

# **Econ 133 – Global Inequality and Growth**

## **Trends in inequality between countries**

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## Roadmap

1. The dynamics of between-country inequality since 1980
2. A very long run perspective
3. The future of inequality between countries

# 1 Between-country inequality since 1980

## 1.1 Basic orders of magnitude for today

Average per adult monthly income, globally = \$1,740 (in PPP, ie adjusted for differences in prices: see next lecture)

- North America: \$5,490 ( $3 \times$  global average)
- EU: \$3,420 ( $2 \times$  global average)
- China: \$1,520 (90% of global average)
- India: \$750 (45% of global average)
- Sub-Saharan Africa: \$560 (30% of global average =  $1/10$  of North America)

## 1.2 Changes in shares of global income

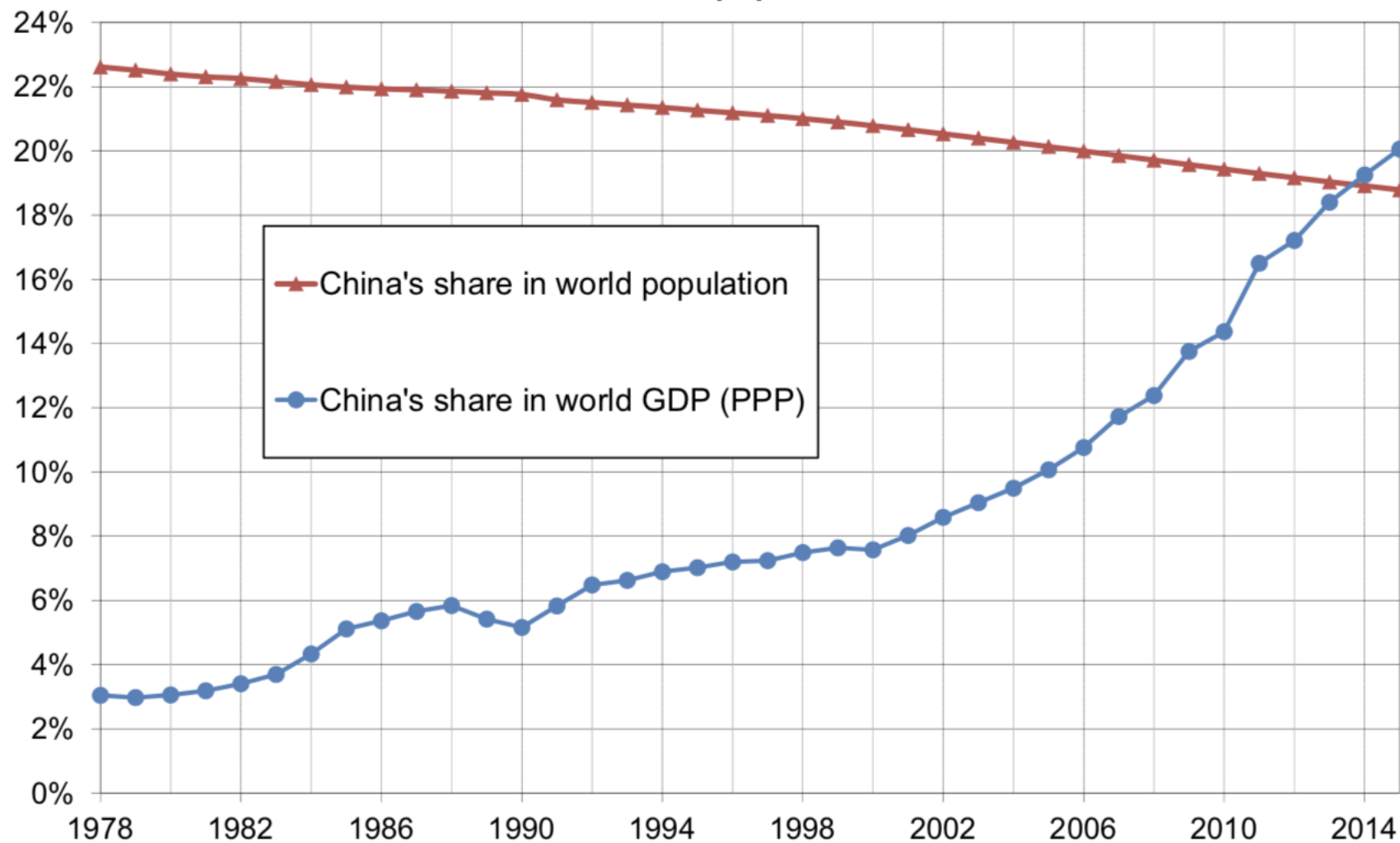
Today:

