

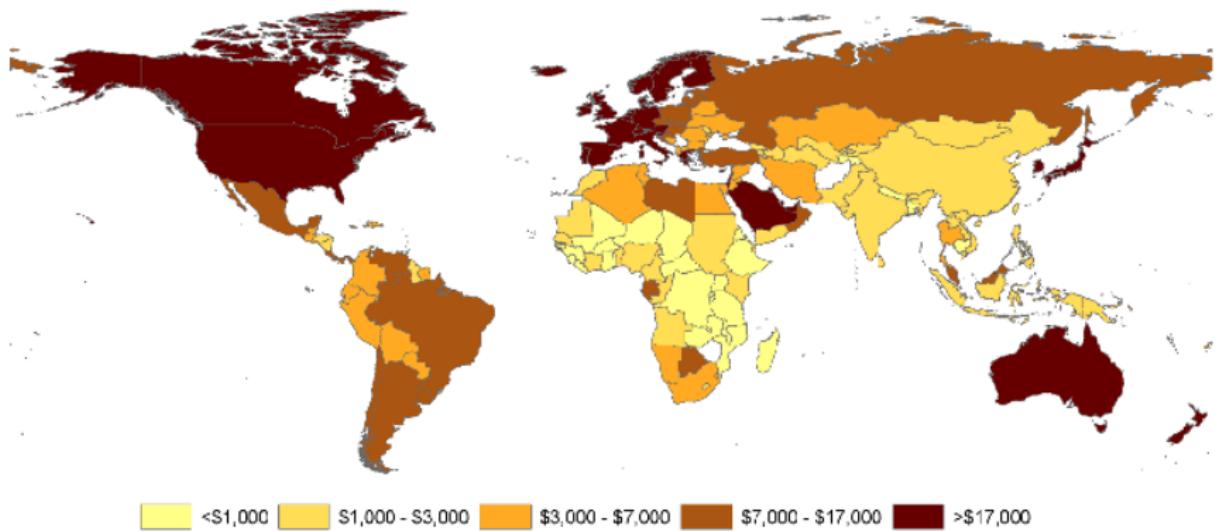
# From Stagnation to Growth Overview of Global Development

Ömer Özak

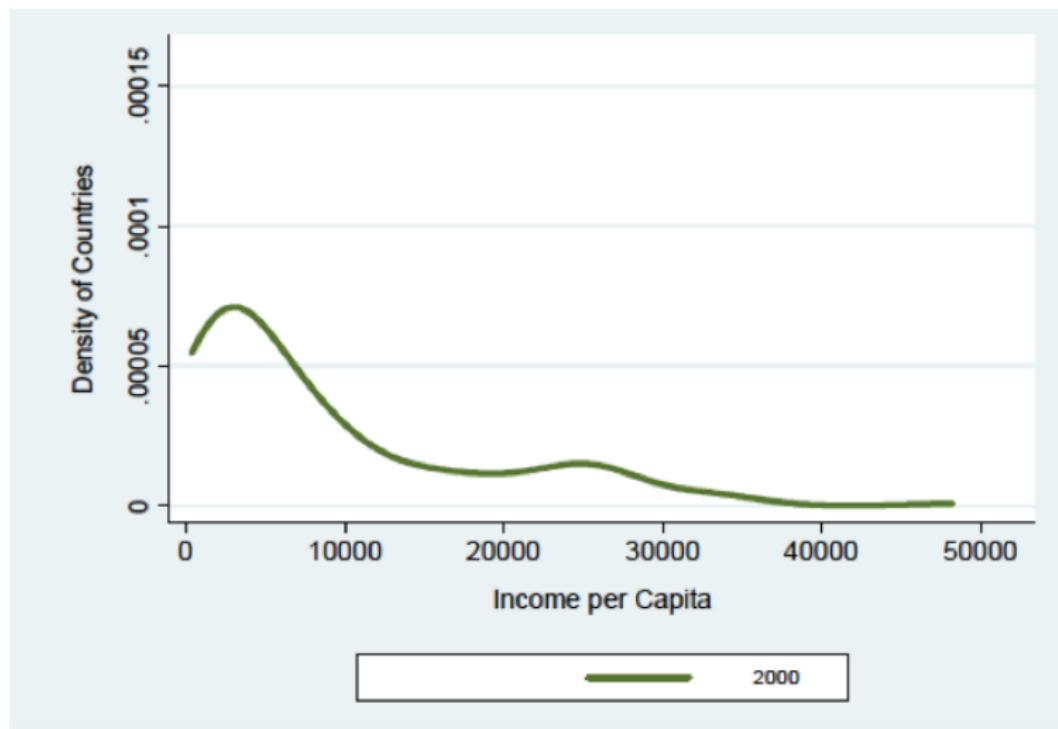
Department of Economics  
Southern Methodist University

Economic Growth and Comparative Development

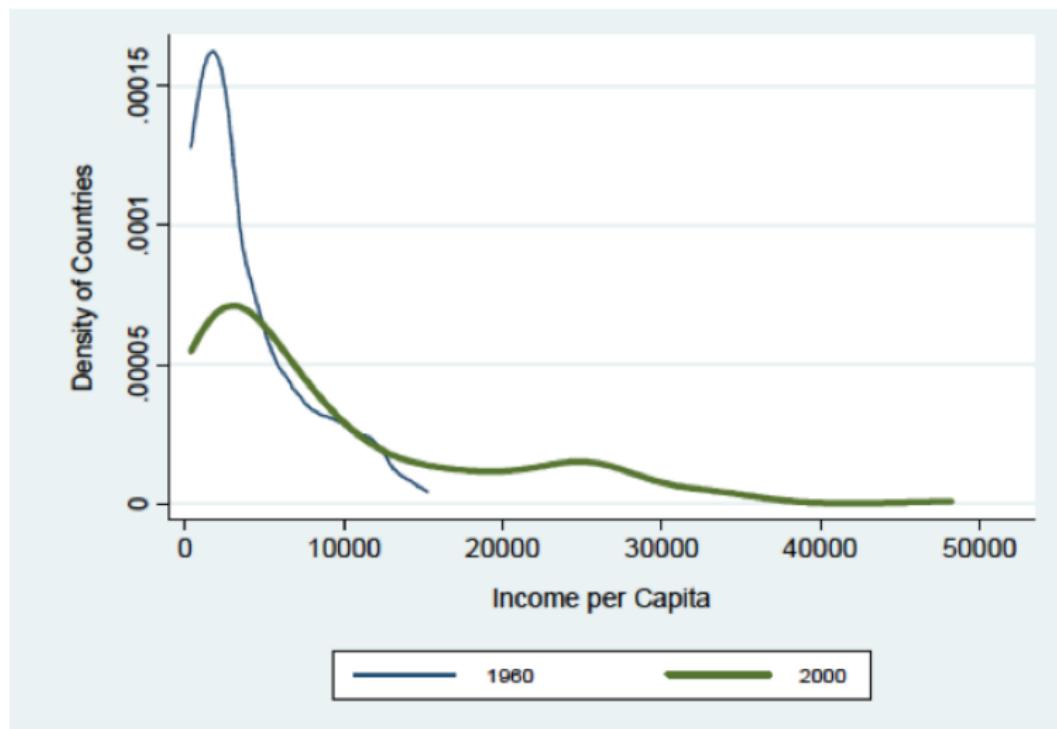
## Regional Variations in Income Per Capita: 2000



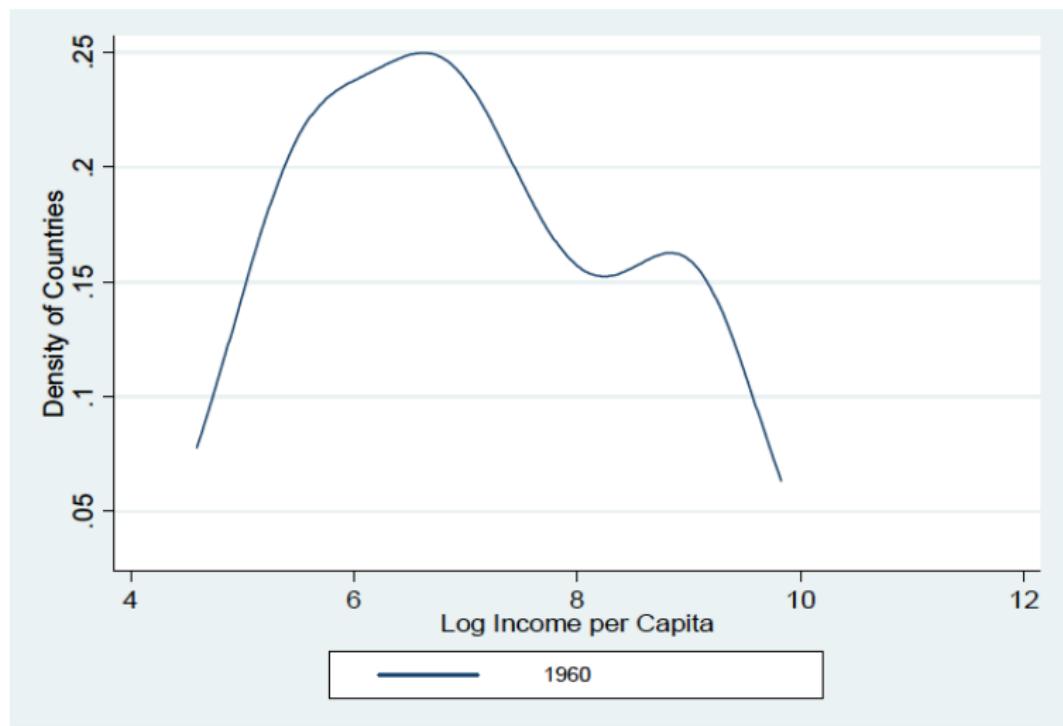
## Cross-Country Variations in Income Per Capita: 2000



