Introduction
From Stagnation to Growth
Proximate and Ultimate Causes of Growth

Growth and Comparative Development - An Overview

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Regional Variations in Income Per Capita: 2000

- < $1,000
- $1,000 - $5,000
- $3,000 - $7,000
- $7,000 - $17,000
- > $17,000

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Cross-Country Variations in Income Per Capita: 2000
World Income Distribution: 1960

![Graph showing the world income distribution in 1960 with a peak in the mid-log income per capita range.](image-url)

![Graph showing world income distribution from 1960 to 1980. The x-axis represents Log Income per Capita, ranging from 4 to 12. The y-axis represents the Density of Countries, ranging from 0.05 to 0.25. Two curves are shown, one for 1960 and one for 1980. The 1960 curve is blue and peaks around Log Income per Capita of 8, while the 1980 curve is red and peaks around Log Income per Capita of 9.Both curves show a decrease in density as Log Income per Capita increases beyond 10.]
World Income Distribution: 1960–2000 – Persistent Inequality
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Evidence
Fundamental Puzzles

Divergence Across Regions: 1820-2000

The chart shows the GDP per capita for different regions over time, with a clear divergence between Western Europe and the other regions.
Disparity in Income Per capita Across Regions: 1–2000
<table>
<thead>
<tr>
<th>Region</th>
<th>Income per Capita</th>
<th>0</th>
<th>1000</th>
<th>1820</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Offshoots</td>
<td></td>
<td>400</td>
<td>400</td>
<td>1,202</td>
<td>30,152</td>
</tr>
<tr>
<td>Western Europe</td>
<td></td>
<td>576</td>
<td>427</td>
<td>1,194</td>
<td>21,672</td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
<td>400</td>
<td>400</td>
<td>691</td>
<td>6,973</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td>456</td>
<td>470</td>
<td>581</td>
<td>5,611</td>
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<tr>
<td>Africa</td>
<td></td>
<td>472</td>
<td>425</td>
<td>420</td>
<td>1,780</td>
</tr>
<tr>
<td>Rich/Poor (ratio)</td>
<td></td>
<td>1.4</td>
<td>1.2</td>
<td>2.9</td>
<td>16.9</td>
</tr>
</tbody>
</table>

Disparity in Income per Capita across Countries: 1-2008
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?
### Phases of Development

<table>
<thead>
<tr>
<th>Phase</th>
<th>Developed Countries</th>
<th>LDCs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Malthusian Epoch</strong></td>
<td>Emergence of Homo sapiens - 1750</td>
<td>Emergence of Homo sapiens - 1900</td>
</tr>
<tr>
<td>Developed Countries</td>
<td>1750 - 1870</td>
<td>1900 -</td>
</tr>
<tr>
<td>LDCs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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*Growth and Comparative Development - An Overview*
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
  - Temporary increase in the level of income per capita
  - An increase in the size of the population
  - 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
  - Higher population density
  - Similar level of income per-capita in the long-run
Malthusian Fluctuations in Income Per Capita: England, 1260–1760
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The Malthusian Epoch
The Post-Malthusian Regime
The Modern Growth Regime
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Land Productivity and Population Density in 1500 CE

Conditional on transition timing, geographical factors, and continental fixed effects
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Land Productivity and Income Per Capita in 1500 CE

Conditional on transition timing, geographical factors, and continental fixed effects
Economies take-off from a Malthusian equilibrium:

- Population growth is still positively affected by the level of income per capita.
- Technological progress accelerates and it results in a larger increase in output than in population.
- Income per capita and population grow at an increasingly faster pace.
Regional Variation in the Timing of the Take-off: Early Take-Off

![Graph showing Early Take-off of GDP Per Capita](image-url)

- **GDP Per Capita (1990 Int'l $)**
- **Time (Years)**: 1700 to 2000
- **Lines**:
  - Red: Western Europe
  - Blue: Western Offshoots

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Growth and Comparative Development - An Overview
Regional Variation in the Timing of the Take-off: (Levels) Late Take-Off

![Graph showing regional variation in GDP per capita from 1700 to 2000.](image)

- **Asia**
- **Latin America**
- **Africa**
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Growth of GDP Per Capita and Population: Western Offshoots, 1500-2000

[Bar chart showing growth of output per capita and population growth from 1000-1500 to 1870-1913]
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

The graph shows the per capita industrialization levels for several developed economies over time. The x-axis represents years from 1750 to 2000, and the y-axis represents per capita industrialization. The countries included are the USA, Germany, Canada, United Kingdom, France, and Japan. The graph illustrates the rapid industrialization growth for Japan, with other countries showing more gradual increases.
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Industrialization: Less Developed Economies

![Graph showing per capita industrialization over time for different regions: Third World, India, China, Mexico. The graph illustrates a steady increase in industrialization for these regions, with Mexico experiencing a significant rise post-1950.]
The Modern Growth Regime

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

Early Demographic Transition

Rate of Population Growth

Western Europe  -  Western Offshoots  -  Eastern Europe

1750  1800  1850  1900  1950
Demographic Transition across Regions: Late Transition
Time Elapsed since the Demographic Transition and Income per Capita, 2000
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Variations in the timing of the Transition: Divergence in Income per Capita

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Growth and Comparative Development - An Overview
Sustained Economic Growth: Western Europe and Western Offshoots, 1870-2001

GDP Per Capita (log scale)

- Western Europe
- Western Offshoots

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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?

