here to stay?

Last two decades have been particularly favorable to developing countries

- high commodity prices
- low interest rates
- plenty of foreign capital
- the Chinese exception?

So future may not look like recent past

Need to understand drivers of economic growth

Is rapid convergence here to stay?

Questions

- Why focus on growth of countries instead of poverty or poor people directly?
- What does history, theory, empirics tell us about the underlying dynamics of convergence?
- What can we conclude about future prospects?

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Poor people or poor countries?

Question: Would you rather be rich in a poor country, or poor in a rich country?

- Assume you care only about your own income and purchasing power
- Define rich and poor (within a country) as follows:
  - rich : having the same income level as people in the *top* ventile (5%) of a country's income distribution
  - poor: having the same income level as people in the *bottom* ventile of a country's income distribution
- Define rich and poor country as follows
  - rich country: a country that is in the top ventile of all countries ranked by per-capita GDP
  - poor country: a country that is in the bottom ventile of all countries ranked by per-capita GDP
- Which would you rather be?

And the answer is…

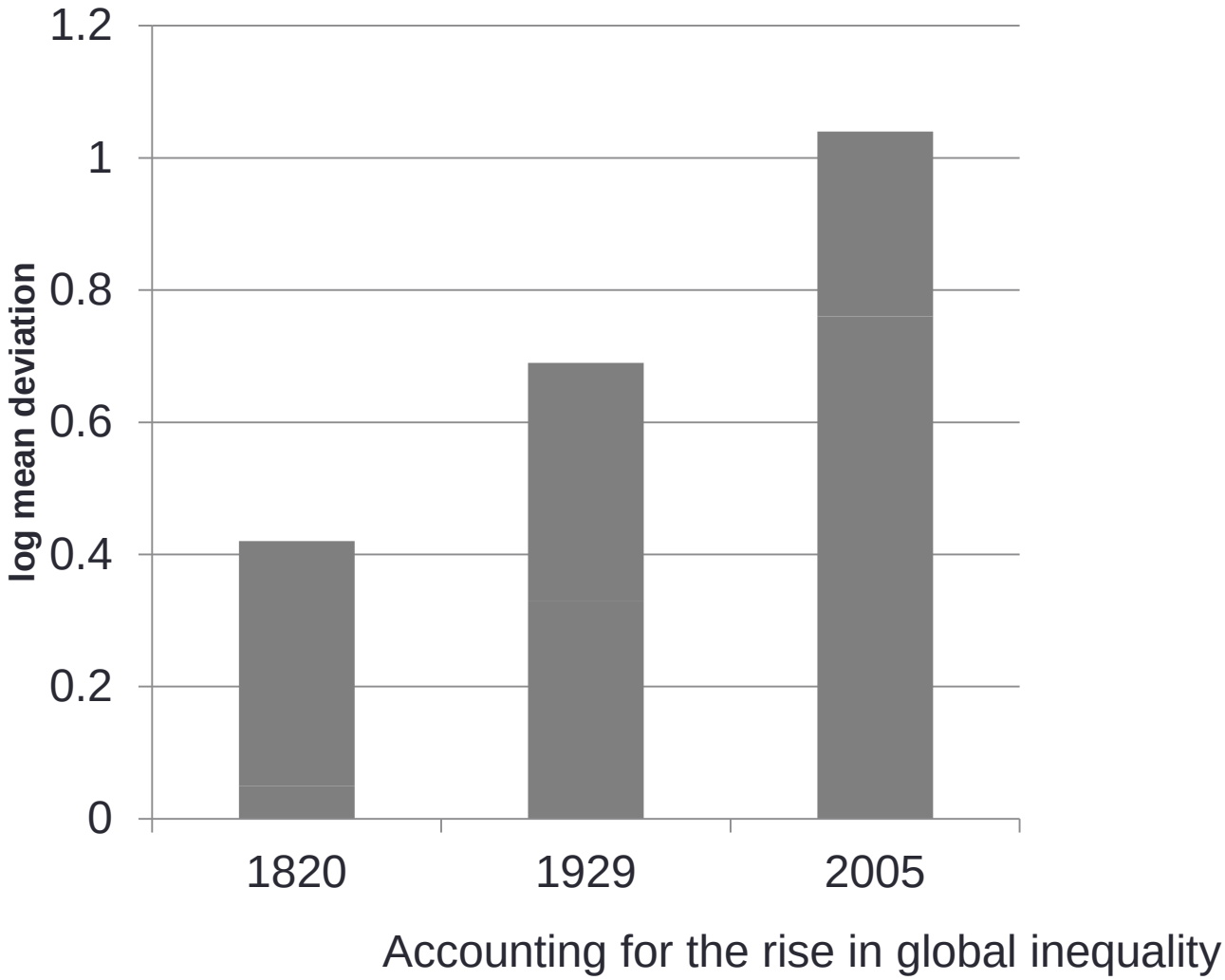
y_j per-capita income (GDP) in country *j*;
ϕ_{dj} income share of ventile *d* in country *j;*
y_{dj} average income level in ventile *d* (=1,2,..,20) in country *j*.