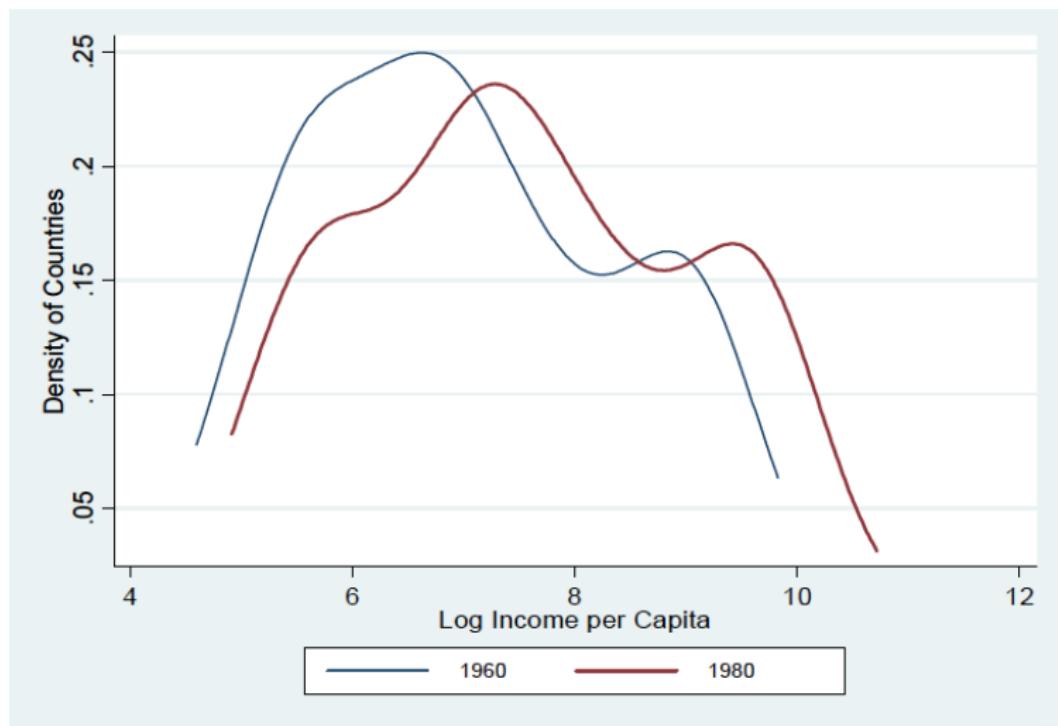
## Evolution of Disparity in Income Per Capita: 1960–2000



## World Income Distribution: 1960



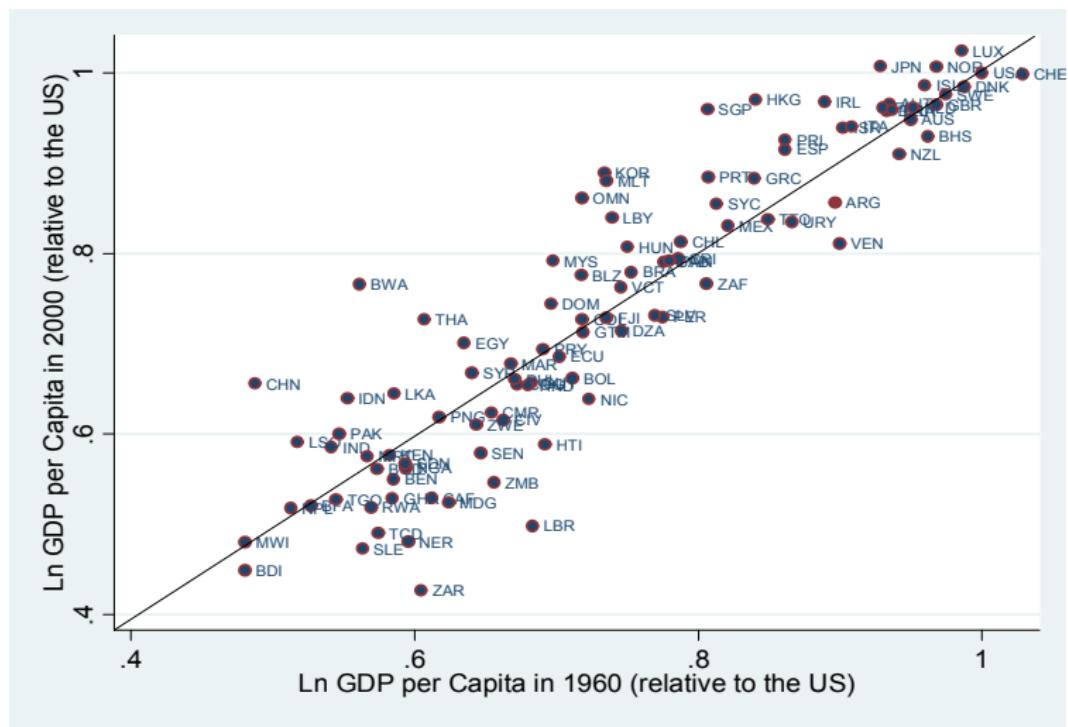
## World Income Distribution: 1960–1980



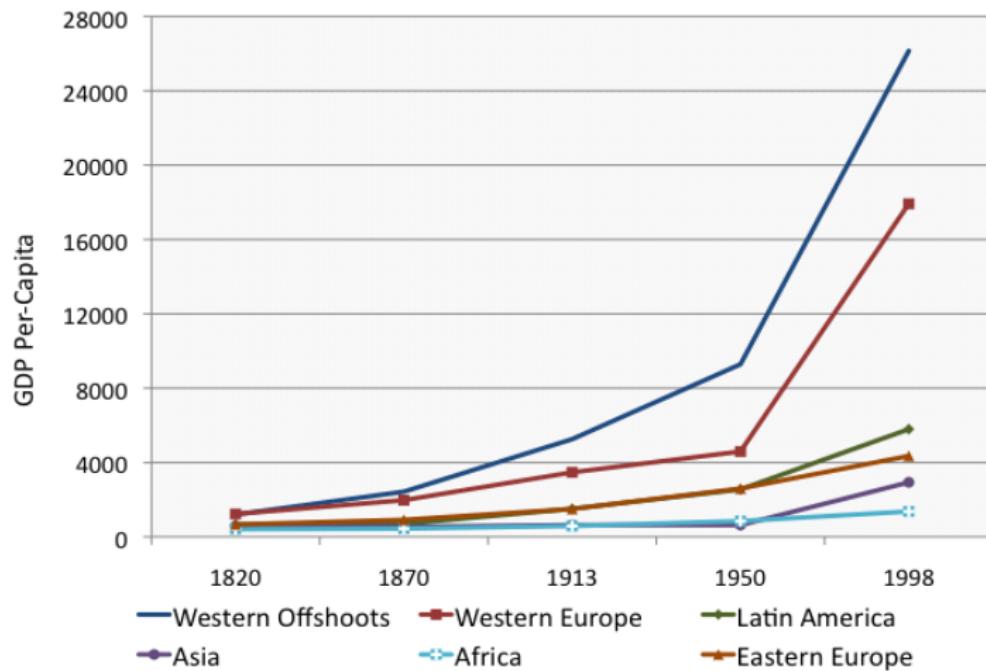
## World Income Distribution: 1960–2000 – Persistent Inequality