- Why had population growth counterbalanced the expansion of resources per capita that could have been generated by technological progress?
...Major Puzzles

Context: The Transition from Stagnation to Growth

- What is the origin of the sudden spurt in growth rates of output per capita and population?

- What triggered the demographic transition?

- Is a demographic transition critical for the transition to a state of sustained economic growth?

- What accounts for the transition from stagnation to growth of the currently DCs and what are the implications of these factors for the hurdles faced by LDCs in their attempt to transit to a sustained growth regime?
Context: Comparative Development

- What accounts for the sudden take-off from stagnation to growth in some countries and the persistent stagnation in others?
- What governs the differential timing of the demographic transition across the globe?
- What is the origin of the vast inequality in income per capita across countries and regions?
Context: Comparative Development

- What accounts for the great divergence in per capita income across countries in the past two centuries?
- What is the role of deep rooted factors in the contemporary differences in income per capita?
- Has the transition to a state of sustained economic growth in advanced economies adversely affected the process of development in less-developed economies?
Inconsistency of non-UGT with the Growth Process

- Limited to the modern growth regime – 0.1% of the entire process of development
- Inconsistent with the growth process during:
  - The Malthusian epoch
  - Post-Malthusian Regime
- Unable to shed light on:
  - The forces that brought about the transition of DCs from stagnation to growth
  - The hurdles faced by LDCs in their attempt to take-off to a state of sustained economic growth
  - The role of deep rooted factors in the contemporary disparity in income per-capita across the globe
Proximate Causes of Growth

- Factor Accumulation:
  - Physical Capital Accumulation (Solow, QJE 1956)
  - Human capital accumulation (Lucas, JME 1998)

- Technological Progress
  - Endogenous Growth (Romer, JPE 1990, Aghion-Howitt, ECT 1992)
Proximate Causes of Growth - Major Deficiencies

Why some societies fail to invest properly in physical and human capital and adopt advance technologies if their use is so profitable?

- Access to international capital markets
- Technological diffusion
- Global education campaigns

\[ \rightarrow \text{should have led to convergence} \]
More Fundamental Causes of Growth

- Inequality
  - \(\Rightarrow\) Suboptimal inv’t in human capital (Galor-Zeira, Restud 1993, Galor-Moav, Restud 2004)
  - \(\Rightarrow\) Sociopolitical Instability & under investment (Perotti, JEG 1996)

- Ethnic fractionalization
  - \(\Rightarrow\) Sociopolitical Instability (Easterly-Levine, QJE 1997; Alesina-Easterly-…-Wacziarg, JEG 2003)

- Institutions (protection of property rights & rule of law & democracy
  - \(\Rightarrow\) incentive to accumulate and innovate (North, 1981)

- Social capital (Putnam)
  - Trust (Guiso et al., 2006, Tabellini, 2010)
  - Corruption (Mauro, 1995)
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)

- Legal origins (Glaeser-Shleifer, QJE 2002)
  - Persistent effect of the legal system imposed by the colonists - Common law is more complementary to a market economy than civil law

- Persistent effect of the scramble of Africa (Papaioanu-Michalopolous, 2012)
Ultimate Causes of Growth – Persistence of Geographical Factors

- Biogeographical conditions that lead to the onset of the Neolithic Revolution
  - Persistent effect on human capital formation (Galor-Moav, QJE, 2002)
  - Persistence effect on life expectancy (Galor-Moav, 2009)

- Disease environment
  - 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);
  - Persistent positive effect of past isolation - culture conducive to innovations (Ashraf-Galor-Ozac, JEEA, 2010)
Ultimate Causes of Growth – Persistence of Geographical Factors

- Soil quality
  - Persistent effect of comparative advantage in agricultural
    - Int’t Trade $\Rightarrow$ specialization in unskilled-intensive good
      $\Rightarrow$ inv’t in HC $\downarrow$ fertility $\uparrow$ 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)
Ultimate Causes of Growth – Persistence of Geographical Factors

- Range of soil quality
  - \[ \text{geographical specific human capital} \rightarrow \text{reduced mobility} \rightarrow \text{ethnic fractionalization} \]
  - 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)

- Ecological diversity, storability and the emergence of the state (Fenske 2012, Mayshar-Moav-Neeman, 2013)
Ultimate Causes of Growth – Culture Persistence

- Social Capital
  - Free city states and the emergence of social capital (Guiso et al., 2008)
  - Slavery and the origins of mistrust (Nunn-Wantchekon, AER, 2011)
  - Climatic variability and the emergence of trust (Durante, 2010)
  - Unfavorable land endowment and the emergence of cooperation (Litina, 2012)

- Cultural barriers for the diffusion of development
  - Genetic distance proxies for cultural distance (Spolaore-Wacziarg, QJE 2009)

- Cultural Diversity
  - Persistence effect of past geographical isolation on cultural homogeneity (Ashraf-Galor, 2012)
Ultimate Causes of Growth – Culture Persistence

- Natural selection
  - Preference for education (Galor-Moav, QJE 2002)
  - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)

- Religion
  - Origins of work ethic and thrift (Weber 1905; Andersen-Bentzen-Dalgaard-Sharp, 2012)

- The European Marriage Pattern
  - Late age of marriage $\Rightarrow$ low fertility $\Rightarrow$ higher income in the Malthusian steady-state (Voigtlander-Voth, AER 2013)
Ultimate Causes of Growth – Genetic 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