

Growth and Comparative Development

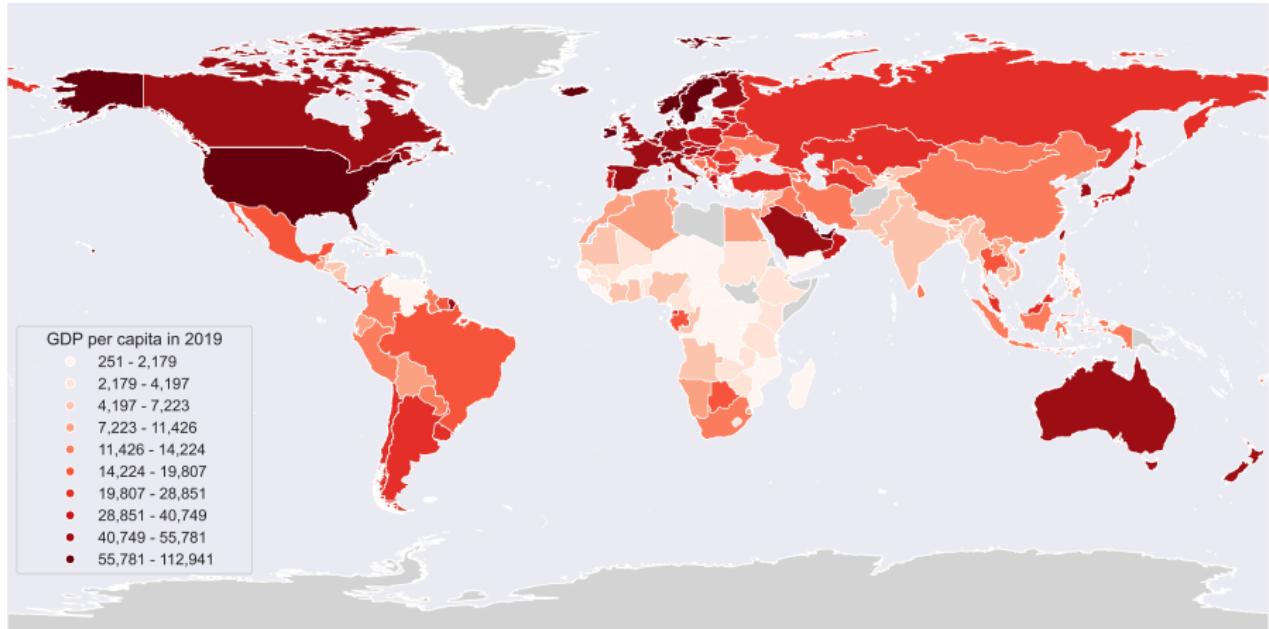
The Big Picture & Overview

Ömer Özak

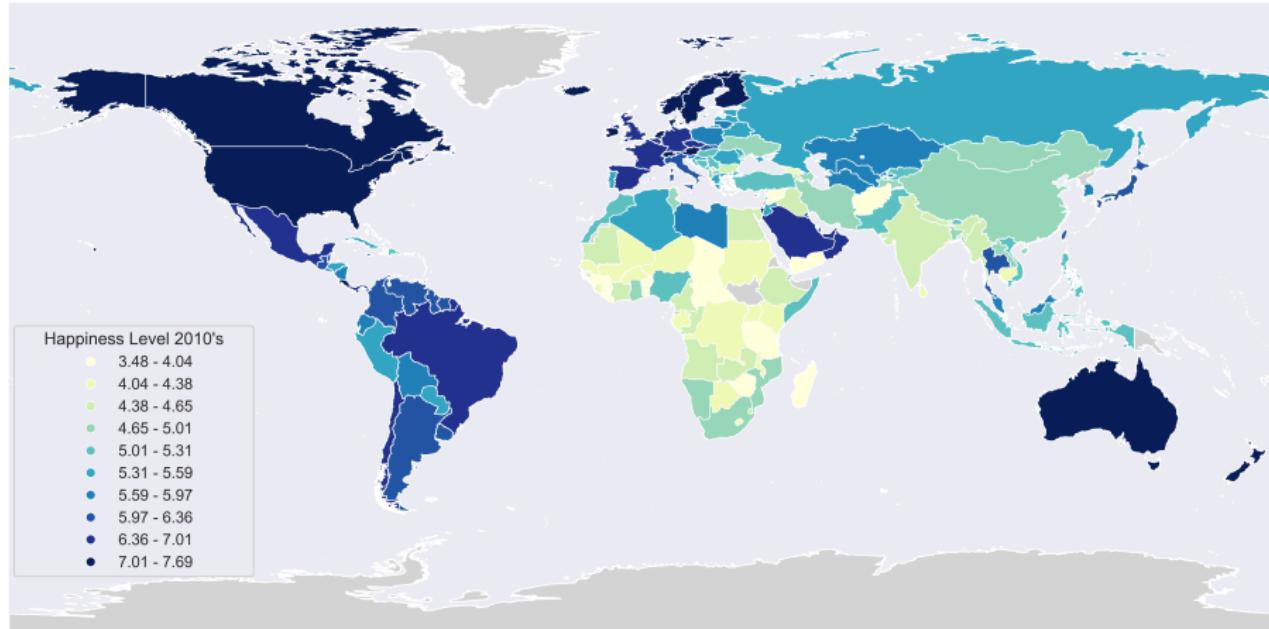
Department of Economics
Southern Methodist University

Economic Growth and Comparative Development

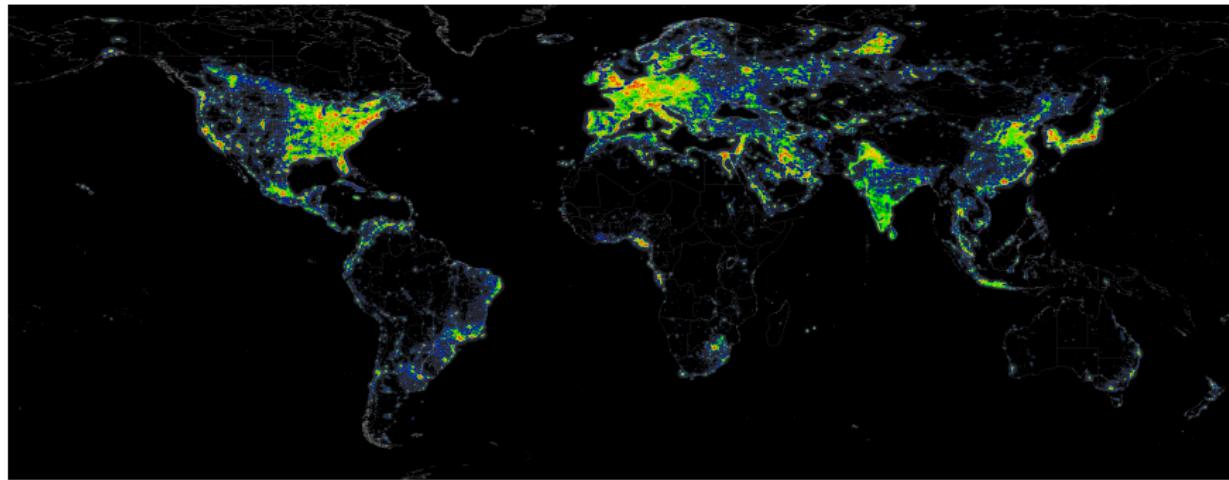
Income per Capita across the Globe in 2019