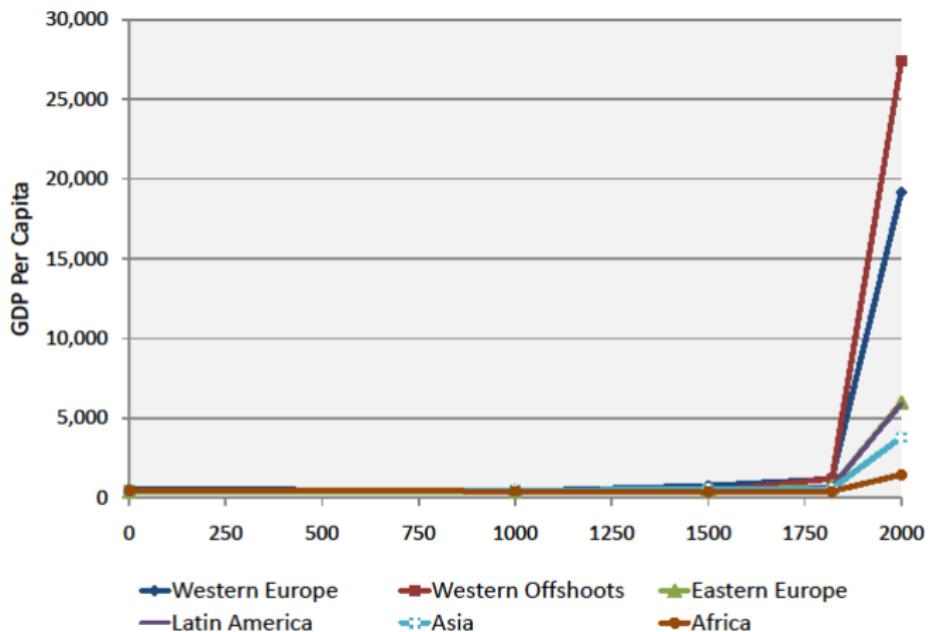
## Lack of Convergence across the Globe: 1960–2000



## Divergence Across Regions: 1820-2000



## Disparity in Income Per capita Across Regions: 1–2000



## Disparity in Income per Capita across Countries: 1-2008

Income per Capita				
	0	1000	1820	2008
Western Offshoots	400	400	1,202	30,152
Western Europe	576	427	1,194	21,672
Latin America	400	400	691	6,973
Asia	456	470	581	5,611
Africa	472	425	420	1,780
Rich/Poor (ratio)	1.4	1.2	2.9	16.9

## Major Puzzles - Comparative Economic Development

- What is the origin of the vast inequality in income per capita across countries and regions?
- What accounts for the great divergence in per capita income across countries in the past two centuries?
- What are the factors that prevented the convergence of poor economies toward the richer ones?

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## Phases of Development

- The Malthusian Epoch

Developed Countries	Emergence of Homo sapiens - 1750
LDCs	Emergence of Homo sapiens - 1900

- The Post Malthusian Regime

Developed Countries	1750 - 1870
LDCs	1900 -

- The Modern Growth Regime

Developed Countries	1870 - present
LDCs	

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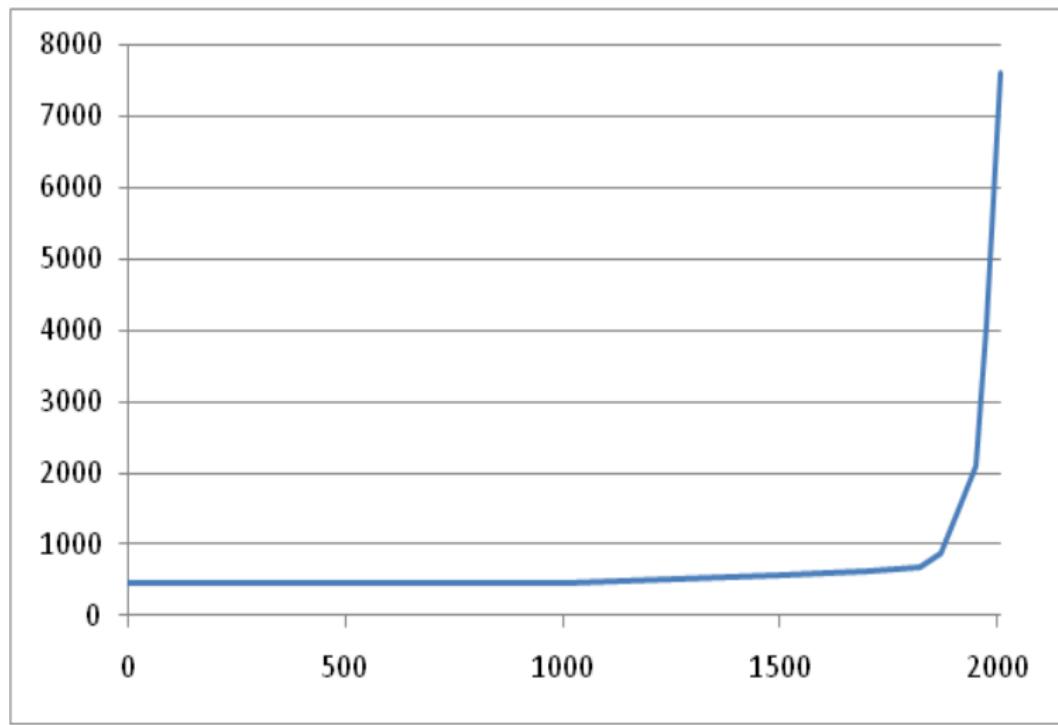
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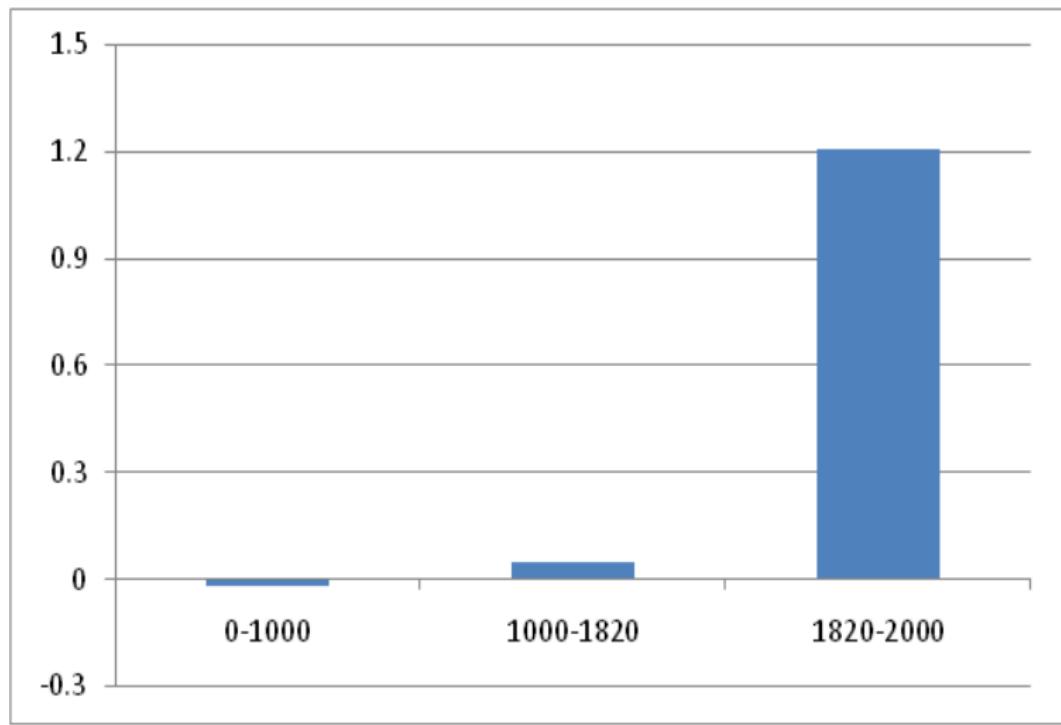
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## World Income per Capita: 1–2008 – From Stagnation to Growth