$$y_{dj} = 20 \times \phi_{dj} \times y_j$$

	y_j	ϕ_{dj}	Representative income of …
Poor country (Niger)	$573	income share of top 5% in poor country = 0.254	rich individual in poor country = ***$2,918***
Rich country (Norway)	*$47,547*	income share of bottom 5% in rich country = 0.014	poor individual in rich country = ***$13,049***

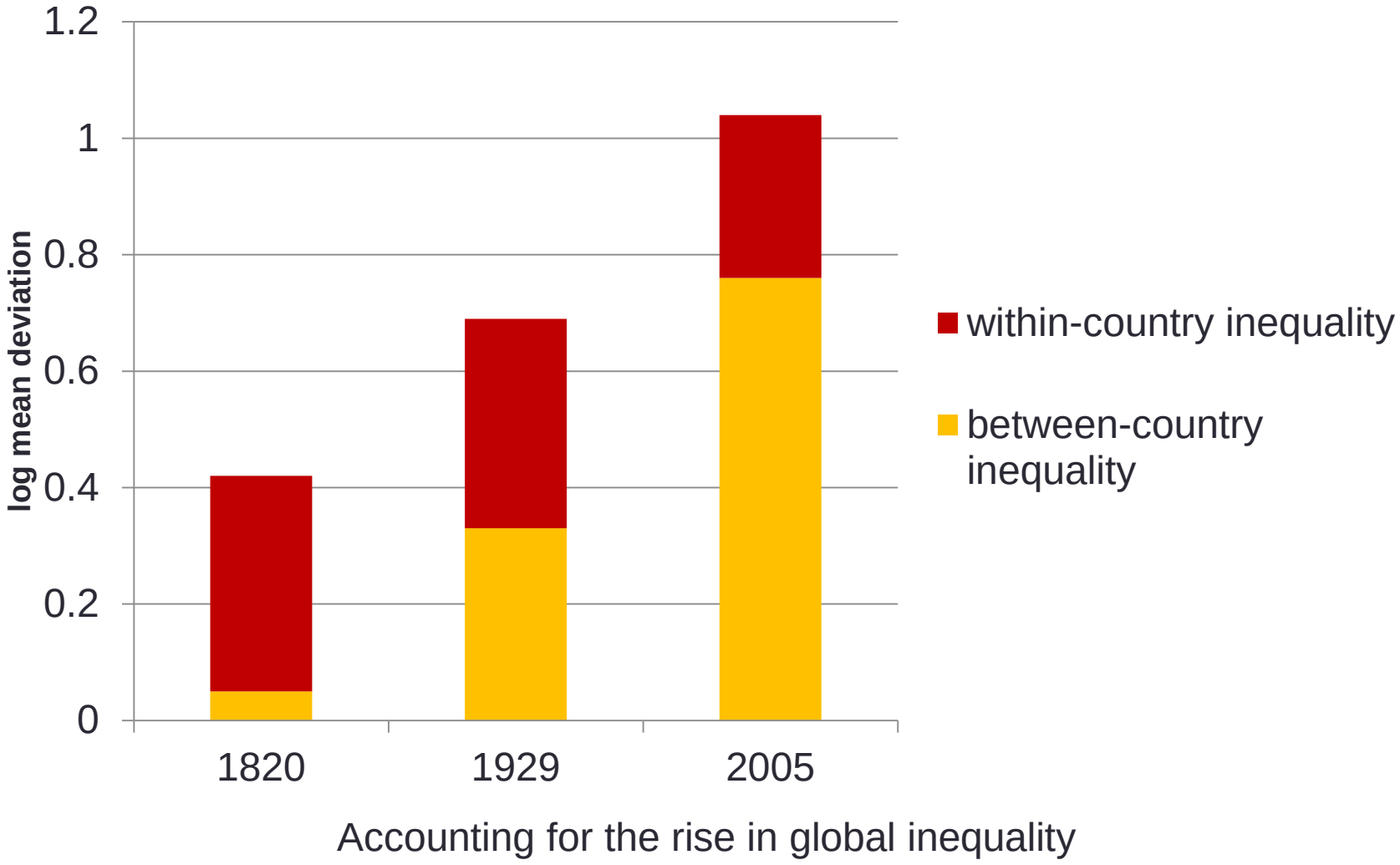
(all figures for 2012, in 2005 PPP-adjusted $)