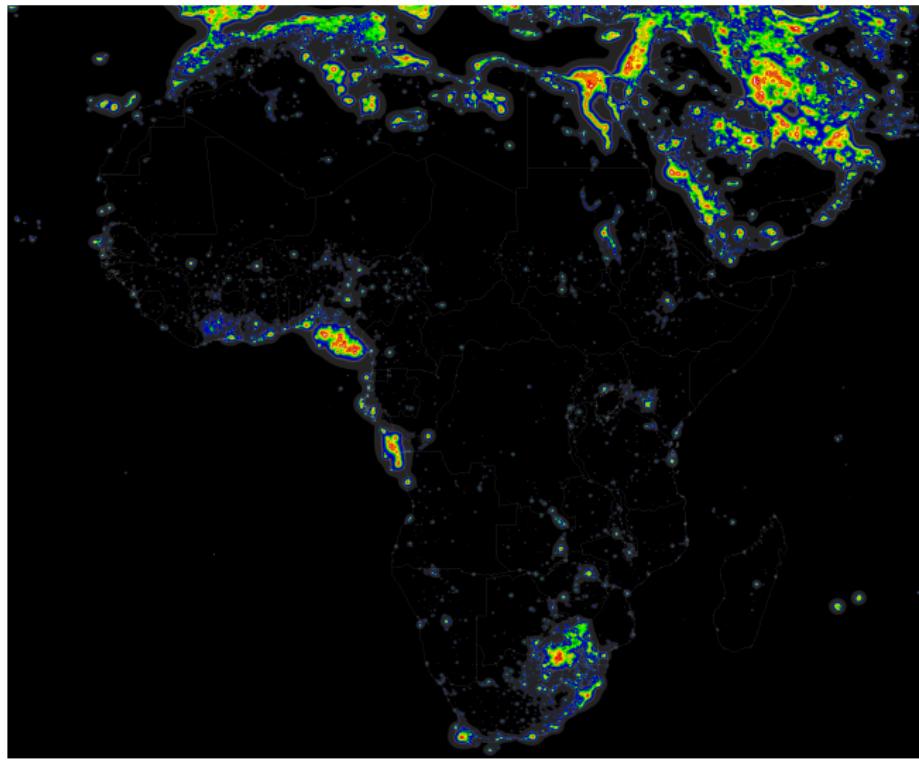
Happiness across the Globe in 2005-2018



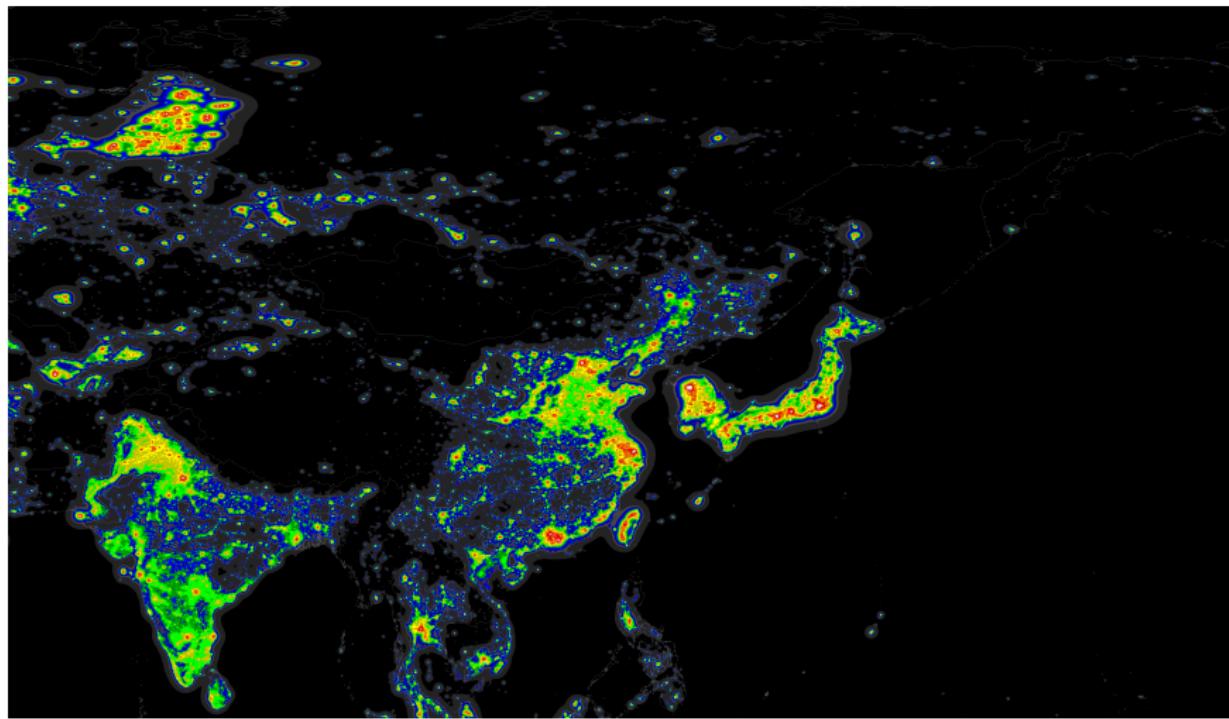
Night Lights across the Globe in 2016



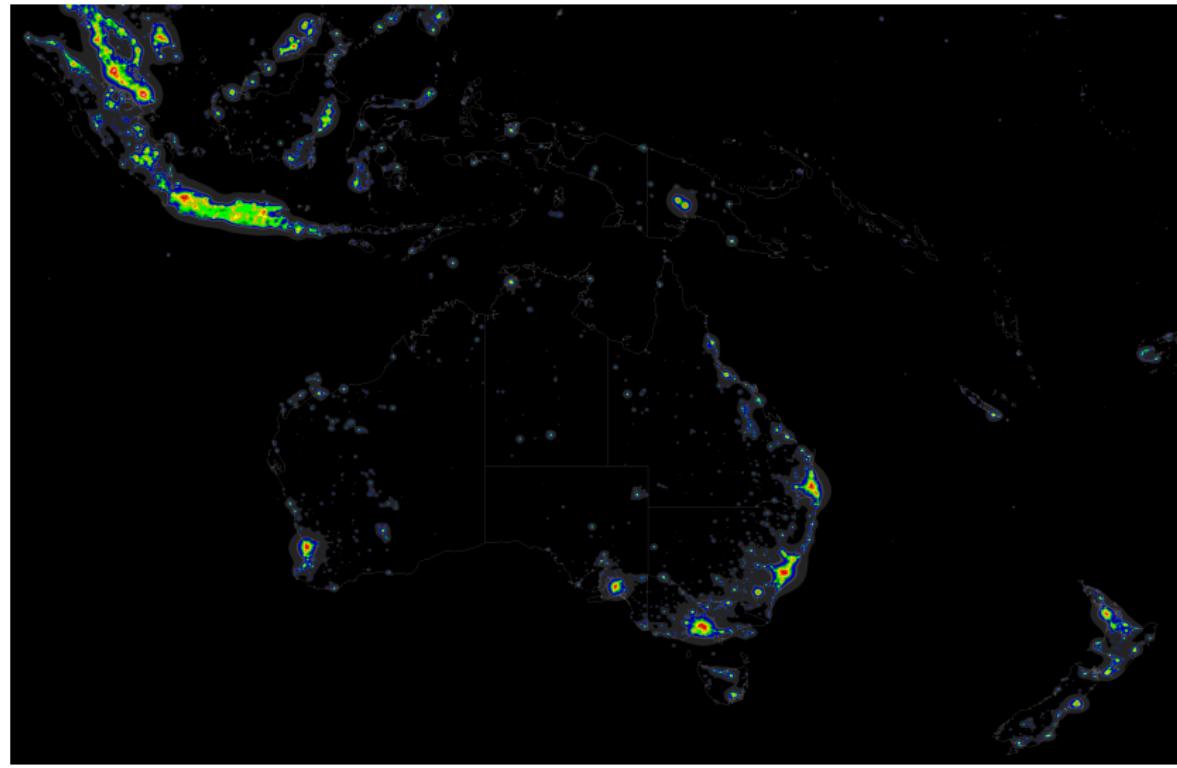
Night Lights across Regions – Africa



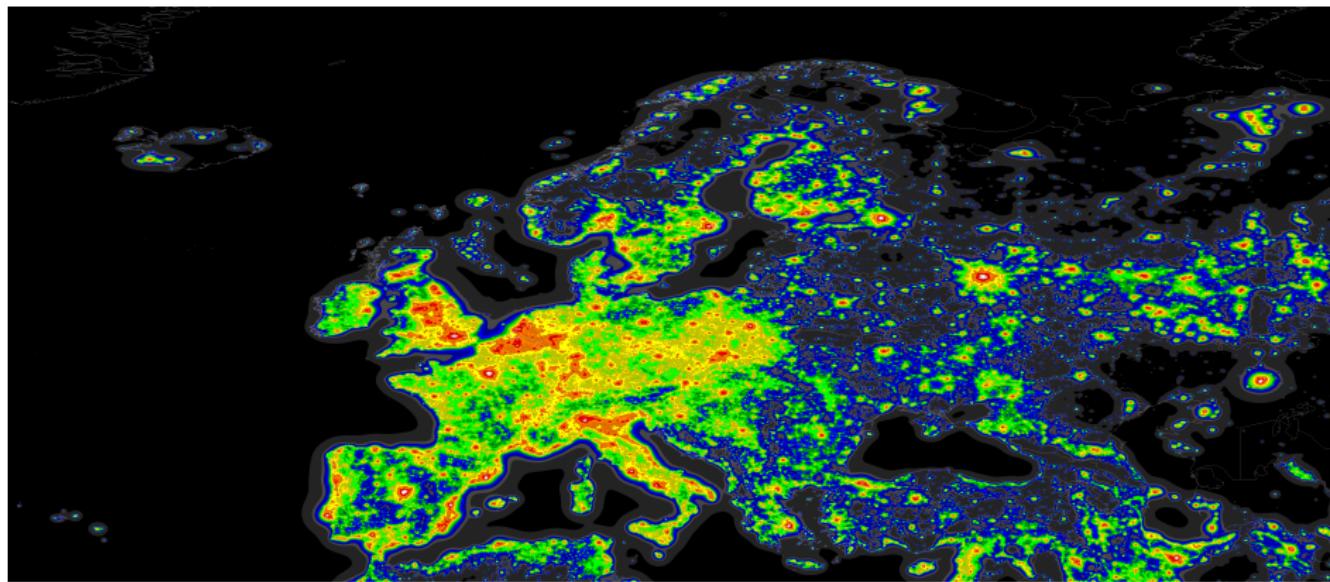
Night Lights across Regions – Asia



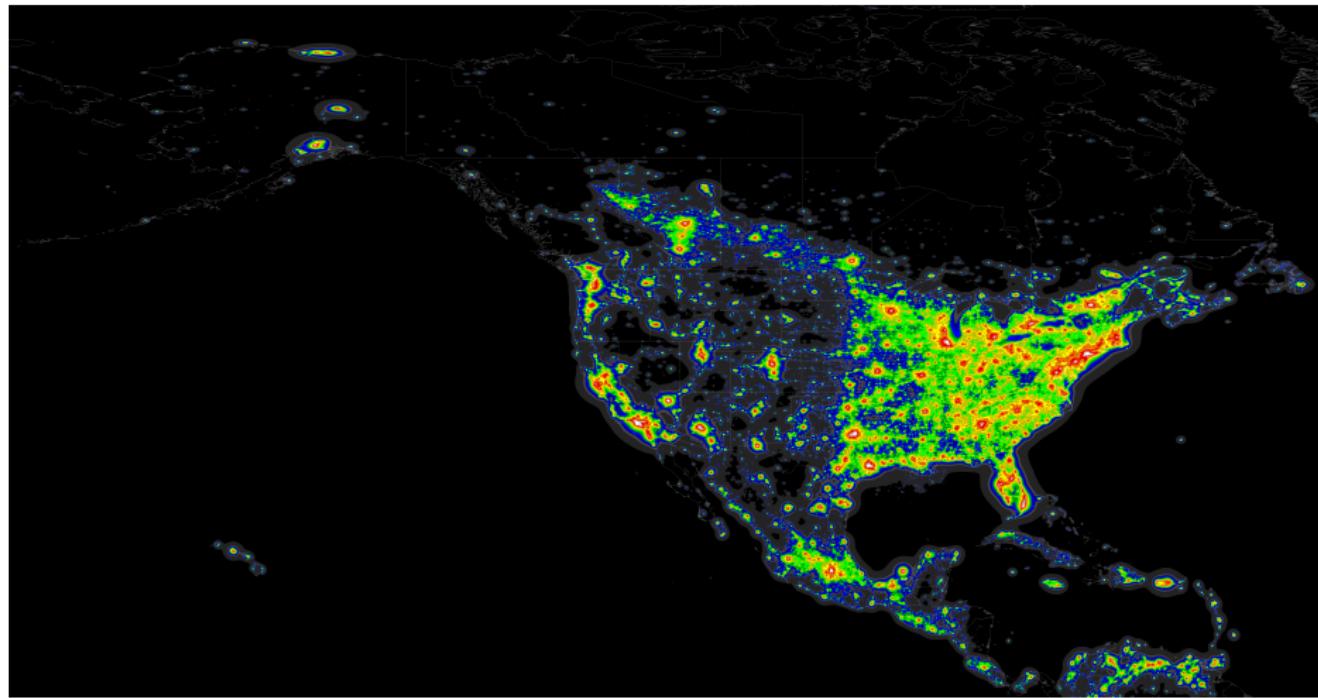
Night Lights across Regions – Australia



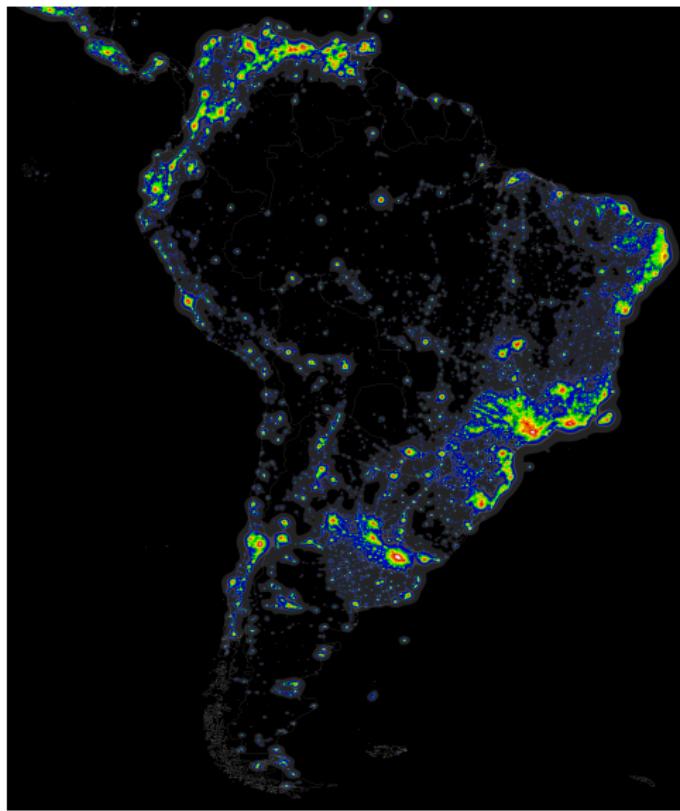
Night Lights across Regions – Europe



Night Lights across Regions – North America



Night Lights across Regions – South America



Fact 1: Income Differences across Countries/Regions/Societies

There is enormous variation in per capita income across economies. The poorest countries have per capita incomes that are less than 5 percent of per capita income in the richest countries.

Several notes:

- Income per capita (or GDP per capita) is not the sole measure of what is good: but it's a useful summary statistic
- Income per capita ignores distribution of income within a country
- Comparing income per capita across countries is not trivial
 - You have to convert between currencies