## Growth of World Income Per Capita: 1-2000 – From Stagnation to Growth



## The Malthusian Epoch

- Technological progress and land expansion
  - $\Rightarrow$  Temporary increase in the level of income per capita
  - $\Rightarrow$  An increase in the size of the population
  - $\Rightarrow$  No effect on the level of income per capita in the long run
- Output per capita fluctuates around a subsistence level
- Technological advanced or land rich economies
  - $\Rightarrow$  Higher population density
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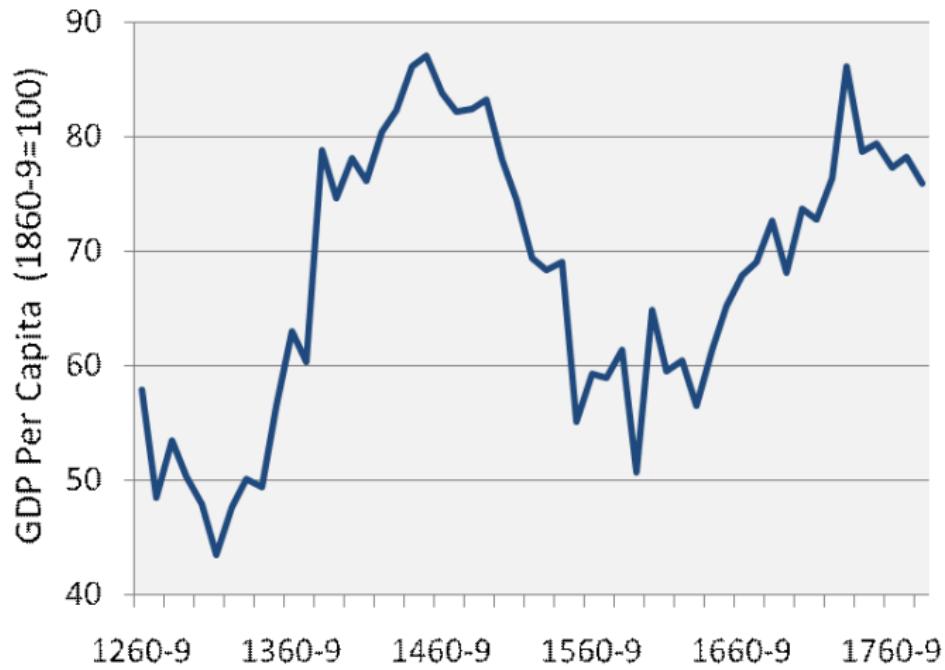
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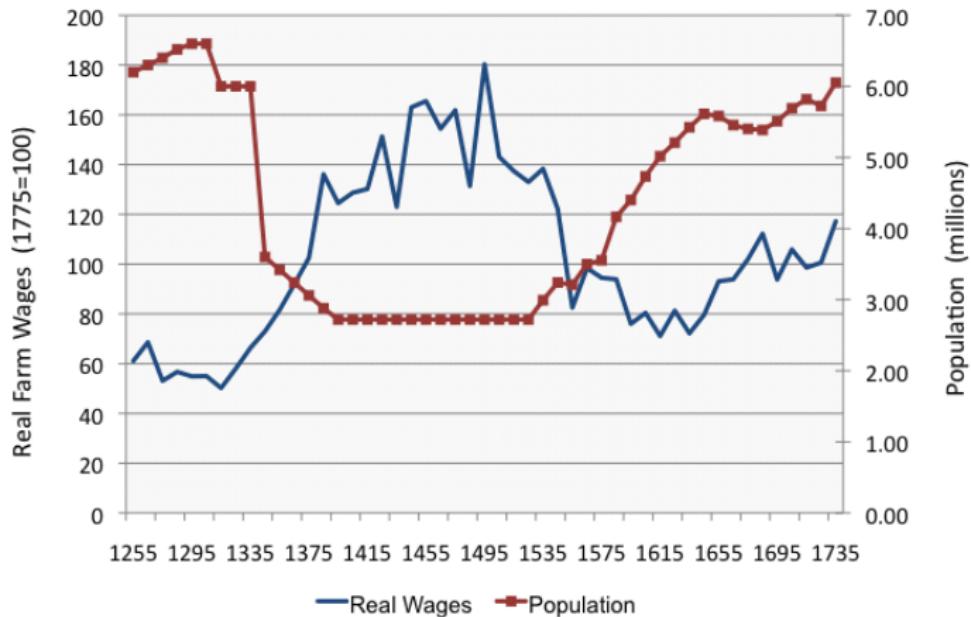
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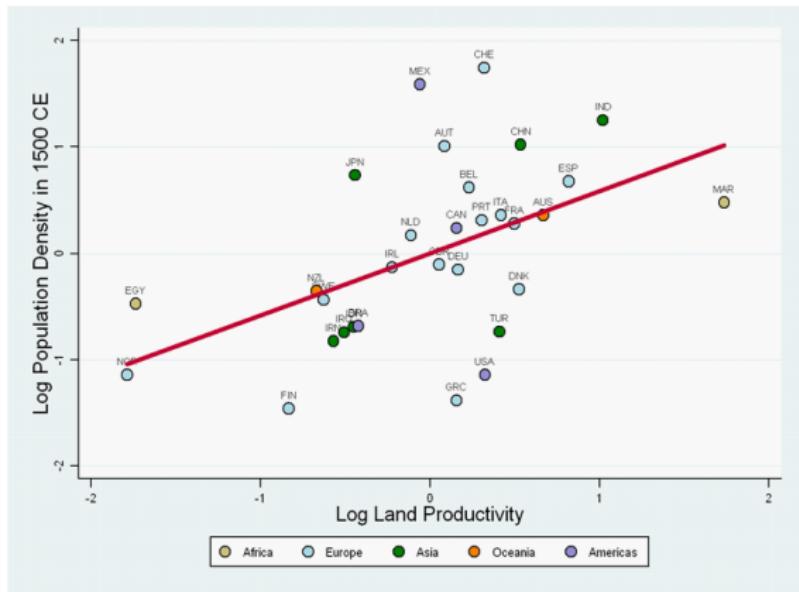
## Malthusian Fluctuations in Income Per Capita: England, 1260–1760



## Malthusian Adjustments of Income and Population: England, 1250–1750

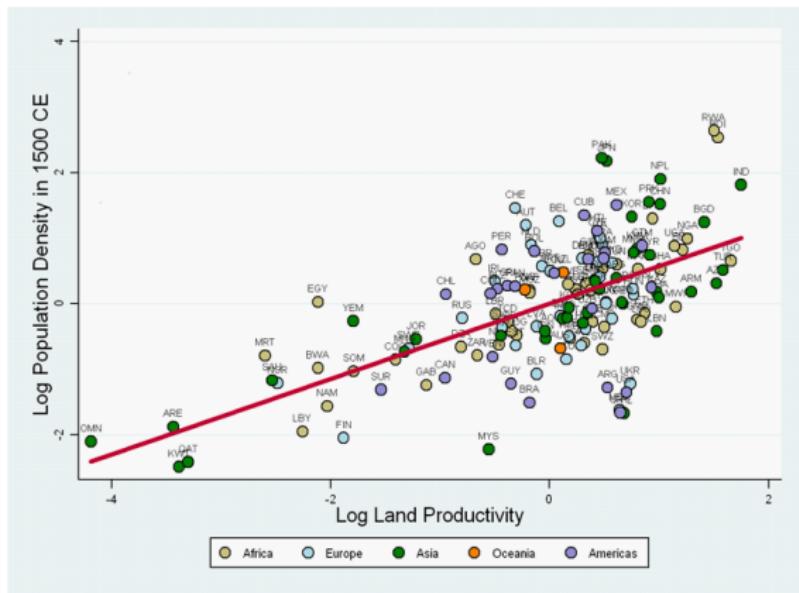


# Land Productivity and Population Density in 1500 CE



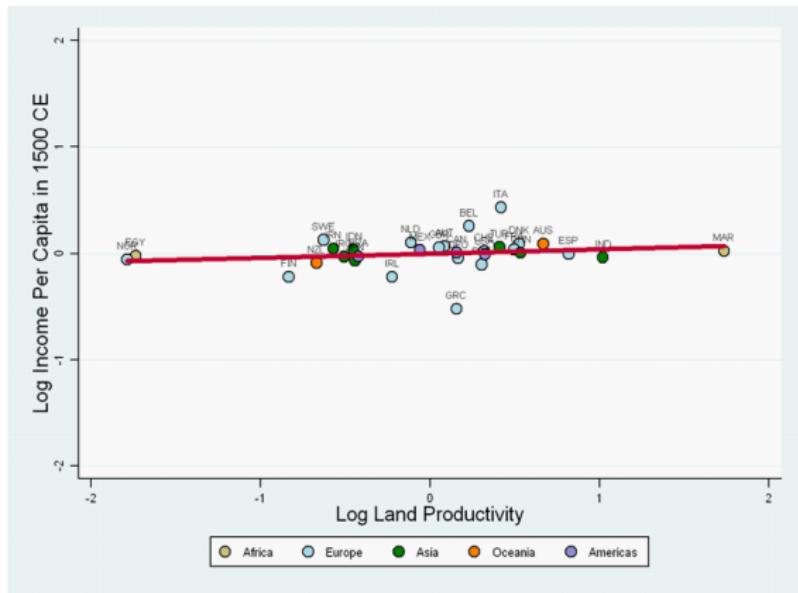
Conditional on transition timing, geographical factors, and continental fixed effects

# Land Productivity and Population Density in 1500 CE



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# Land Productivity and Income Per Capita in 1500 CE



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## The Post-Malthusian Regime

Economies take-off from a Malthusian equilibrium:

- Population growth is still positively affected by the level of income per capita
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- Income per capita and population grow at an increasingly faster pace