- China = 19% of global income
- North America = 17%
- EU = 17%

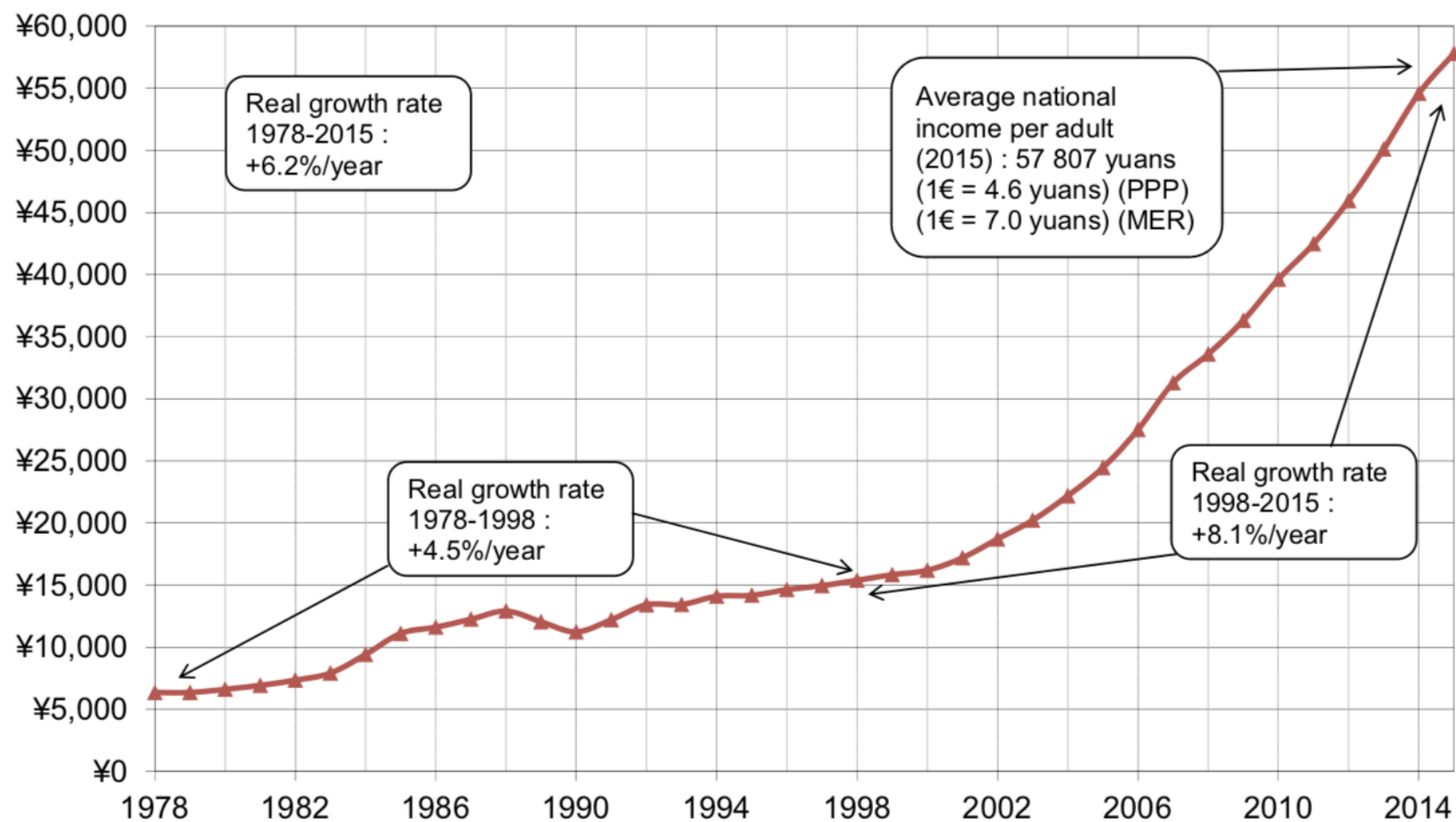
In 1980:

- China = 3% of global income
- North America = 20%
- EU = 28%

**A. China's share in world population and GDP, 1978-2015**

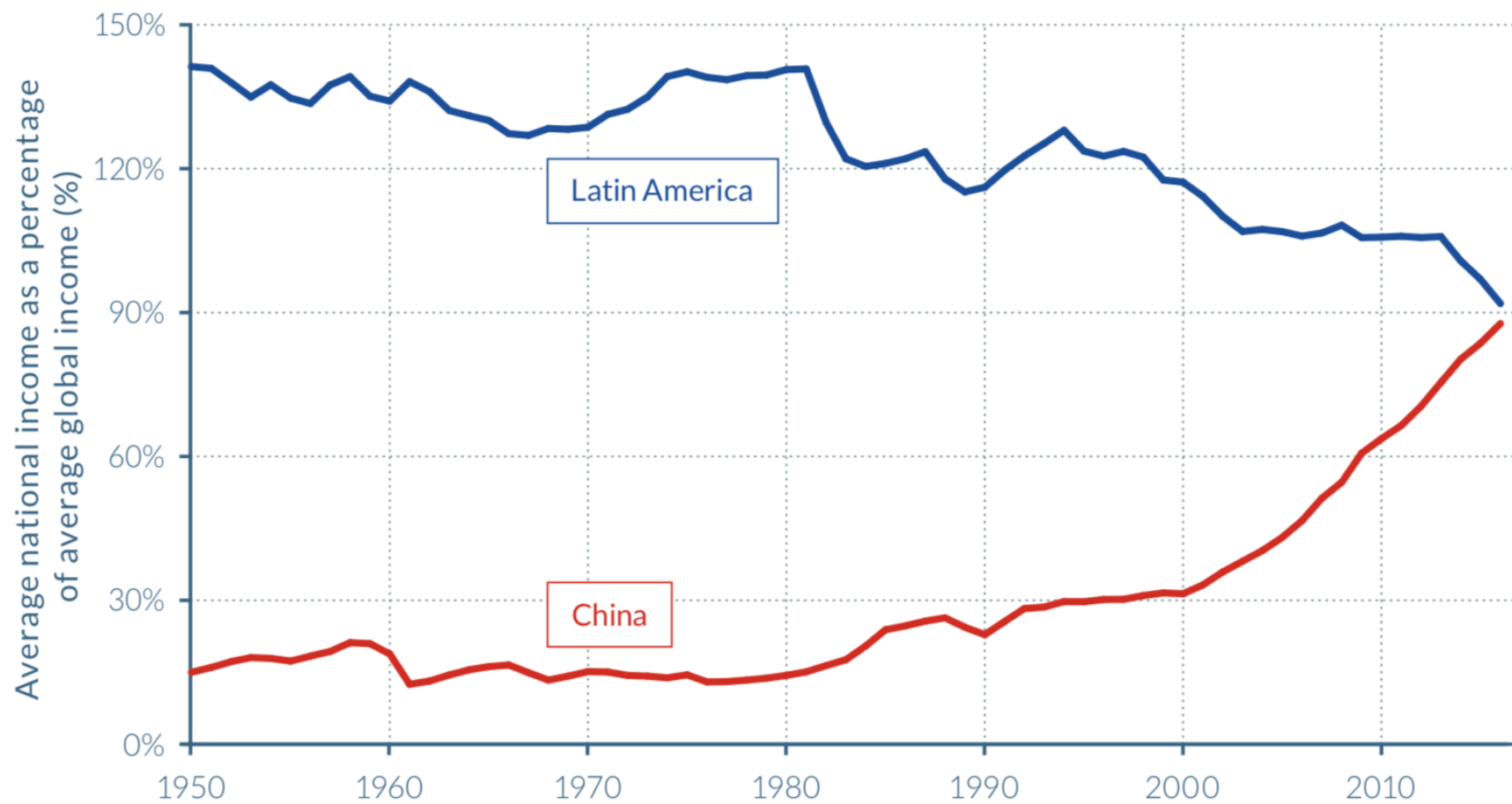


**B. The rise of per adult real national income, 1978-2015 (2015 yuans)**



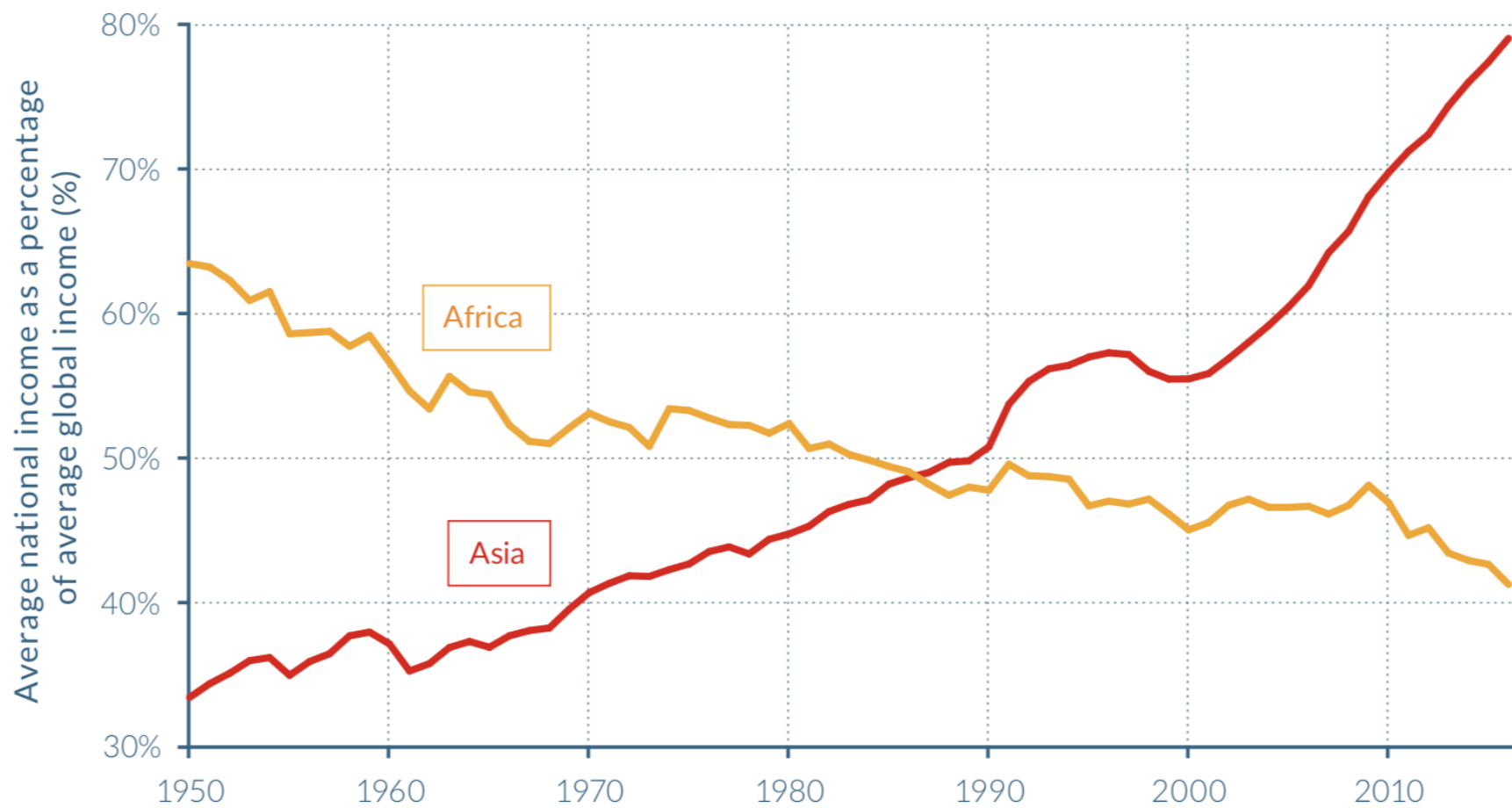
National income divided by adult population. National income = GDP - capital depreciation + net foreign income.