Why growth (or lack thereof) matters



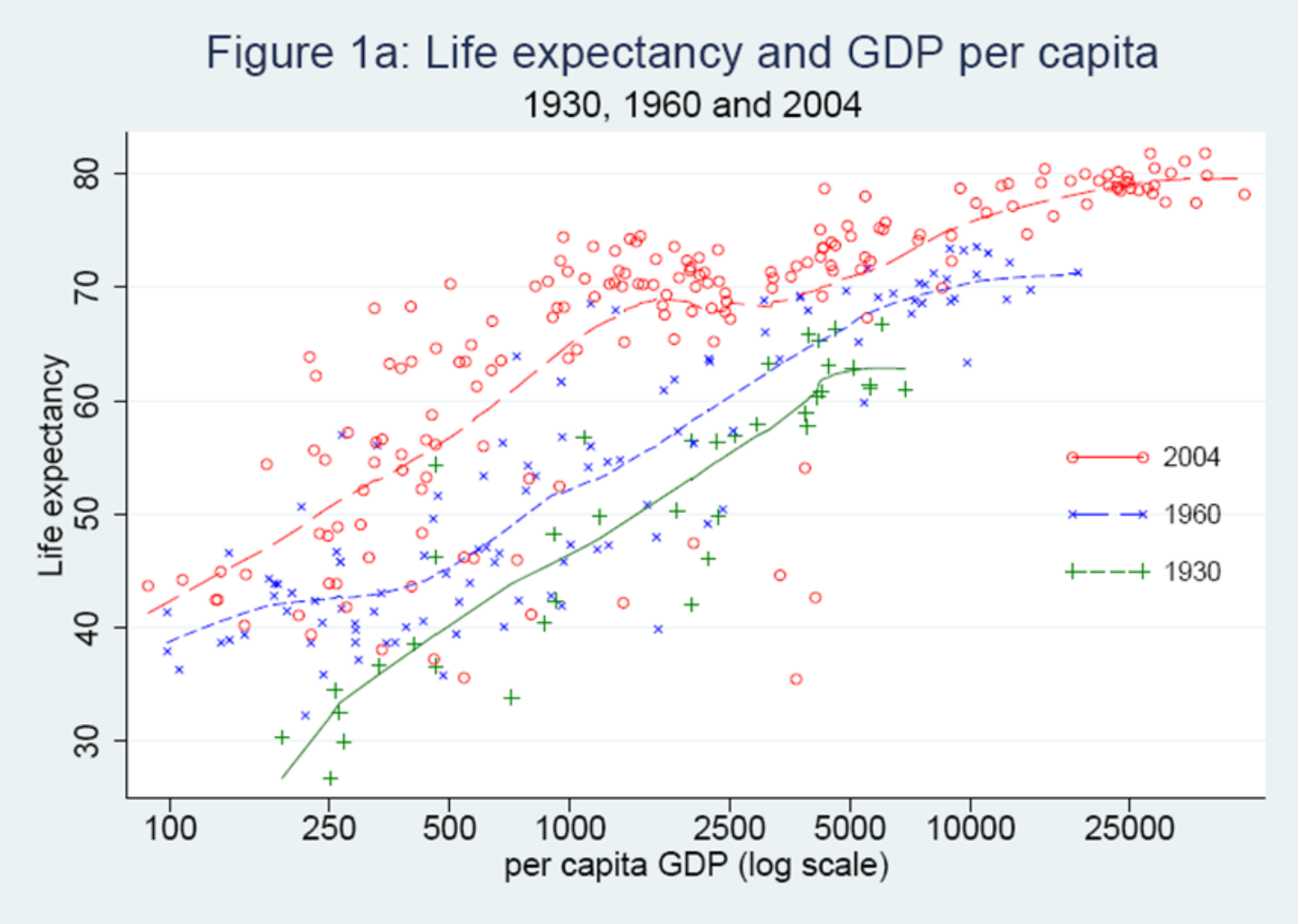
Source: Bourguignon and Morrison (2002) updated using data from Milanovic (2011)