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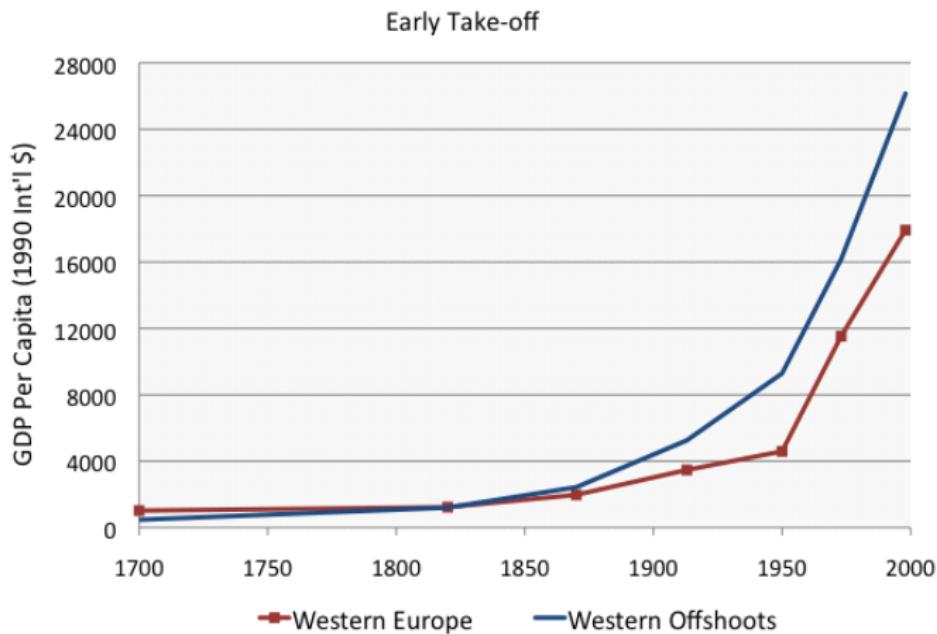
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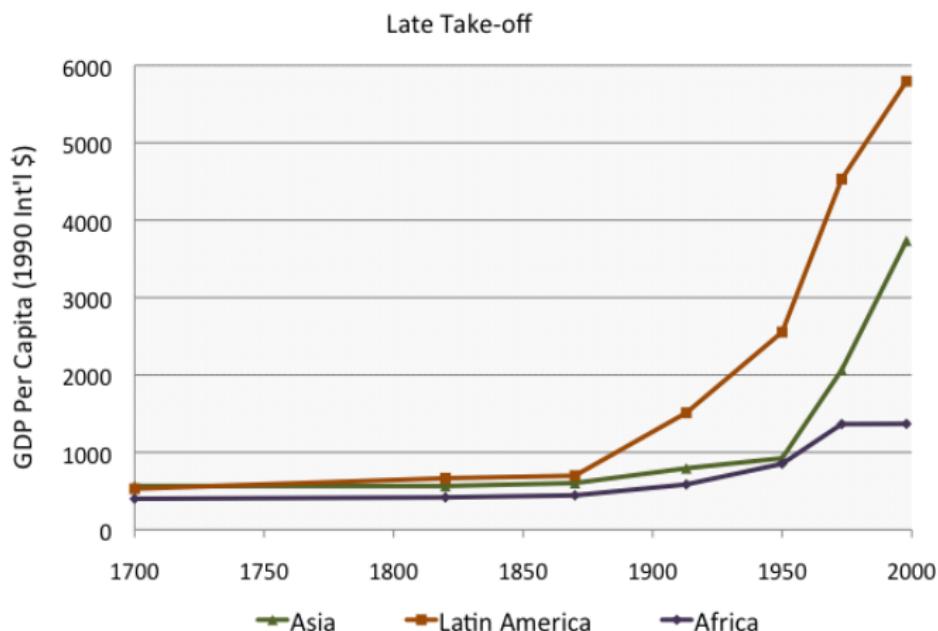
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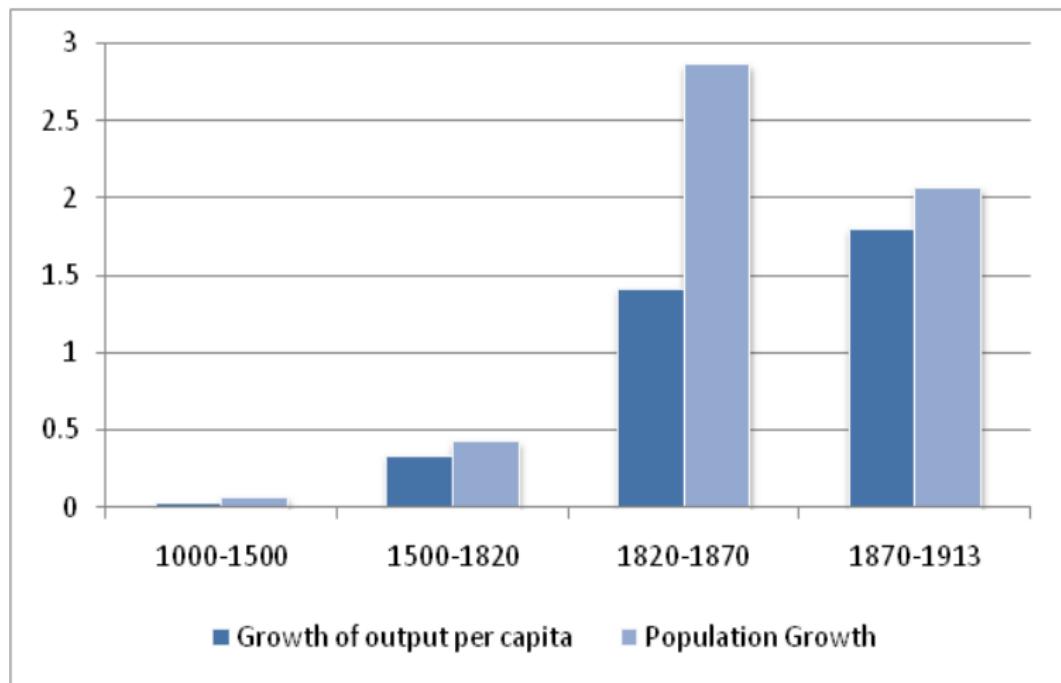
## Regional Variation in the Timing of the Take-off: Early Take-off



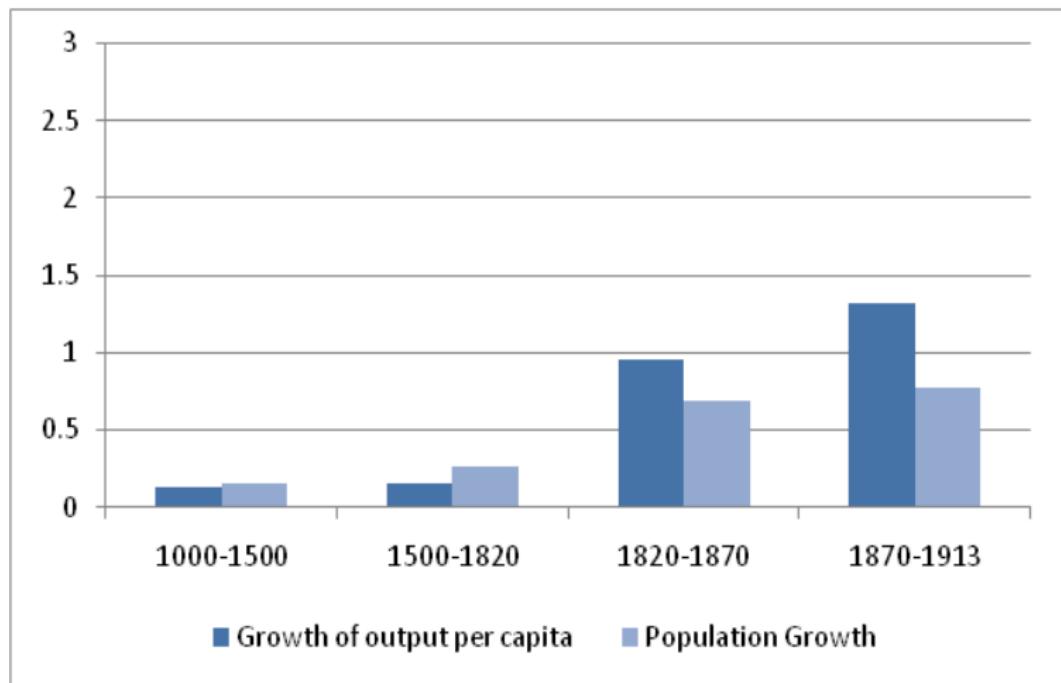
## Regional Variation in the Timing of the Take-off: (Levels) Late Take-Off