### Average income in China and Latin America relative to the global average, 1950-2016



Source: WID.world (2017). See [wir2018.wid.world](#) for data series and notes.

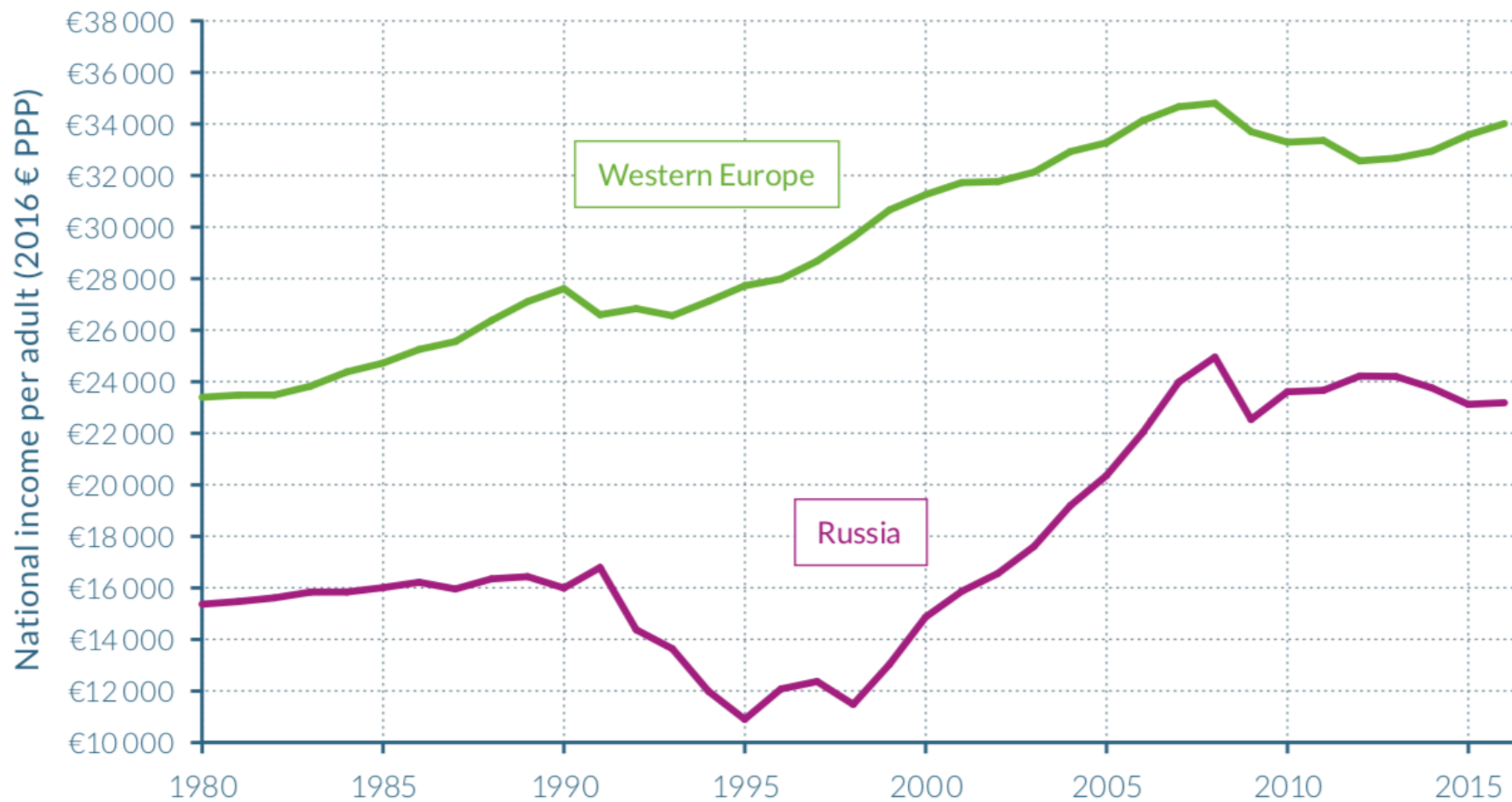
### Average income in Africa and Asia relative to the global average, 1950–2016



Source: WID.world (2017). See [wir2018.wid.world](http://wir2018.wid.world) for data series and notes.