Why growth (or lack thereof) matters



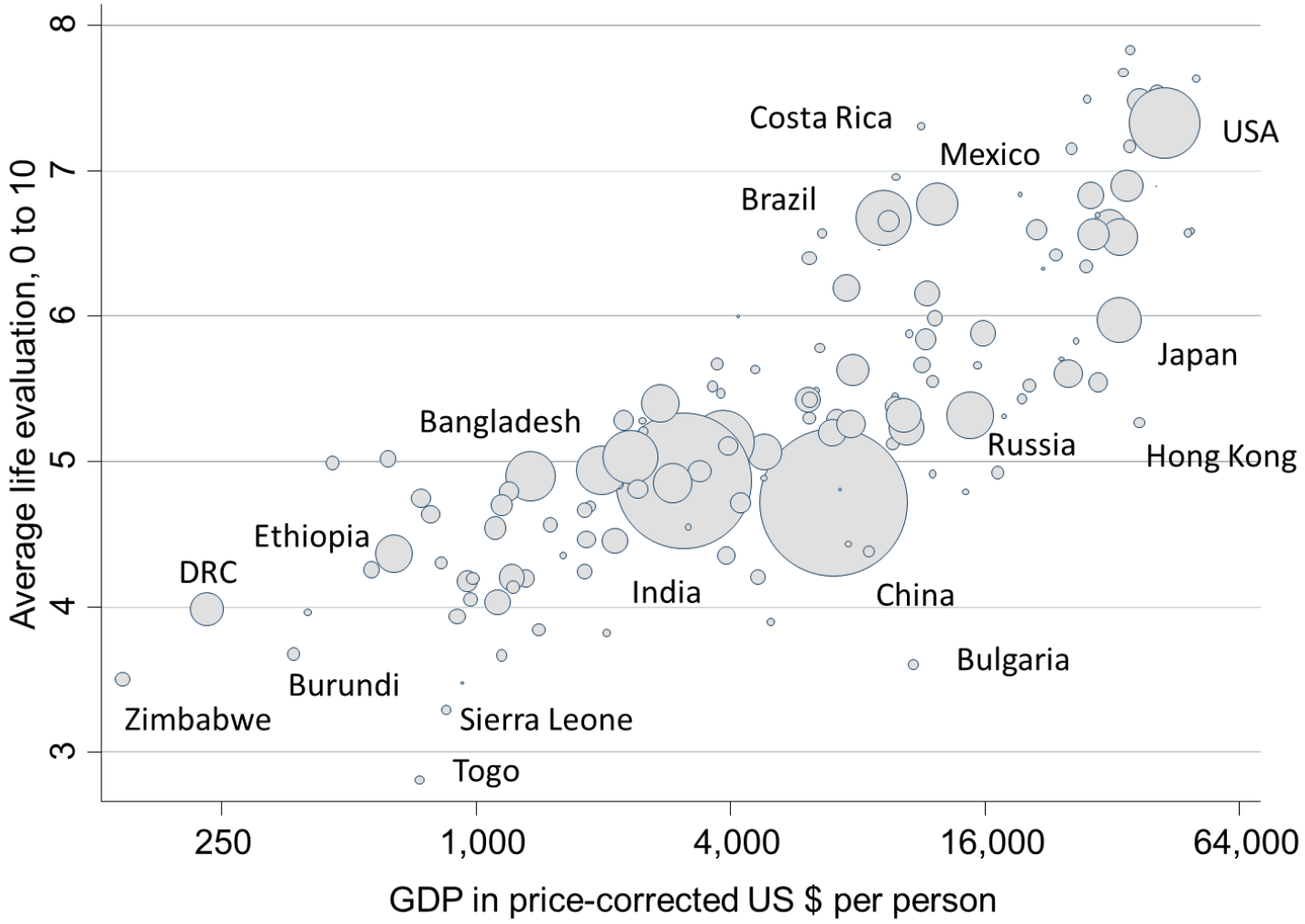
Source: Bourguignon and Morrison (2002) updated using data from Milanovic (2011)

It's not just about money: life expectancy



Source: Thomas (2007)

It's not just about money: life satisfaction



Source: Deaton (2013)

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Questions

- Why focus on growth of countries instead of poverty or poor people directly?
- What does history, theory, empirics tell us about the underlying dynamics of convergence?
- What can we conclude about future prospects?

What do we mean by convergence?

Let y_j stand for labor productivity (or GDP per worker) in country *j*, $\hat{y}_j$ its growth rate, and * for "frontier" economies.