 - Countries have different relative prices for goods
 - What is the “right” way to value haircuts, apples, or cars across countries?

Top Countries - Different Measures (2009)

Rank	Highest GDP per Capita		Largest Economies		Most Populous Countries	
	Country	GDP per Capita (\$)	Country	Total GDP (\$ trillions)	Country	Population (millions)
1	Qatar	159,469	United States	12.62	China	1,320
2	Luxembourg	84,525	China	10.08	India	1,160
3	United Arab Emirates	52,946	Japan	3.81	United States	307
4	Bermuda	52,090	India	3.76	Indonesia	240
5	Macao	51,057	Germany	2.66	Brazil	199
6	Norway	49,945	United Kingdom	2.07	Pakistan	181
7	Singapore	47,373	Russia	2.05	Bangladesh	154
8	Kuwait	46,639	France	1.98	Nigeria	149
9	Brunei	46,229	Italy	1.68	Russia	140
10	Australia	41,304	Brazil	1.62	Japan	127
11	United States	41,099	Mexico	1.29	Mexico	111

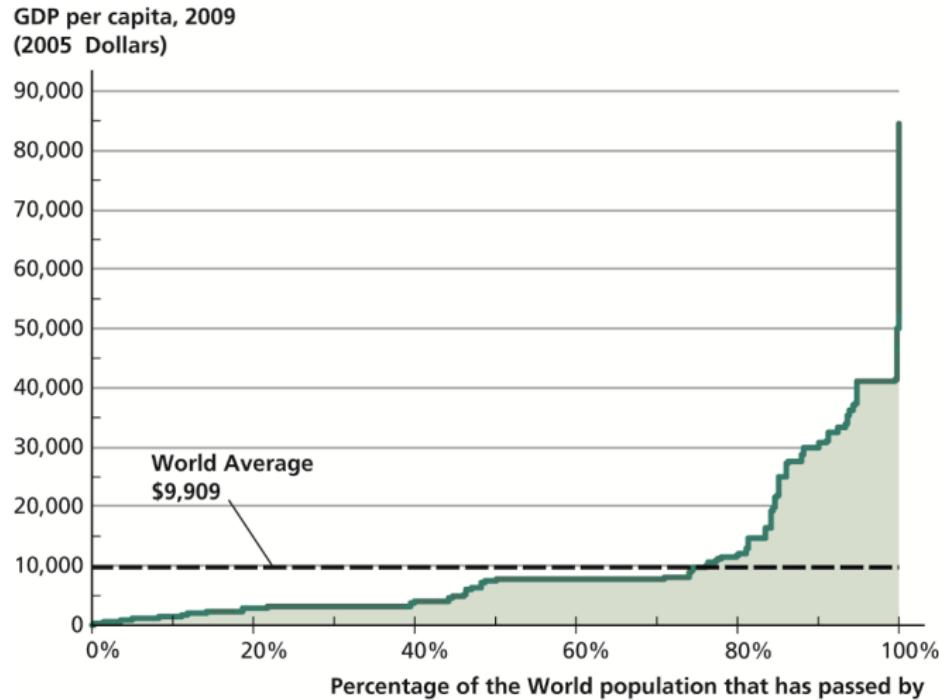
Rich Countries

Country	GDP per capita 2008	GDP per worker 2008	LF Part. Rate 2008	Avg. Growth 1960-2008	Years to Double
United States	\$43,326	\$84,771	0.51	1.6	43
Japan	33,735	64,778	0.52	3.4	21
France	31,980	69,910	0.46	2.2	30
United Kingdom	35,345	70,008	0.51	1.9	36
Spain	28,958	57,786	0.50	2.7	26