**Average national income per adult in Russia and Western Europe, 1980–2016**



Source: Novokmet, Piketty and Zucman (2017). See [wir2018.wid.world](http://wir2018.wid.world) for data series and notes.

## 1.3 Explaining convergence

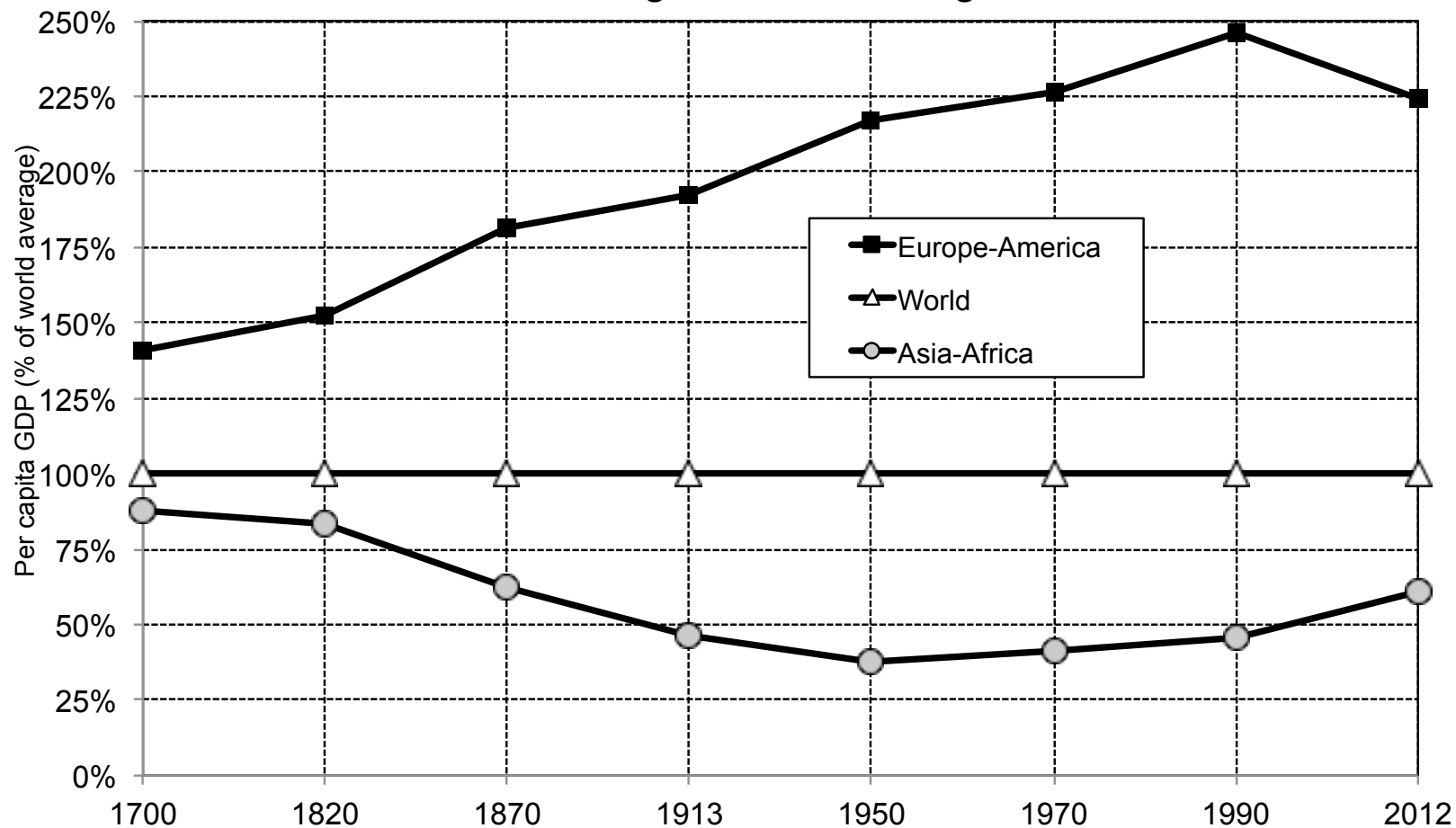
- Openness: diffusion of technology, know-how, trade (specialization)
- Limited evidence for role of foreign capital flows
  - Helps convergence in output but not income
  - Most growth success stories rely on dom. rather than foreign inv
- Domestic investment: education, health, etc. (strong correlation between tax/GDP ratio and income per capita)

## 2 Between-country inequality in the long run

Two phases in between-country income inequality 1700-2015:

- Divergence between Western and other countries during 19th century & until mid-20th century
- Convergence since 1980s

### Global inequality 1700-2012: divergence then convergence?



Per capita GDP in Asia-Africa went from 37% of world average in 1950 to 61% in 2012.

Sources and series: Piketty (2014) see [piketty.pse.ens.fr/capital21c](http://piketty.pse.ens.fr/capital21c).

## 2.1 Data sources on long-run population and output

Maddison project database: <http://www.ggdnc.net/maddison/>

Recent decades: World Bank World Development Indicators:  
<http://data.worldbank.org>

Population projections: United Nations World Population Prospects:  
[esa.un.org/wpp](http://esa.un.org/wpp)

## 2.2 Explaining divergence

Huge literature on long-run developments and why some countries are richer than others?