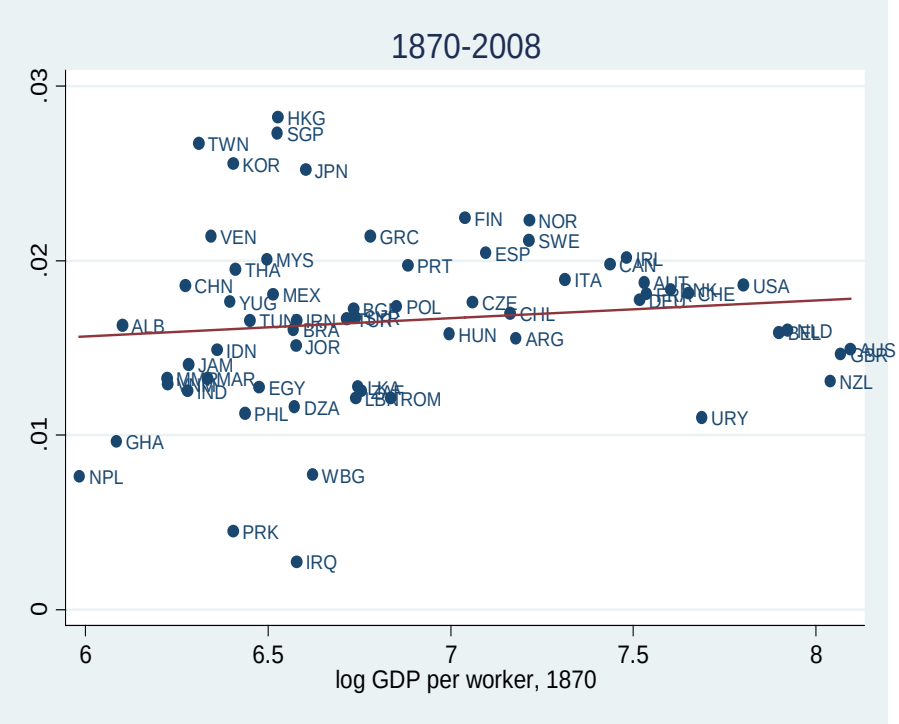
$$\hat{y}_j = \beta\left(\ln y^* - \ln y_j\right) + \varepsilon_j$$

$$\beta > 0,$$
$$E\left(\varepsilon_j\right) = 0.$$

Called β-convergence

Implies a scatter plot of $\hat{y}_j$ against y_j would have a negative slope, given by $-\beta$

But convergence is historically the exception rather than the norm



Notes: For RHS chart, variable on the vertical axis is growth of GDP per worker over four separate decades (1965-1975, 1975-1985, 1985-1995, 1995-2005), controlling for decadal fixed effects.
Source: Rodrik (2013), using data from Maddison (2010) and PWT 7.0 (2011).