Poor Countries

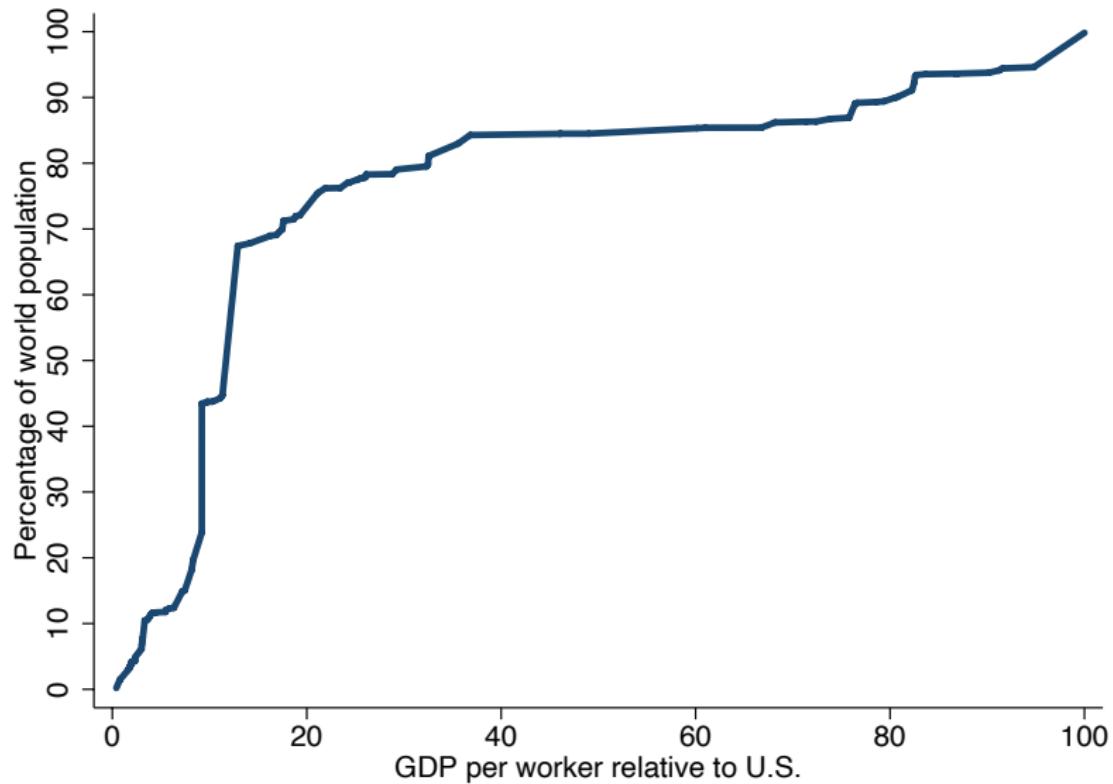
Country	GDP per capita 2008	GDP per worker 2008	LF Part. Rate 2008	Avg. Growth 1960-2008	Years to Double
China	6,415	10,938	0.59	5.6	13
India	3,078	7,801	0.39	3.0	24
Nigeria	1,963	6,106	0.32	0.6	114
Uganda	1,122	2,604	0.43	1.3	52

Distribution of Population by GDP per Capita, 2009

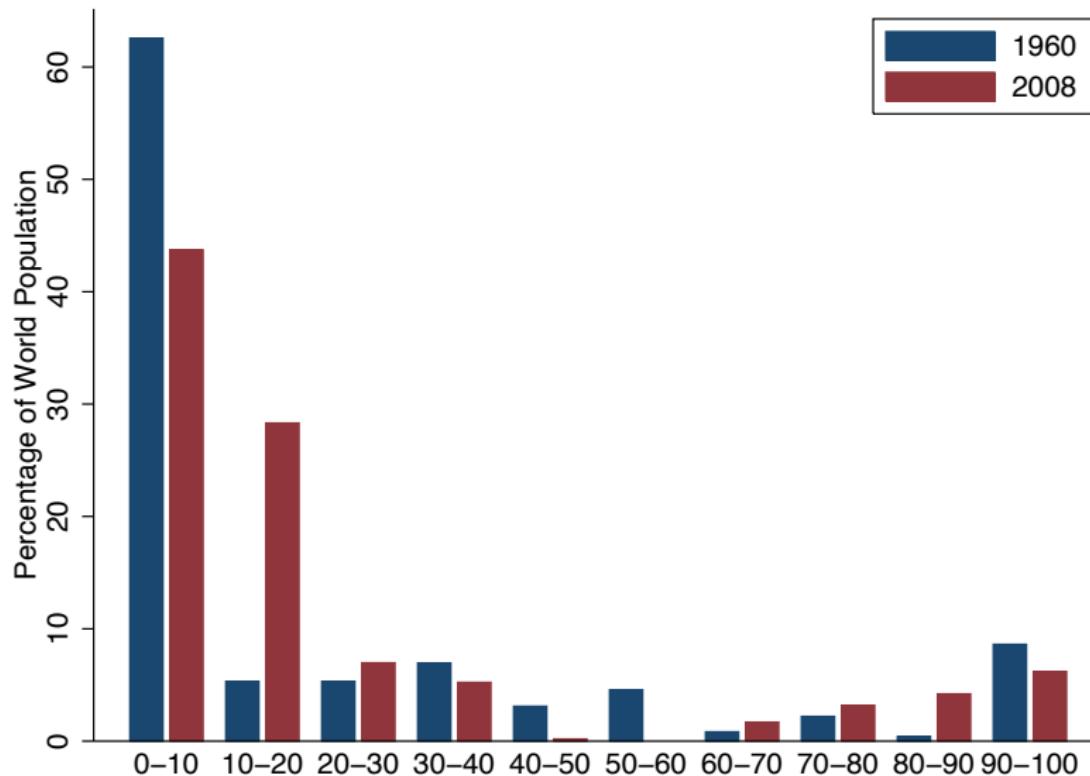


Source: Heston, Summers, and Aten (2011).

Distribution of Population by GDP per Worker, 2008



World Population by GDP per Worker, 1960 and 2008



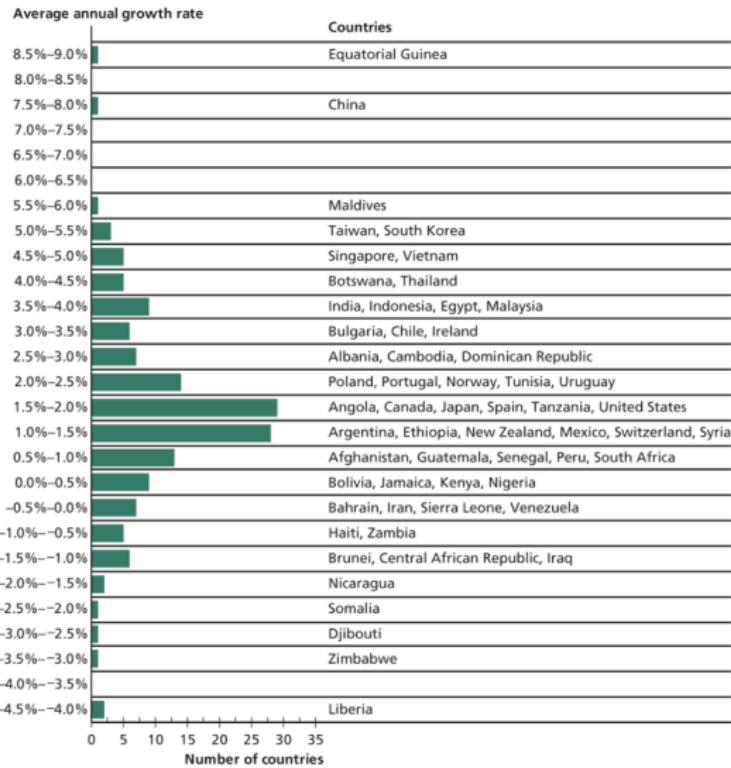
Fact 2: Growth Rates across Time and Countries

- **Rates of economic growth vary substantially across countries**
 - Important to distinguish permanent from transitional differences
 - If permanent \implies divergence
 - Economists think most differences are transitional
- **Rates of economic growth vary substantially across time**
 - Growth rates within countries tend to decrease as they become rich

Fact 2: Growth Rates across Time and Countries

- **Rates of economic growth vary substantially across countries**
 - Important to distinguish permanent from transitional differences
 - If permanent \implies divergence
 - Economists think most differences are transitional
- **Rates of economic growth vary substantially across time**
 - Growth rates within countries tend to decrease as they become rich

Growth Rates 1975-2009



Source: Heston, Summers, and Aten (2011).

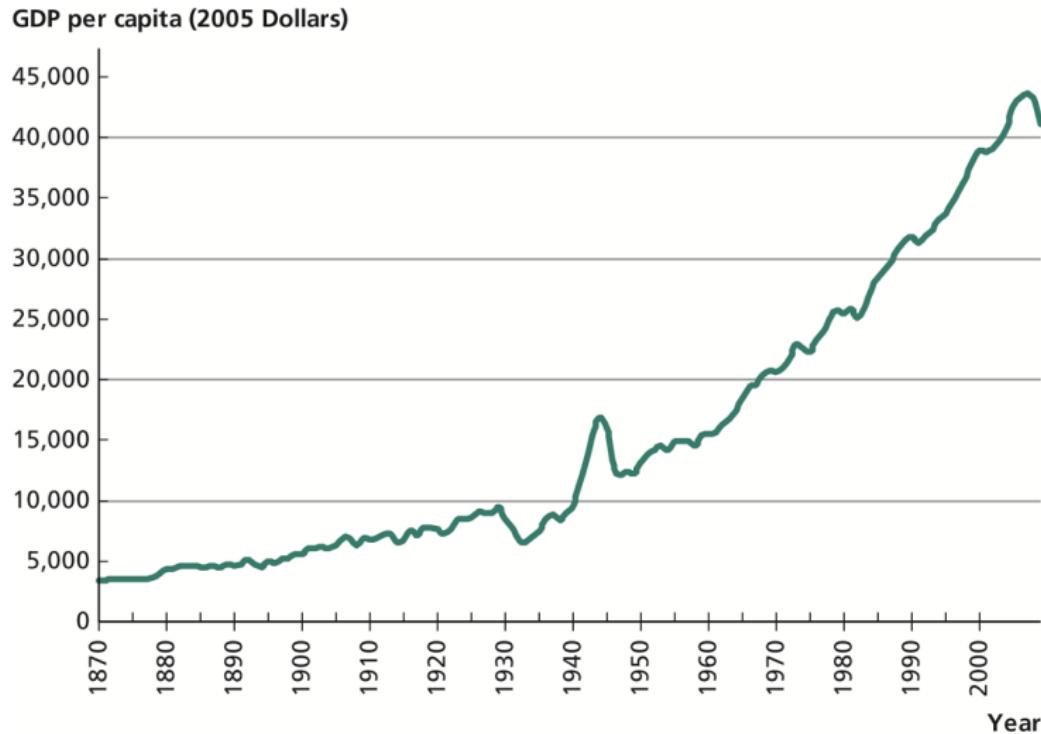
Growth Miracles

Country	GDP per capita 2008	GDP per worker 2008	LF Part. Rate 2008	Avg. Growth 1960-2008	Years to Double
Hong Kong	37,834	70,940	0.53	4.3	16
Singapore	49,987	92,634	0.54	4.1	17
Taiwan	29,645	62,610	0.47	5.1	14
South Korea	25,539	50,988	0.50	4.5	16