- Smith: market institutions, property rights
- Marx: primitive accumulation
- Weber: protestant ethics

Here emphasize some recent important work

1. Armed trade and colonial domination → allow West to escape ecological constraint (Pomeranz, 2000)

- 1750-1800 Western Europe & China at similar levels of development
- But massive deforestation in 18th century: from 1500 to 1800, share of forested land goes from 30-40% to 5-10% in Europe
- Trade and colonial domination → escape from Malthusian trap
- Key role of colonization of America & armed trade → how Europe prevails in Asian trade over China

## 2. European domination over global textile manuf (Beckert, 2004).

- Cotton = key 19th century commodity, the Industrial Revolution's "launching pad"
- European domination over textile: violence at every stage
- West appropriates land in America, sends slaves from Africa to produce raw cotton, bans Indian textiles
  - 1750-1850: Europe controls global textile manufacturing
- Key role of slavery: huge acceleration of slave trade 1780–1860
- Only after abolition of slavery in US does Indian cotton rise again



### 3. Size of political communities & conflict

- Europe: smaller polities → more competition between small states, military (and financial) innovation
- China: larger polity, less military innovation during 17c-19c
- See, e.g., Rosenthal and Wong (2011)

### 3 The future of between country inequality

- Today, Europe + North America = about 50% of world GDP (as in 1860)
- At some point during 21th century: down to 20-30% (= share of Europe + America in world population = convergence)
- When exactly? Nobody knows. Convergence  $\approx$  2040 in East Asia, and  $\approx$  2090 in South Asia and Africa?