Unconditional versus conditional convergence

Latecomers have access to

- technology
- capital
- markets

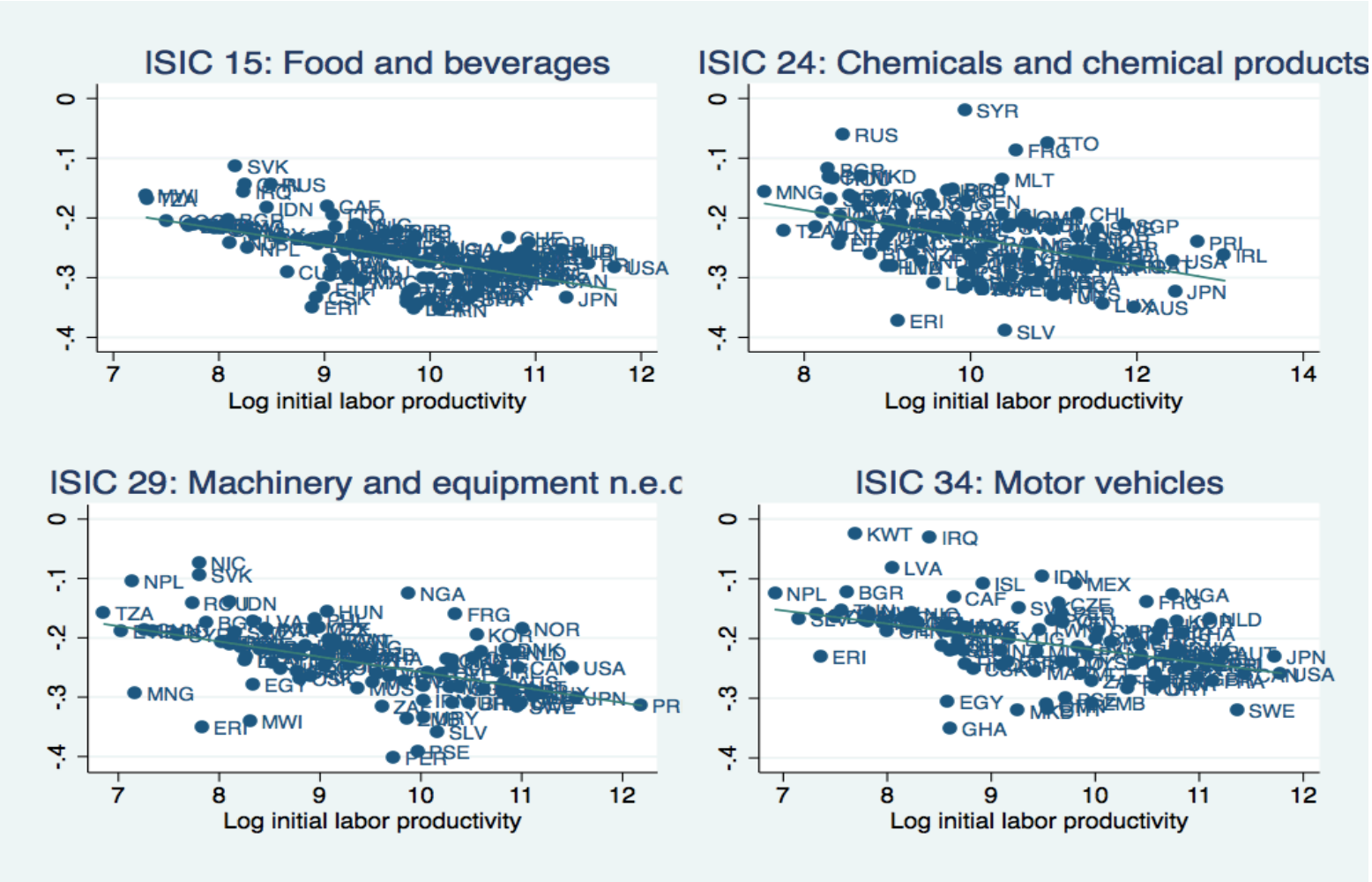
But face other headwinds

- bad policies
- weak institutions
- geographical disadvantages
- poverty traps

So conventional theory: convergence is conditional:

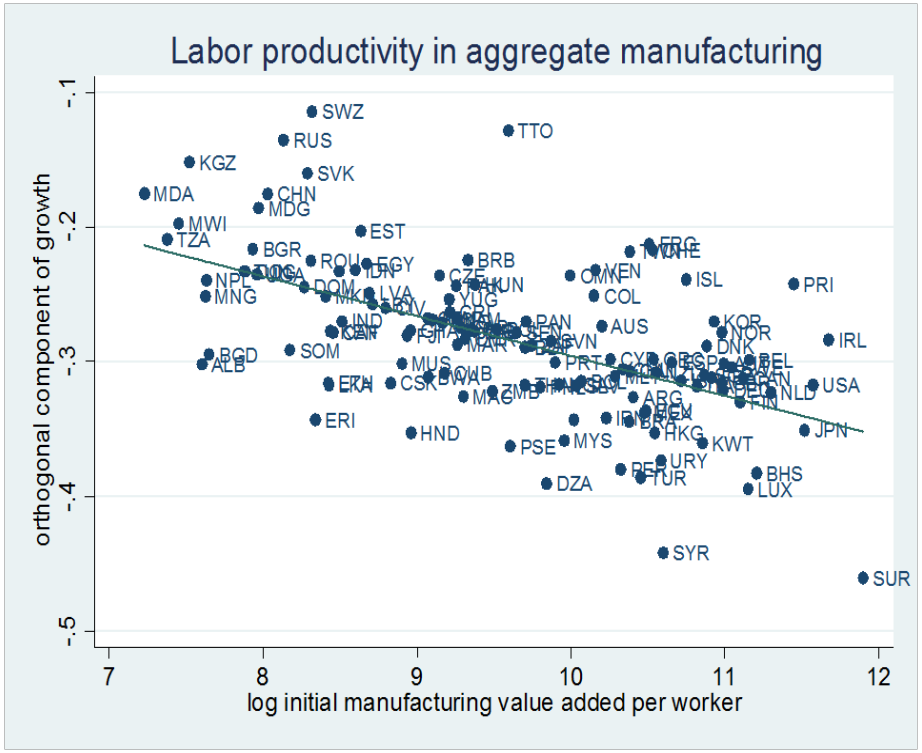
$$\hat{y}_j = \beta\left(\ln y^* - \ln y_j\right) + \sum_i \gamma_i C_{ij} + \varepsilon_j$$

And yet, there is unconditional convergence… in manufacturing industries



Notes: Vertical axis represents growth in labor productivity over subsequent decade (controlling for period fixed effects). Data are for the latest 10-year period available.
Source: Rodrik (2013)

Productivity convergence in manufacturing appears quite general – regardless of period, region, sector, or aggregation



$\beta \approx 2.9\%$ (t-stat ≈ 7), implying a half-life for full convergence of 40-50 years!