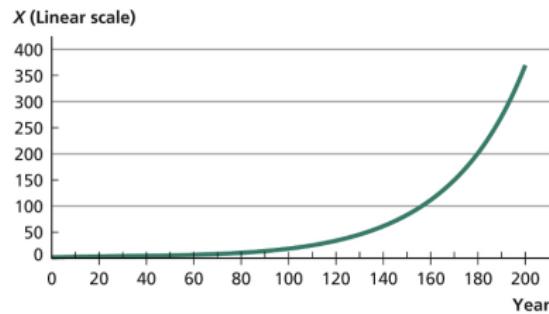
Growth Disasters

Country	GDP per capita 2008	GDP per worker 2008	LF Part. Rate 2008	Avg. Growth 1960-2008	Years to Double
Venezuela	9,762	21,439	0.46	-0.1	
Haiti	1,403	3,164	0.44	-0.4	
Madagascar	810	1,656	0.49	-0.1	
Zimbabwe	135	343	0.40	-1.5	

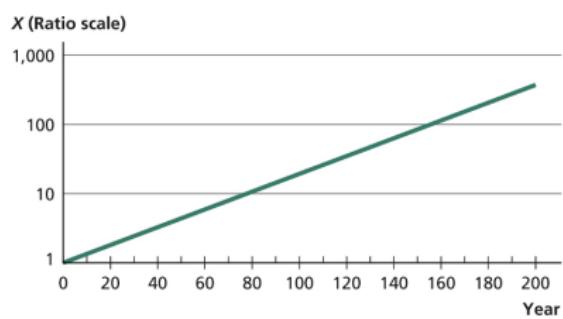
GDP per capita in U.S. (1870-2009)



Effect of Using a Ratio/Logarithmic Scale



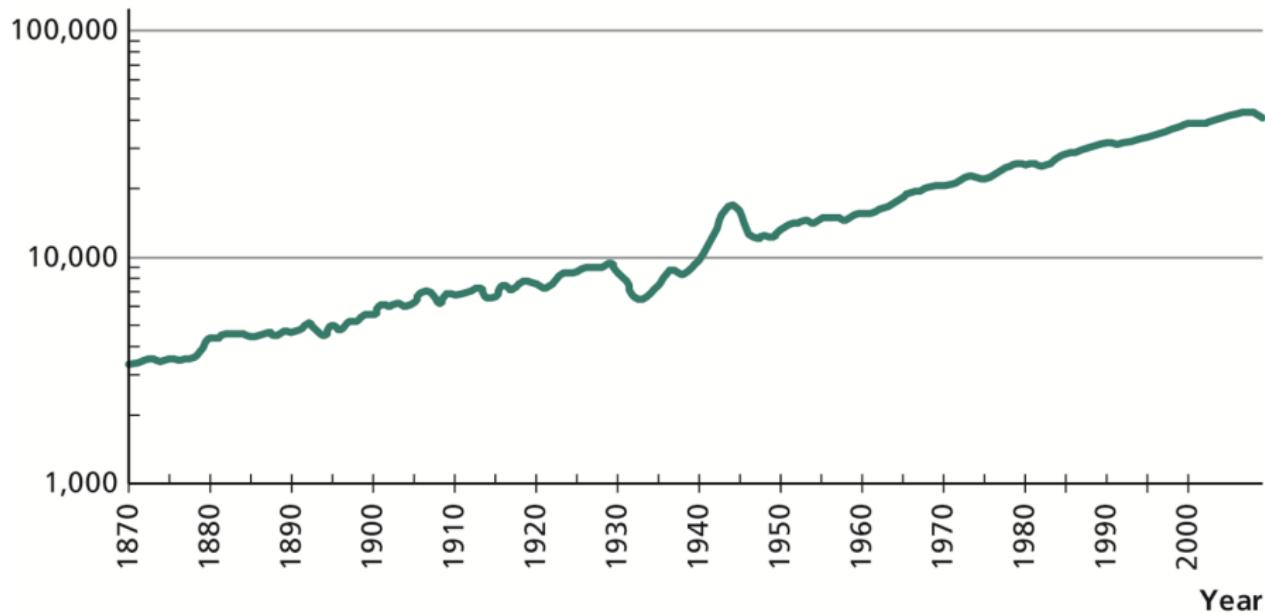
(a) $X_t = X_0(1 + g)^t$



(b) $\ln(X_t) = \ln(X_0) + (1 + g) \cdot t$

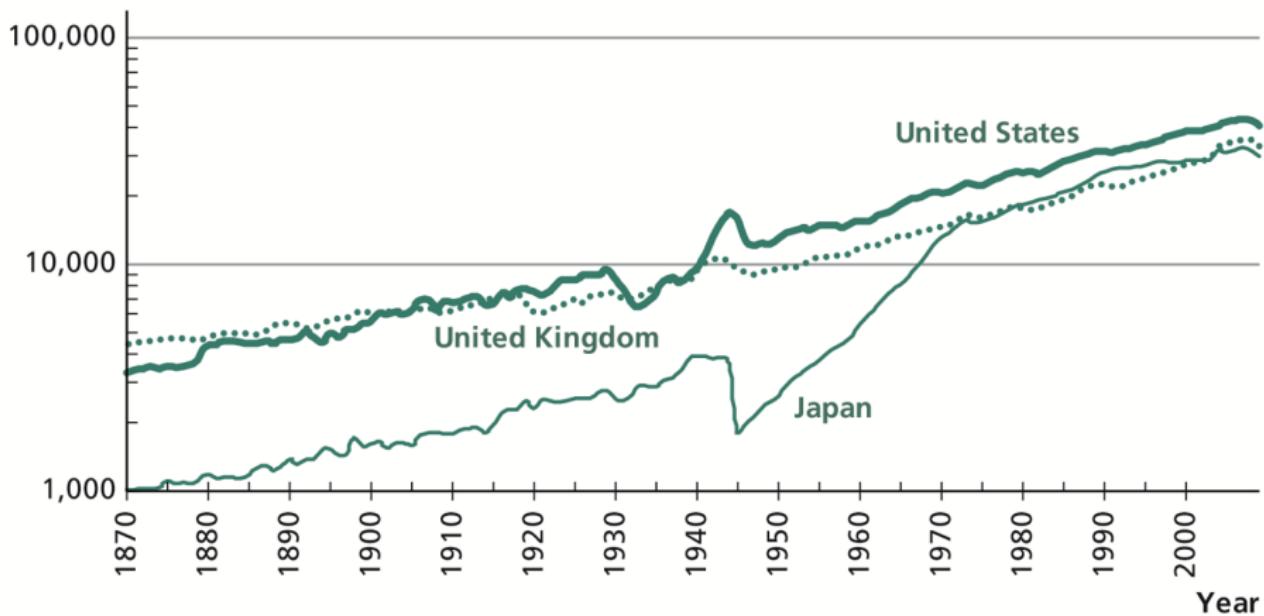
GDP per capita in U.S. (1870-2009, Ratio Scale)

GDP per capita (2005 Dollars, ratio scale)



GDP per capita in Japan, U.K., & U.S. (1870-2009, Ratio Scale)

GDP per capita (2005 Dollars, ratio scale)



Sources: Maddison (1995), Heston, Summers, And Aten (2011).

What does this all suggest?

- Large differences in income per capita
- Smaller differences in growth rates of income per capita
- Constant and positive growth rates in the long-run
- Catch-up of poor to rich countries

What does this all suggest?

- Large differences in income per capita
- Smaller differences in growth rates of income per capita
- Constant and positive growth rates in the long-run
- Catch-up of poor to rich countries

What does this all suggest?

- Large differences in income per capita
- Smaller differences in growth rates of income per capita
- Constant and positive growth rates in the long-run
- Catch-up of poor to rich countries