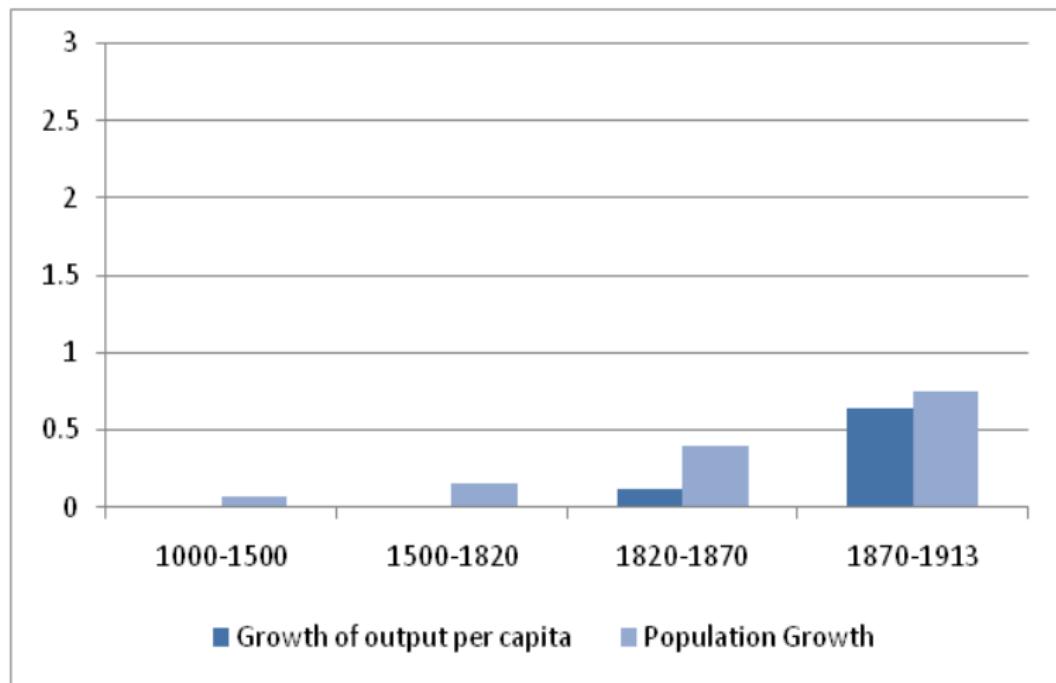
## Growth of GDP Per Capita and Population: Western Offshoots, 1500-2000



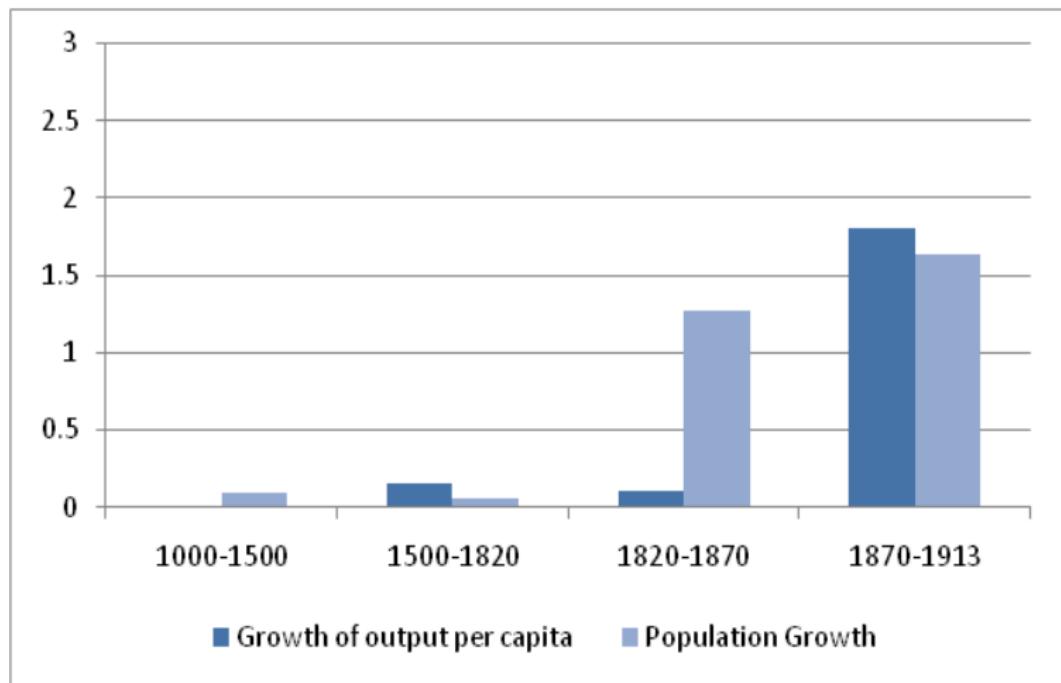
## Growth of GDP Per Capita and Population: Western Europe, 1500-2000



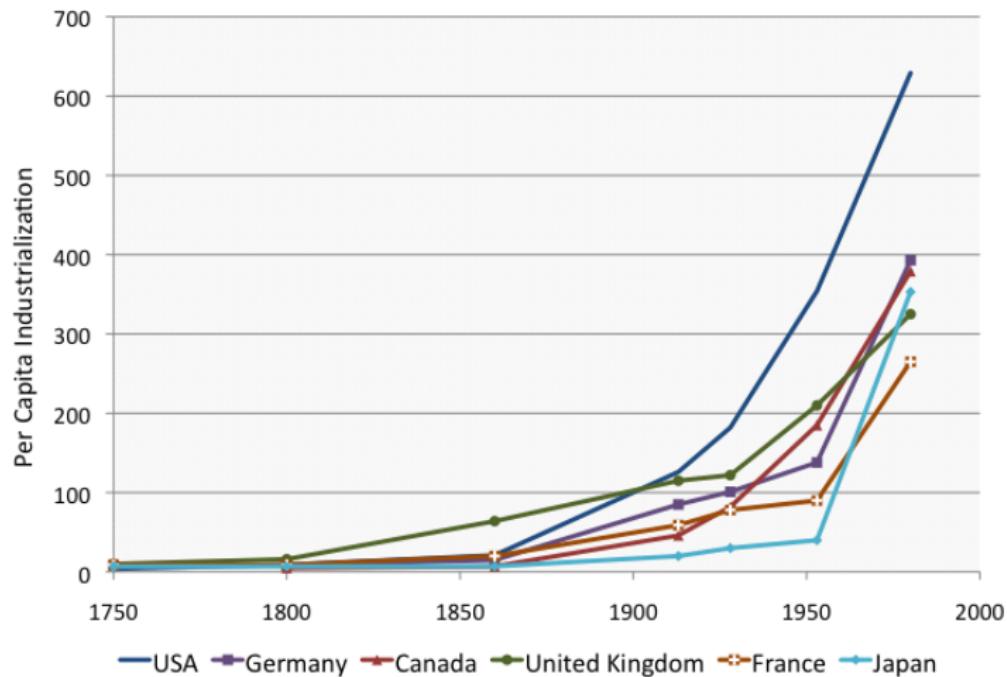
## Growth of GDP Per Capita and Population: Africa 1500-2000



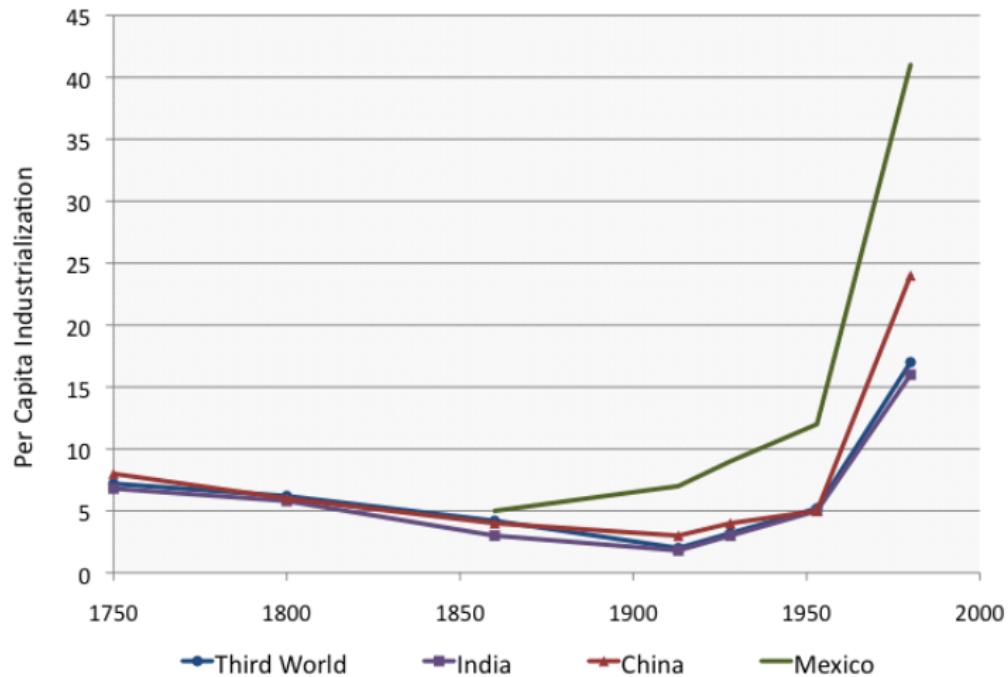
## Growth of GDP Per Capita and Population: Latin America 1500-2000



## Industrialization: Developed Economies



## Industrialization: Less Developed Economies



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- Technological progress accelerates
- The demand for human capital increases
- Population growth declines – The Demographic Transition
- Gains in total output are not counterbalanced by population growth
- Output per capita grows at a high sustainable level