Notes: Data are for the latest 10-year period available. On LHS chart, each dot represents a 2-digit manufacturing industry in a specific country; vertical axis represents growth rate of labor productivity (controlling for period, industry, and period×industry fixed effects).
Source: Rodrik (2013)

What does this mean?

Generic explanations for underdevelopment, such as

- corruption
- poor protection of property rights
- geography
- poverty traps
- …

… cannot be right, or at least need to be qualified

So why isn't everyone already rich?

- Manufacturing industry is typically a very small share of economy in poor countries ($\alpha < .10$)
- And industrialization ($d\alpha$) typically takes place very slowly, despite very large productivity gaps between manufacturing and non-manufacturing parts of the economy

Analytics: the role of reallocation towards manufacturing

Equation of motion of GDP per worker (y):

$$\hat{y} = g + \alpha\theta_m\beta(\ln y^* - \ln y_m) + (\theta_m - \theta_n)\, d\alpha$$

Notes: The economy is divided into manufacturing (m) and non-manufacturing (n). A "^" over a variable denotes proportional growth rates, g is the underlying long-term growth rate of the economy, α is the employment share of manufacturing, θ_m and θ_n are the productivity premia/discounts of the two sectors $\theta_m = y_m/y$ and $\theta_n = y_n/y$, and β is the convergence coefficient for manufacturing.

So growth equals an exogenous (or country-specific) component, a manufacturing convergence factor (that is decreasing in the level of manufacturing productivity), and a reallocation term.

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Growth = country-specific (idiosyncratic) term

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\+ manufacturing convergence term

\+ reallocation (structural change) term

Rapid industrialization has been the common feature of countries that sustained high growth

Countries that have grown at 4.5 per annum per capita (or faster) over 30 years or more

Before 1950			After 1950		
Country	fastest growth rate achieved over three decades (%)	period	Country	fastest growth rate achieved over three decades (%)	period
Before 1900			Italy	5.9	1945-1975
Australia	5.8	1823-1853	Spain	4.9	1949-1980
New Zealand	7.1	1840-1870	Portugal	4.6	1950-1980
			Greece	7.3	1945-1975
Between 1900 and 1950			Israel	4.7	1953-1983
Venezuela	5.5	1907-1939	Yugoslavia	4.9	1952-1982
			Ireland	4.6	1976-2006
			Iraq	5.3	1950-1980
			Saudi Arabia	6.1	1950-1980
			Libya	7.4	1950-1980
			Oman	7.4	1955-1985
			Botswana	7.3	1960-1991
			Cape Verde	5.5	1977-2007
			Equatorial Guinea	9.3	1974-2004
			Japan	7.4	1945-1975
			North Korea	4.7	1951-1981
			Taiwan	7.2	1946-1976
			South Korea	7.3	1965-1995
			Singapore	6.7	1964-1995
			Hong Kong	6.0	1958-1988
			Malaysia	5.1	1967-1997
			Indonesia	4.7	1967-1997
			Burma	4.9	1977-2007
			China	6.7	1976-2007

Industrializers in the European periphery

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Asian manufacturing miracles

Industrialization and de-industrialization were at the root of the "Great Divergence" as well

Table III.1: Industrialization before the First World War

Per-capita levels of industrialization (U.K = 100 in 1900)

	1750	1800	1830	1860	1880	1900	1913
Developed countries	8	8	11	16	24	35	55
U.K.	10	16	25	64	87	100	115
U.S.	4	9	14	21	38	69	126
Germany	8	8	9	15	25	52	85
Japan	7	7	7	7	9	12	20
Developing countries	7	6	6	4	3	2	2
China	8	6	6	4	4	3	3
India	7	6	6	3	2	1	2
Brazil	n.a.	n.a.	n.a.	4	4	5	7
Mexico	n.a.	n.a.	n.a.	5	4	5	7

Source: Bairoch (1982)

From mechanics to policies: how did successful countries promote rapid industrialization?