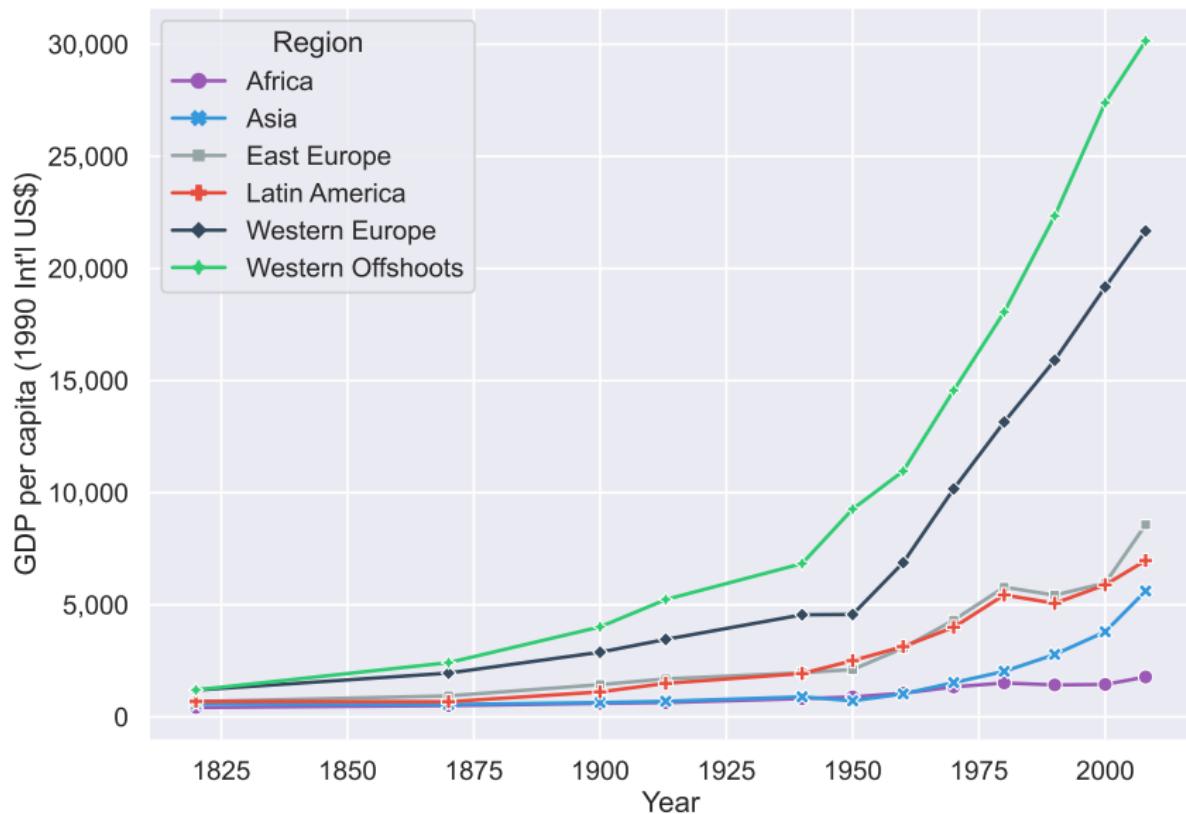
What does this all suggest?

- Large differences in income per capita
- Smaller differences in growth rates of income per capita
- Constant and positive growth rates in the long-run
- Catch-up of poor to rich countries

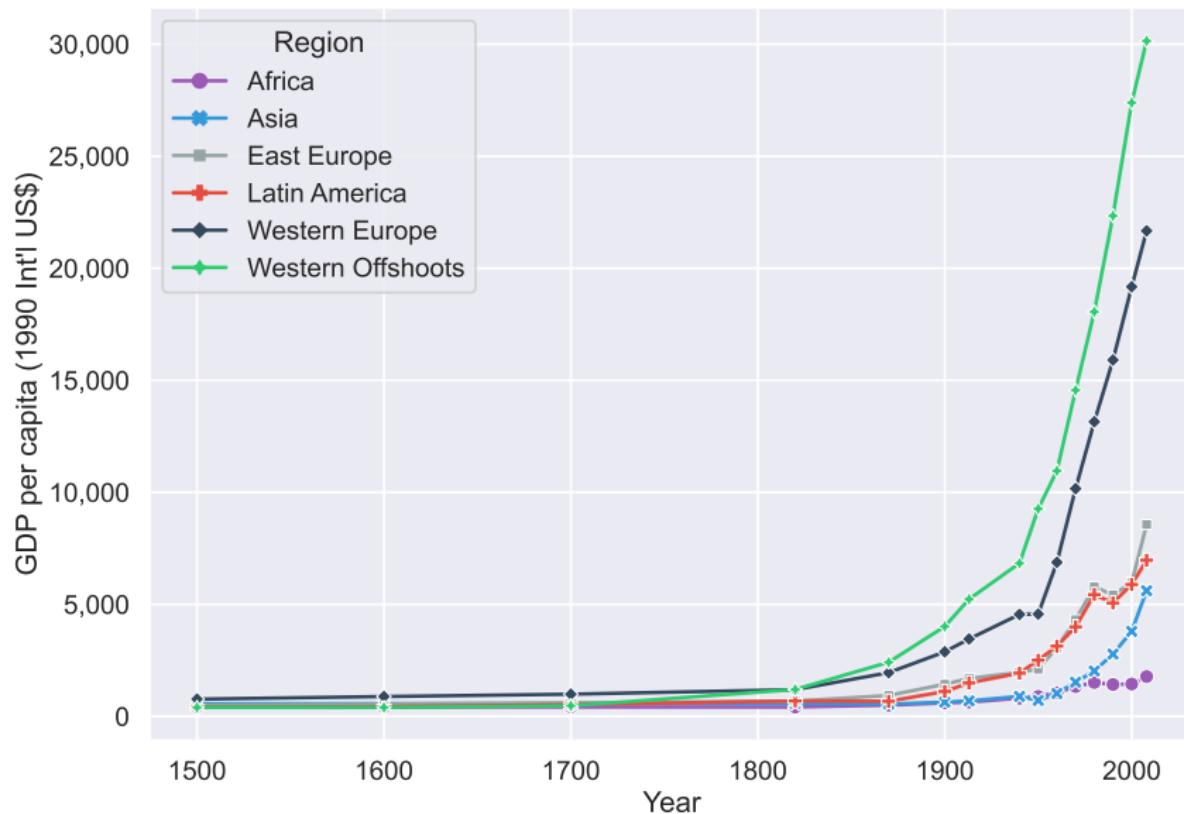
Fact 3: Last 200 Years are Special

- Income differences were small/non-existent before 1800
- Growth rates were small ≈ 0 for most of human history