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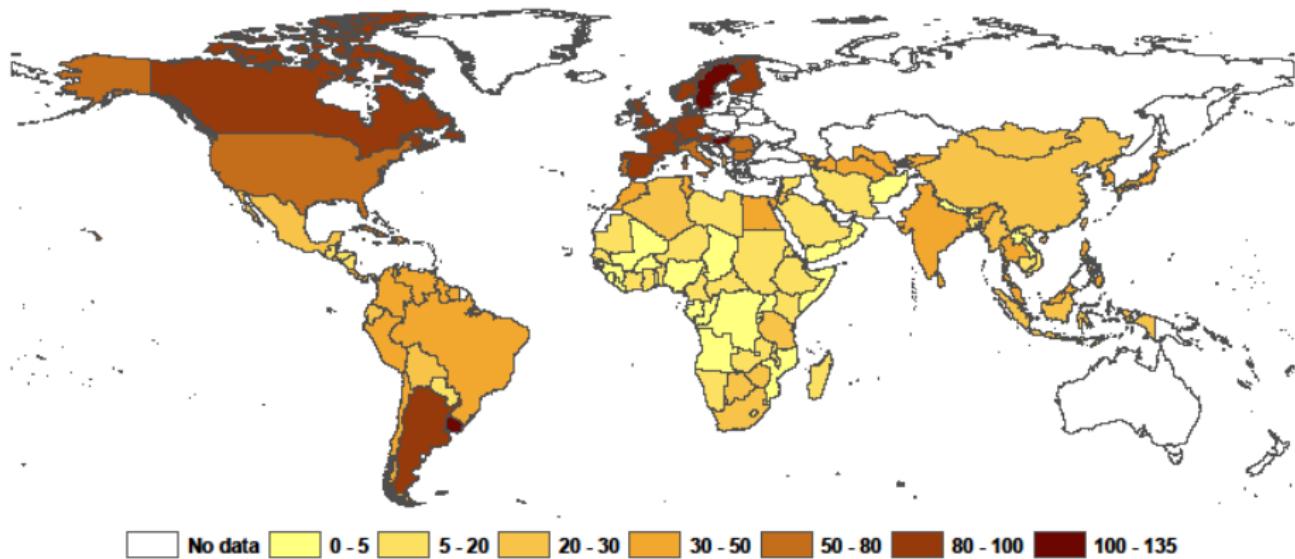
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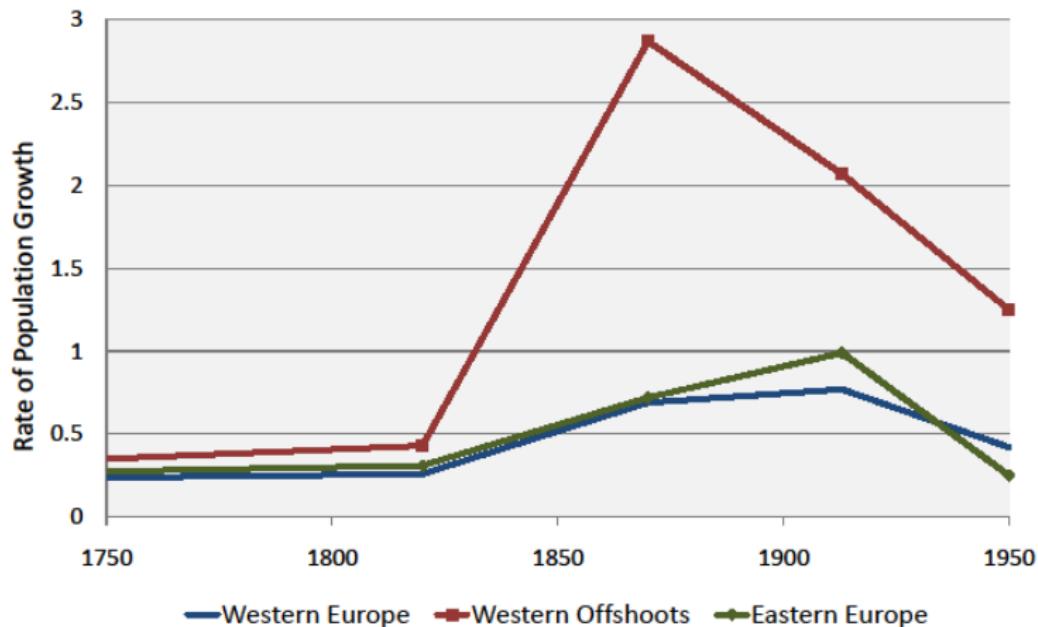
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## Timing of the Demographic Transition across Regions

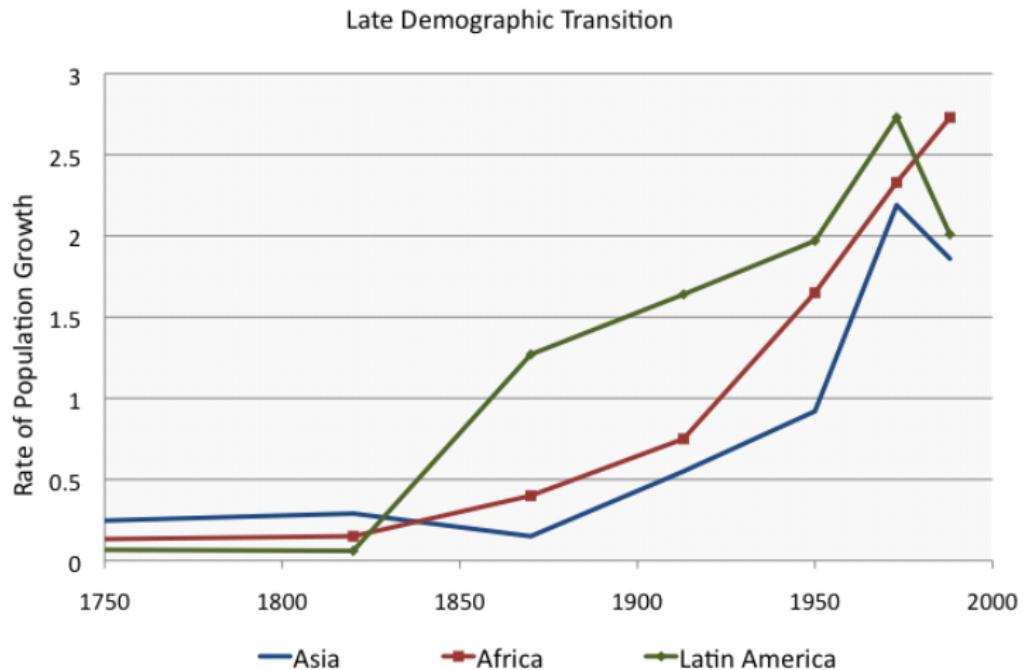


## Demographic Transition across Regions: Early Transition

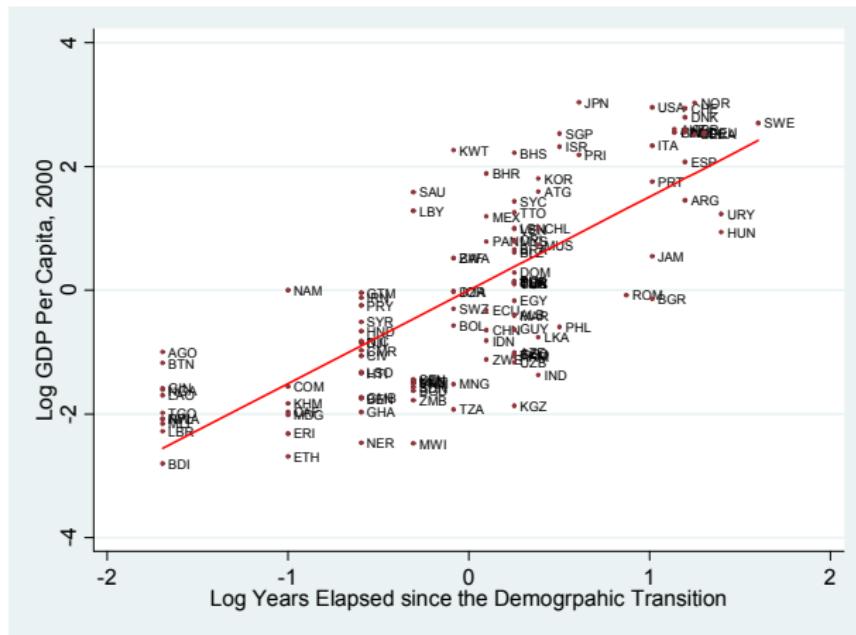
Early Demographic Transition



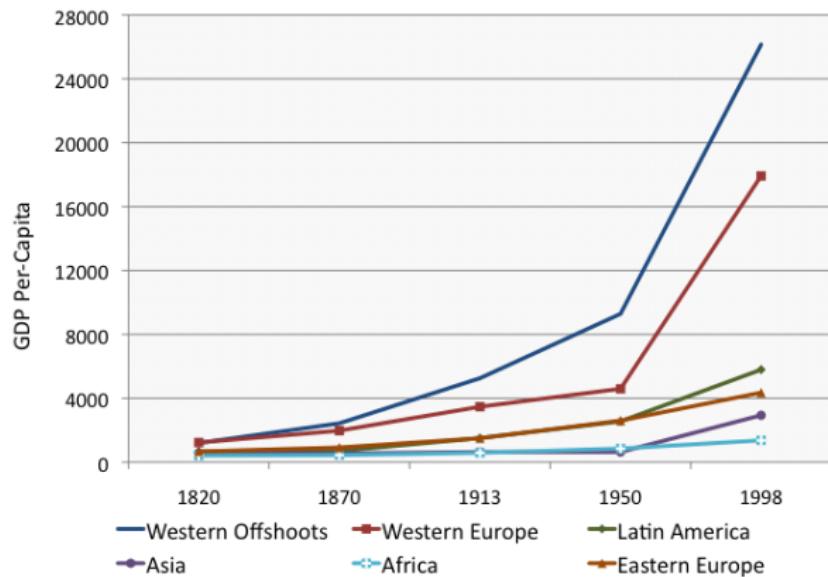
## Demographic Transition across Regions: Late Transition