- macro “fundamentals”
  - *reasonably* stable fiscal and monetary policies
  - *reasonably* business-friendly policy regimes
  - steady investment in human capital and institutions
    - but more important for sustaining growth past middle income than launching it
- pragmatic, opportunistic, often “unorthodox” government policies to promote domestic manufacturing industries
  - protection of home market, subsidization of exports, managed currencies, local-content rules, development banking, special investment zones, … with specific form varying across contexts
- a development-friendly global context
  - access to markets, capital and technologies of advanced countries
  - benign neglect towards industrial policies in developing countries

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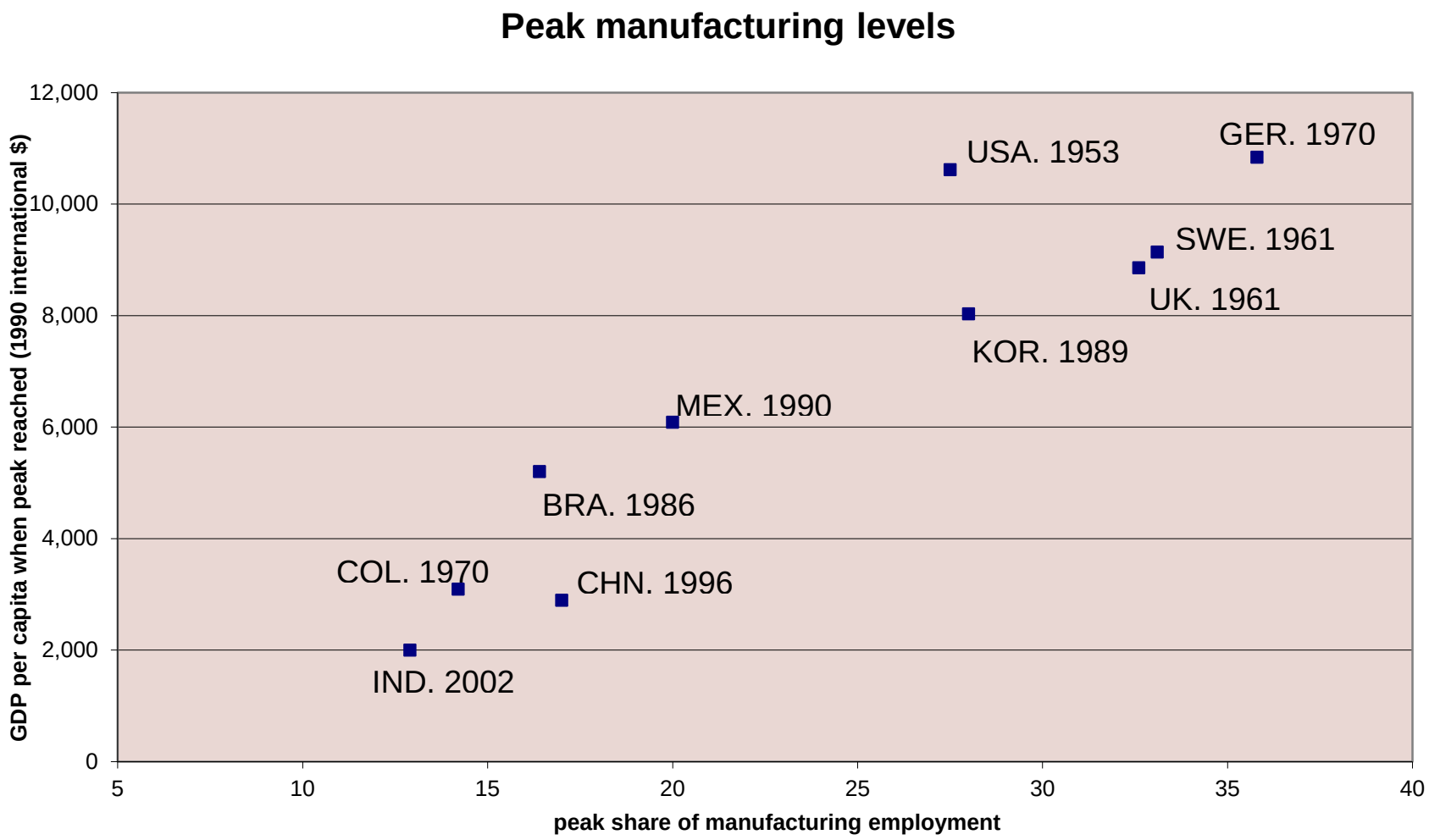
Problem: premature deindustrialization is increasingly common



What will be different going forward?

- Troubled times in advanced countries
  - high public debt
  - structural problems of the euro zone
  - distributional struggles related to decline of middle class
  - declining political support for globalization and economic openness
- China's difficulties
  - the double challenge of economic and institutional transformation
- Earlier onset of deindustrialization
  - manufacturing becomes increasingly skill- and capital-intensive
  - challenge of green technologies
  - reduced capacity for large-scale employment absorption
- A less benign global environment for manufactured-exports-based growth strategies

So baseline

- Growth in emerging markets have been unsustainably high in last decade, and will come down by a couple of points
- Convergence will continue, but not as rapidly, and in large part because of low growth in advanced economies
- As domestic rather than global trends drive growth, significant heterogeneity in long-term performance across developing countries is likely