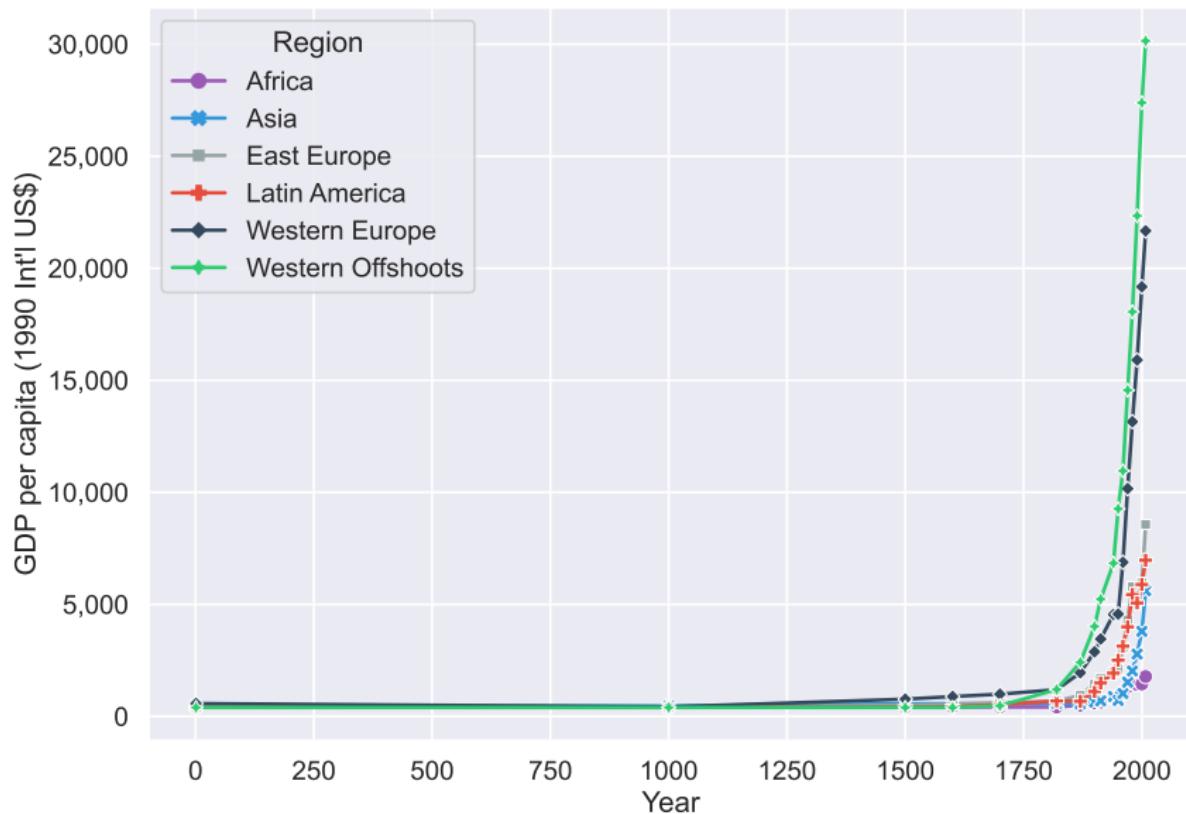
Divergence across Regions: 1820–2010



Divergence across Regions: 1500–2010



Regional Income per Capita: 1–2010

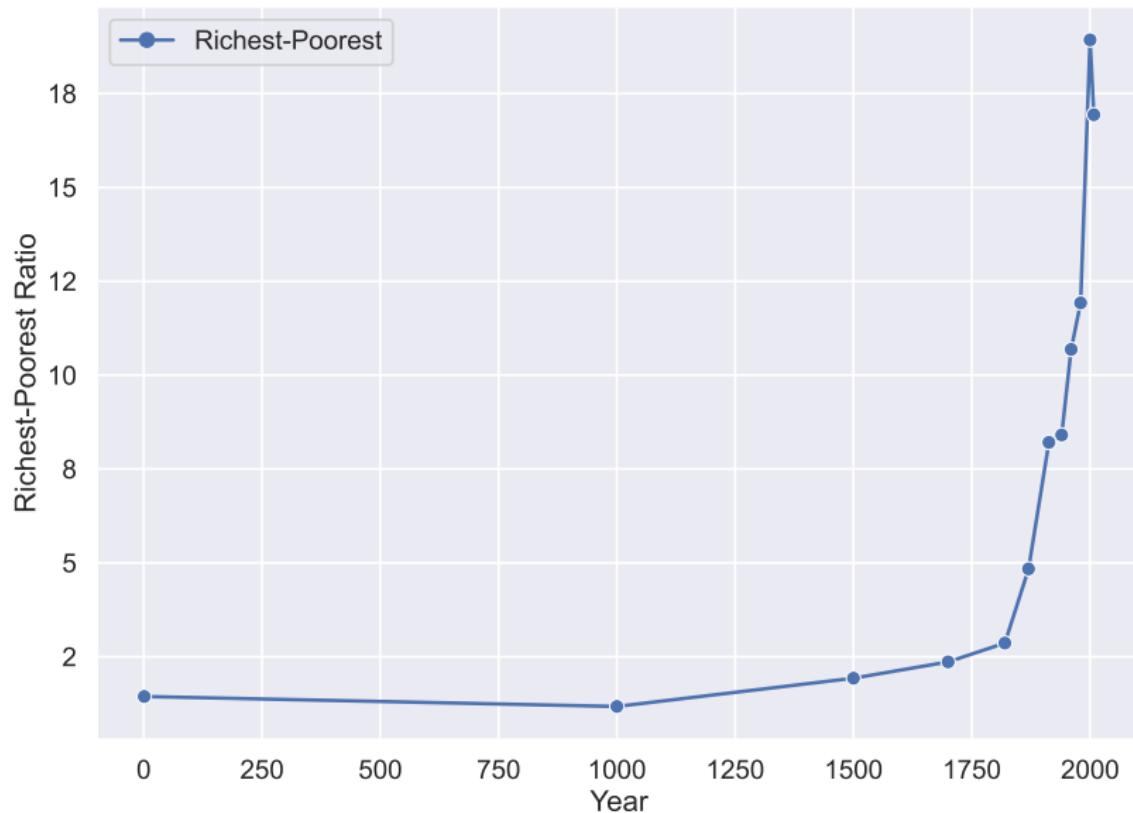


Evolution of Inequality across Regions: 1–2010

	Income per Capita (1990 Int'l \$)				
	1	1000	1500	1820	2010
Western Offshoots	400	400	400	1,302	29,564
Western Europe	576	427	771	1,455	20,889
Latin America	400	400	416	628	6,767
Asia	456	470	568	591	6,307
Africa	472	425	414	486	2,034
Richest-Poorest Ratio	1.4	1.2	2	3	15

Western Offshoots: USA, Canada, Australia, New Zealand.

Evolution of Inequality across Regions: 1–2010



Inferences from Neoclassical/Solow Growth Theory

- Diminishing returns to physical and human capital accumulation
- Diminishing effect of technological progress on productivity

→ Technology is neutral

→ Capital is neutral

→ Human capital is neutral

→ Technology is neutral

→ Capital is neutral

→ Human capital is neutral

Inferences from Neoclassical/Solow Growth Theory

- Diminishing returns to physical and human capital accumulation
- Diminishing effect of technological progress on productivity

⇒ Reduction in inequality

⇒ Convergence

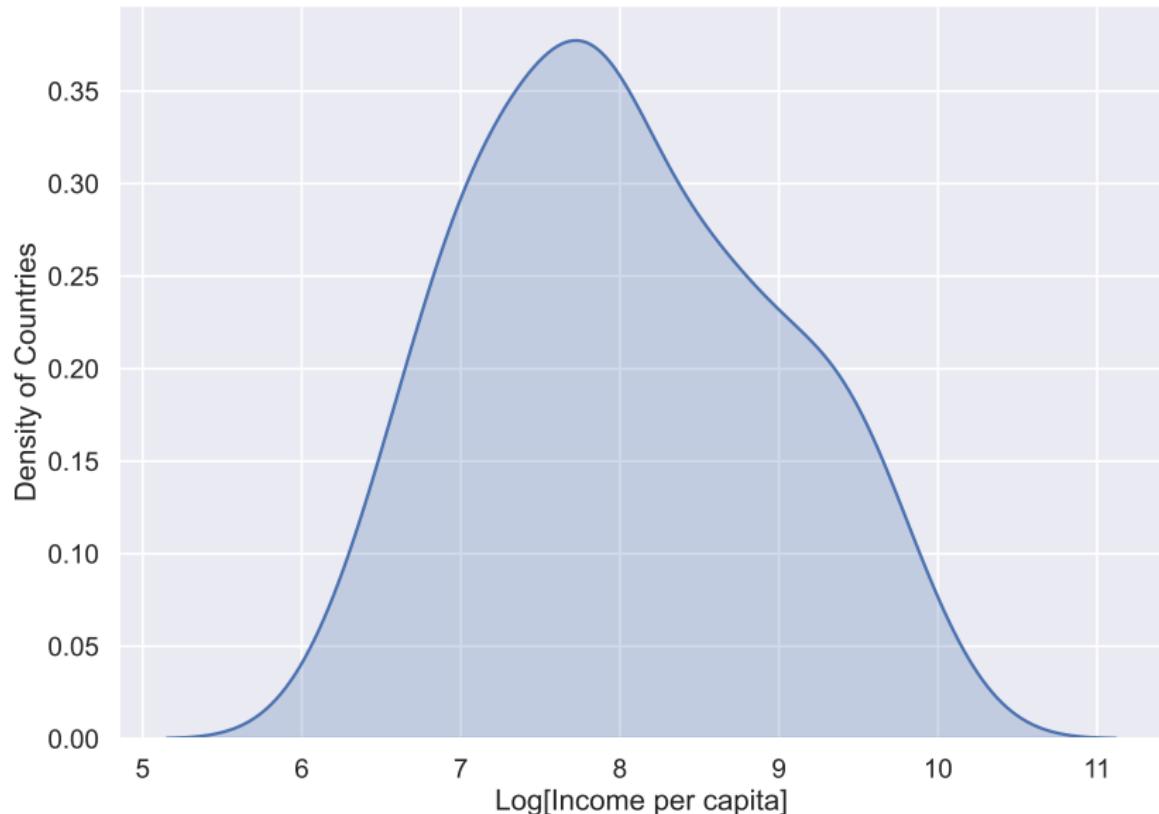
Inferences from Neoclassical/Solow Growth Theory

- Diminishing returns to physical and human capital accumulation
- Diminishing effect of technological progress on productivity
 - ➡ Reduction in inequality
 - ➡ Convergence

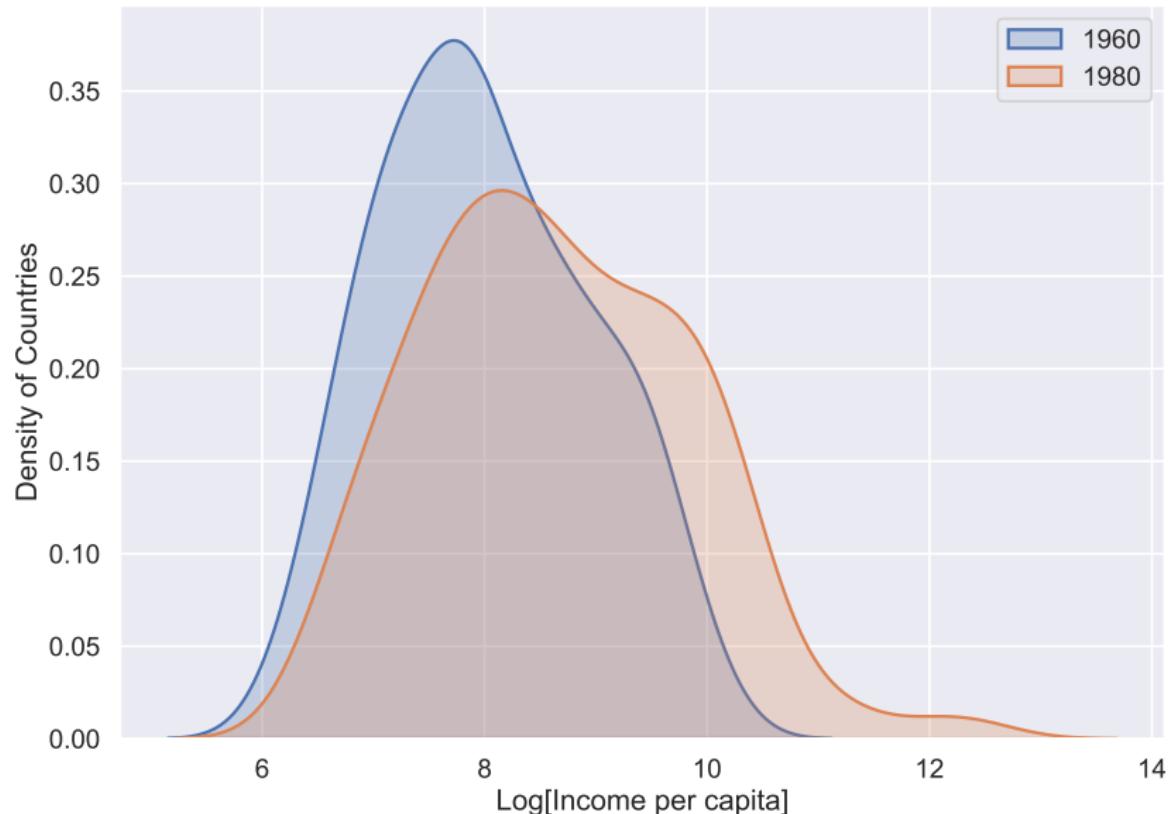
Inferences from Neoclassical/Solow Growth Theory