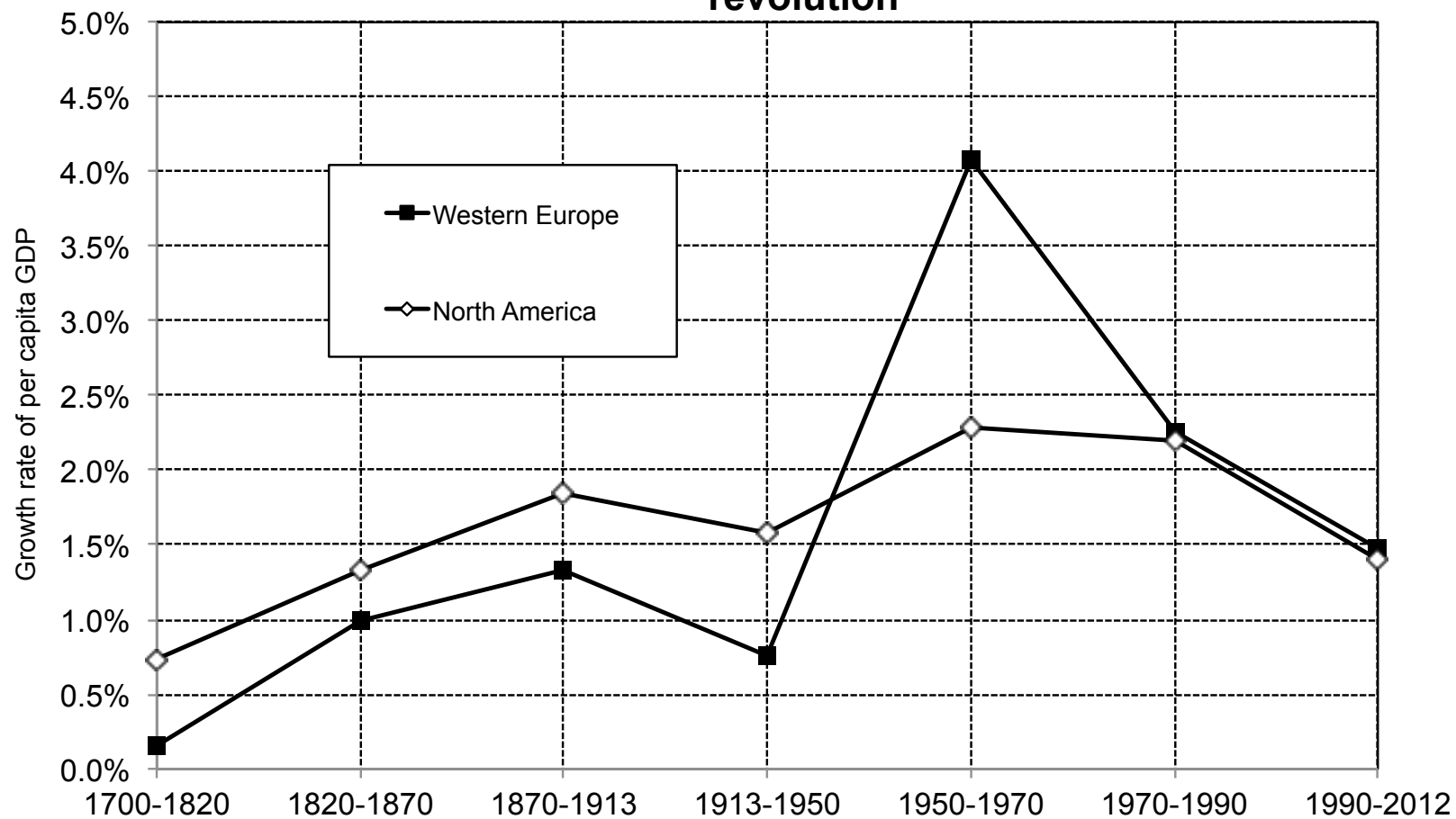
## 3.1 The future of global growth

Conceptual framework: The standard growth model

- $Y = F(K, L)$  with constant returns to scale
- e.g., Cobb-Douglas:  $Y = K^\alpha L^{1-\alpha}$
- Steady-state growth path = everything grows at rate  $g$ :  
 $Y_t = Y_0 e^{gt}$ ,  $K_t = K_0 e^{gt}$  and  $L_t = L_0 e^{gt}$
- Growth of  $L_t = N_t \times P_t$  can be decomposed into growth of employed population  $N_t = N_0 e^{nt}$  and of productivity  $P_t = P_0 e^{ht}$
- i.e.,  $g = n + h =$  population growth + productivity growth
- $n$  comes from fertility decisions, health, etc.

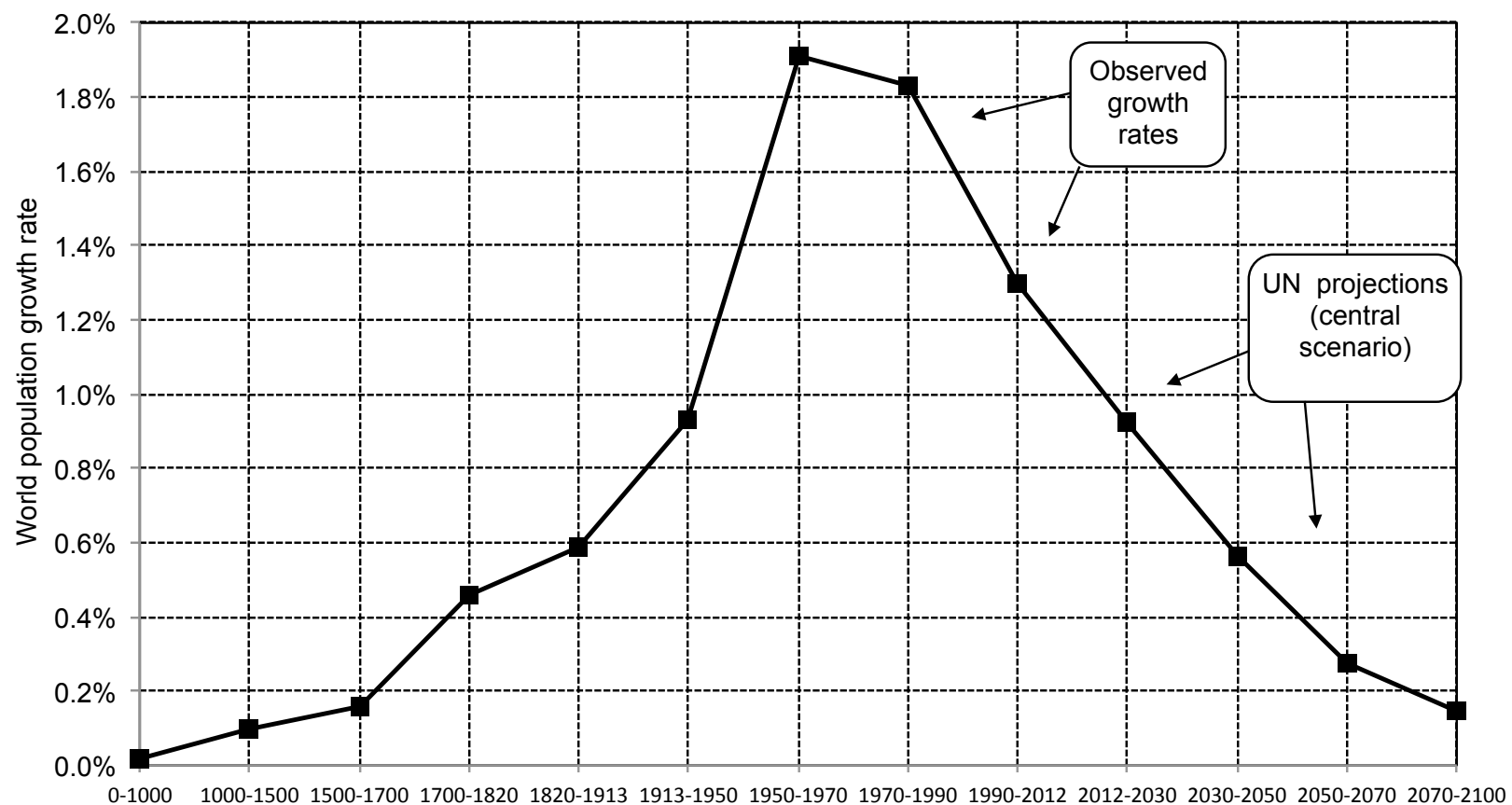
- $h$  comes from education, innovation, etc.
- Over 1700-2018, at the global level  $g = 1.6\%$  and  $n = 0.8\%$
- Productivity growth  $h$  always slow for countries at world technological frontier
- Once global convergence over,  $h$  might be low everywhere
- Population growth  $n$  seems to  $\rightarrow 0$
- So in very long run, maybe  $n \approx 0\%$  and  $h \approx 1-1.5\%$
- Some economists even less optimistic: long-run  $g < 1\%$ ?