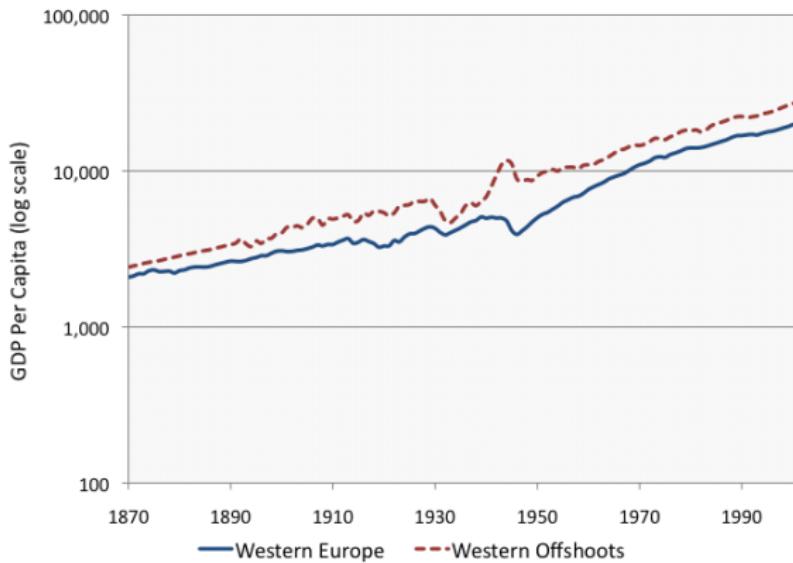
## Time Elapsed since the Demographic Transition and Income per Capita, 2000



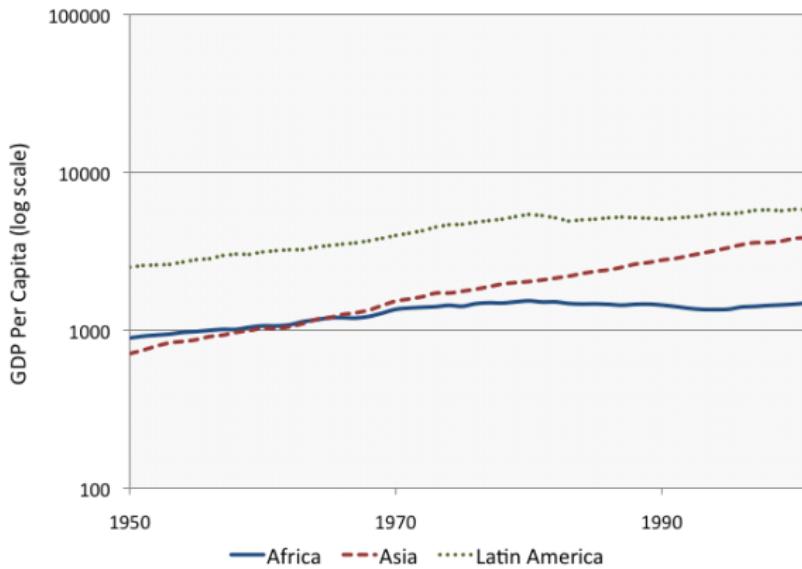
## Variations in the timing of the Transition: Divergence in Income per Capita



## Sustained Economic Growth: Western Europe and Western Offshoots, 1870-2001



## Growth of Income Per Capita: Africa, Asia and Latin America, 1950-2001



## Major Puzzles

### Context: The Malthusian Epoch

- What accounts for the epoch of stagnation that characterized most of human history?
- Why had episodes of technological progress in the pre-industrialization era failed to generate sustained economic growth?
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- Limited to the modern growth regime
  - Capital accumulation and technological progress
- Inconsistent with the growth process during:
  - Industrialization period
  - Early stages of development
- Unable to shed light on:
  - The reasons behind the stagnation of some countries and the rapid growth of others
  - The reasons behind the divergence between rich and poor countries
  - The reasons behind the divergence between developed and developing countries
  - The reasons behind the divergence between different regions within a country

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## Proximate Causes of Growth

- Factor Accumulation:
  - Physical Capital Accumulation (Solow, 1956)
  - Human capital accumulation (Lucas, 1998)
- Technological Progress
  - Endogenous Growth (Romer, 1990, Aghion-Howitt, 1992)

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## More Fundamental Causes of Growth - Persistence of Institutions

- Colonialism & persistence of institutions / human capital
  - Reversal of fortune (Engerman-Sokolof, 1997; Acemoglu et al., AER 2001, QJE 2002)
    - Exclusive (Extractive) institutions in densely populated areas
    - Inclusive (Constructive) institutions in sparsely populated areas
  - Persistent effect of the human capital (rather than institutions) brought by the colonists (Glaeser et al., JEG 2004)
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## Ultimate Causes of Growth – Persistence of Geographical Factors

- Biogeographical conditions that lead to the onset of the Neolithic Revolution
  - Persistent effect of technological head-start associated with an earlier onset of the Neolithic Revolution (Diamond, 1997, Olsson-Hibbs, EER, 2005, Ashraf-Galor, AER 2011, AER 2013)
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  - Persistent effect on labor's productivity & invest in human capital (Sachs-Werner, 1999, Andersen-Dalgaard-Selaya, 2012)
- Geographical isolation (present and past)
  - Adverse effect via the lack of trade and technological diffusion (Sachs and Werner, 1999);
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- Soil quality
  - Persistent effect of comparative advantage in agricultural
    - Int'l Trade  $\Rightarrow$  specialization in unskilled-intensive good  $\Rightarrow$  inv't in HC↓ fertility↑ slowing transition to modern growth  
(Galor-Mountford Restud 2008)
- Land suitable for large plantations
  - $\Rightarrow$  Inequality:
    - Persistent effect via extractive institutions (Engerman-Sokolof, 1997)
  - $\Rightarrow$  Concentration of landownership:
    - Persistent effect via delayed in education reforms  
(Galor-Moav-Vollrath, Restud, 2009)
- Natural Return to Agricultural Investment
  - $\Rightarrow$  Time Preference:
    - Persistent effect via investment in human and physical capital, technological innovation, etc. (Galor-Özak, AER 2016)

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## Ultimate Causes of Growth – Persistence of Geographical Factors

- Soil quality
  - Persistent effect of comparative advantage in agricultural
    - Int'l Trade  $\Rightarrow$  specialization in unskilled-intensive good  $\Rightarrow$  inv't in HC↓ fertility↑ slowing transition to modern growth  
(Galor-Mountford Restud 2008)
- Land suitable for large plantations
  - $\Rightarrow$  Inequality:
    - Persistent effect via extractive institutions (Engerman-Sokolof, 1997)
  - $\Rightarrow$  Concentration of landownership:
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- Range of soil quality
  - $\Rightarrow$  geographical specific human capital  $\Rightarrow$  reduced mobility  $\Rightarrow$  ethnic fractionalization
  - Persistent effect of ethnic fractionalization (Michalopoulos, AER 2012)
- Geographical determinants of subsistence consumption
  - Affect fertility & income per capita in the Malthusian epoch and therefore the timing of the take-off (Dalgaard-Strulik, 2012)
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### • Cultural barriers for the diffusion of development

- Genetic distance proxies for cultural distance (Spolaore-Wacziarg, QJE 2009; Harutyunyan-Özak, 2016)

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## Ultimate Causes of Growth – Population Diversity

- Persistent effect of genetic diversity, reflecting the Out of Africa Hypothesis (Ashraf-Galor, AER 2013)
  - $GD \uparrow \implies$  cultural fragmentation $\downarrow$  (Ashraf-Galor AER-PP 2013)
  - $GD \uparrow \implies$  trust  $\downarrow$
  - $GD \uparrow \implies$  innovation  $\uparrow$
- Colonialism and reversal of fortunes
  - Migration and differential shift in the degree of diversity across the globe (Ashraf-Galor, WP 2013).
    - smaller increase in diversity in densely populated areas
- Division of Labor (Depetris-Chauvin-Özak, 2016)
  - Population diversity generates pre-modern division of labor
  - $\implies$  higher pre-modern division of labor
  - $\implies$  higher pre-modern development
  - $\implies$  higher contemporary development
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