### The growth rate of per capita output since the industrial revolution



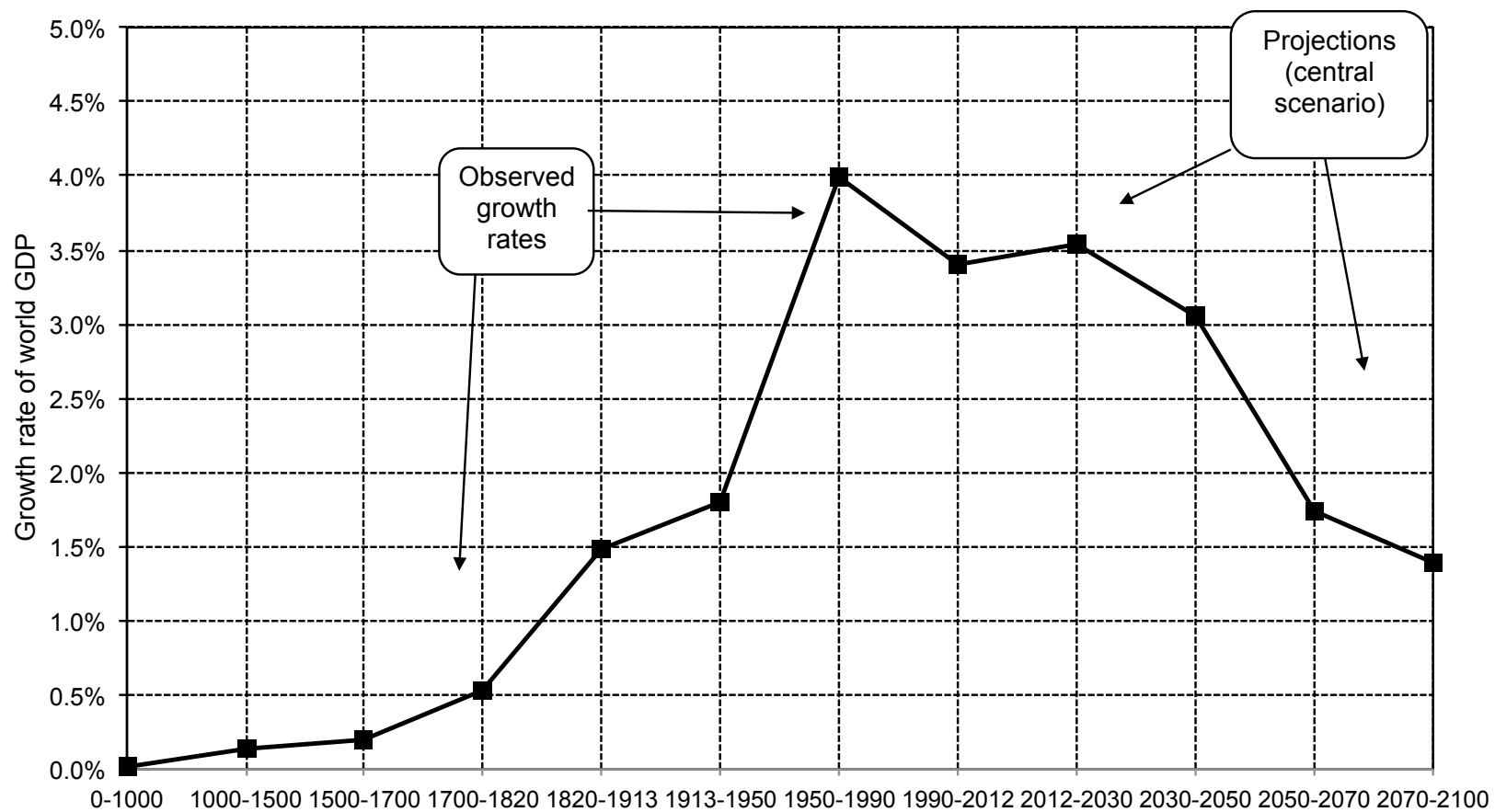
The growth rate of per capita output surpassed 4% per year in Europe between 1950 and 1970, before returning to American levels. Sources: Piketty (2014) see [piketty.pse.ens.fr/capital21c](http://piketty.pse.ens.fr/capital21c)

### The growth rate of world population from Antiquity to 2100



The growth rate of world population was above 1% per year from 1950 to 2012 and should return toward 0% by the end of the 21st century. Sources: Piketty (2014), see [piketty.pse.ens.fr/capital21c](http://piketty.pse.ens.fr/capital21c).

### The growth rate of world output from Antiquity until 2100



The growth rate of world output surpassed 4% from 1950 to 1990. If the convergence process goes on it will drop below 2% by 2050. Sources: Piketty (2014), see [piketty.pse.ens.fr/capital21c](http://piketty.pse.ens.fr/capital21c).

## References

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Pomeranz, Kenneth, *The Great Divergence: China and Europe in the Making of the Modern World Economy*, Princeton University Press, 2000.

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Rosenthal, Jean-Laurent and R. Bin Wong, *Before and Beyond Divergence: The Politics of Economic Change in China and Europe*, Harvard University Press, 2011.

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