- Diminishing returns to physical and human capital accumulation
- Diminishing effect of technological progress on productivity
 - ⇒ Reduction in inequality
 - ⇒ Convergence

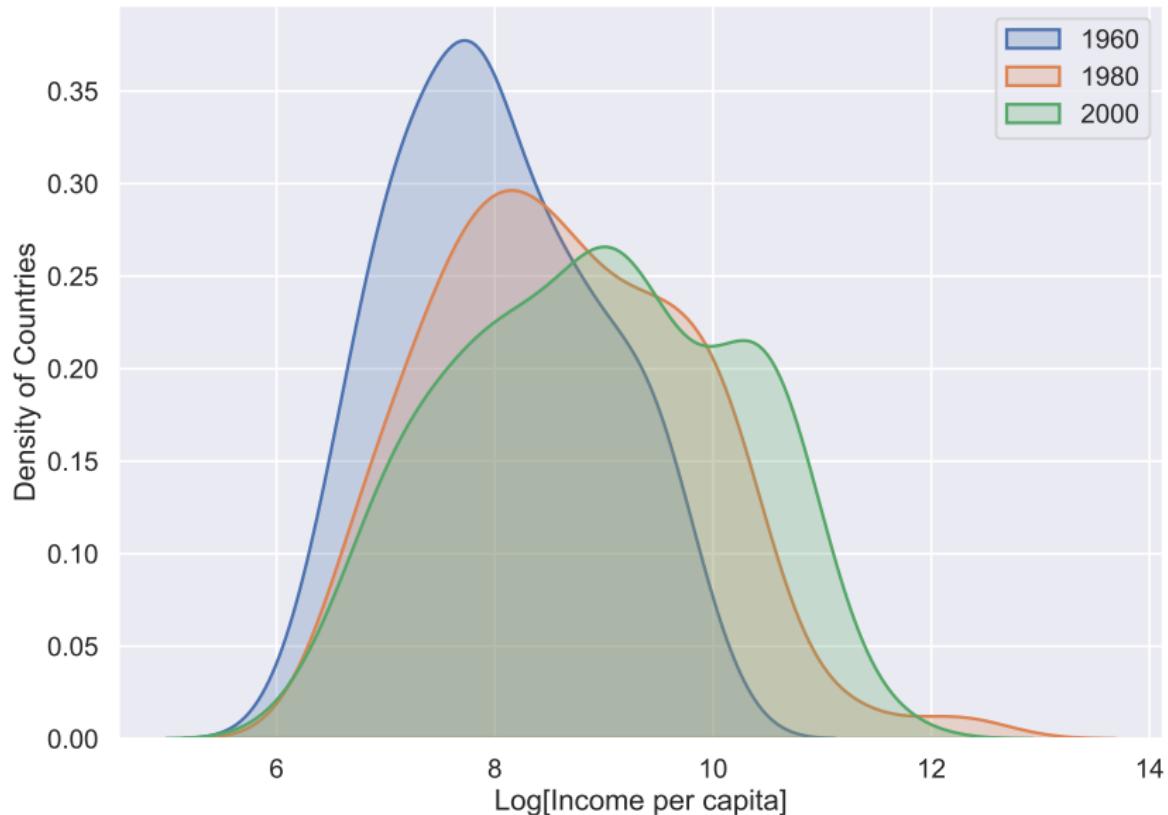
Income Distribution in 1960



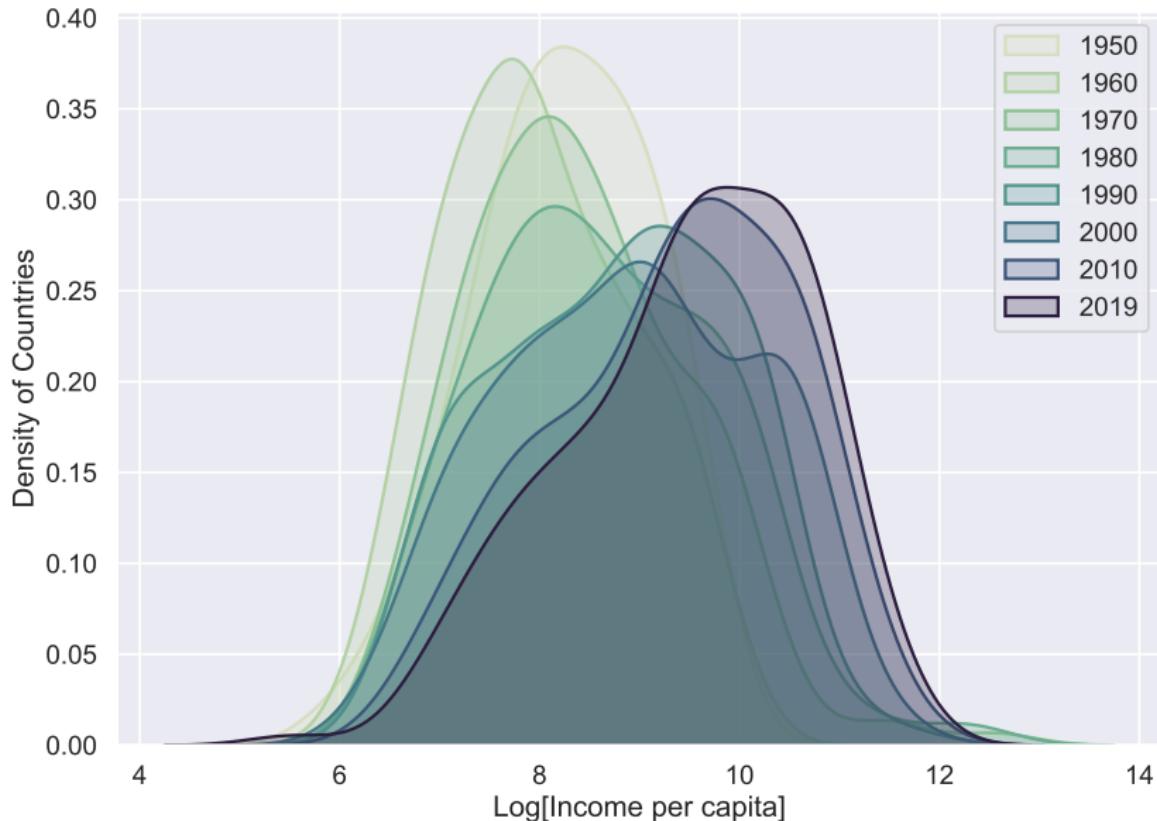
Lack of Convergence across Nations: 1960–1980



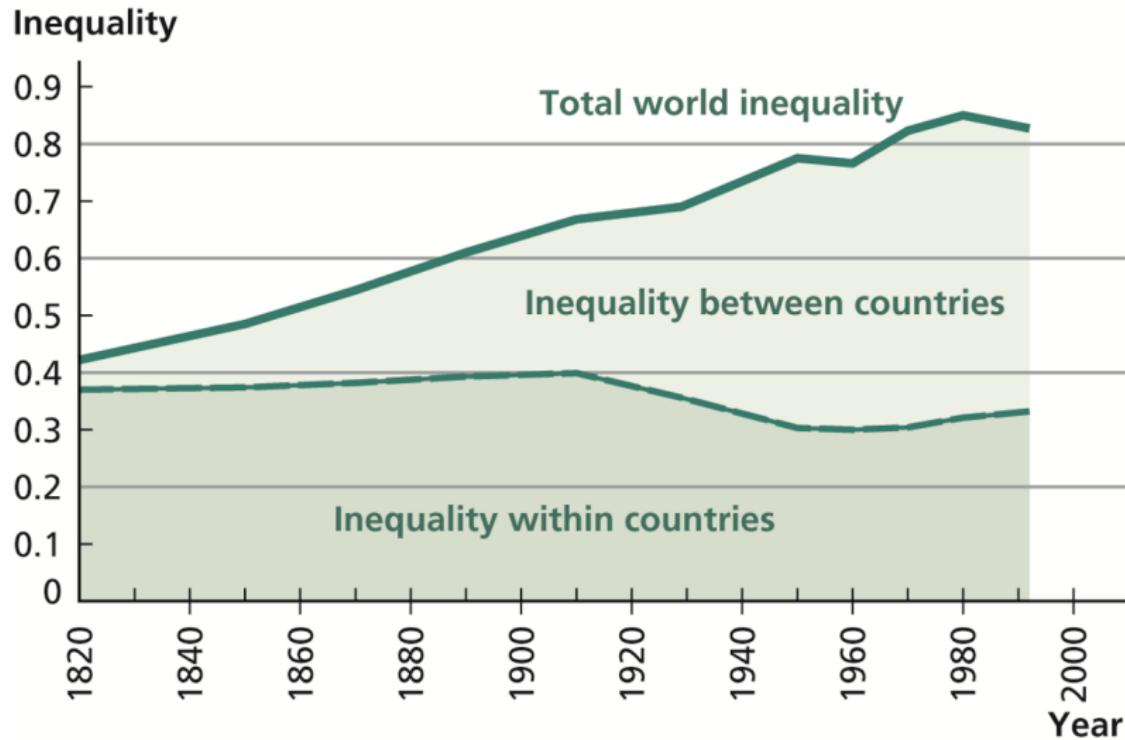
Lack of Convergence across Nations: 1960–2000



Lack of Convergence across Nations: 1950–2017

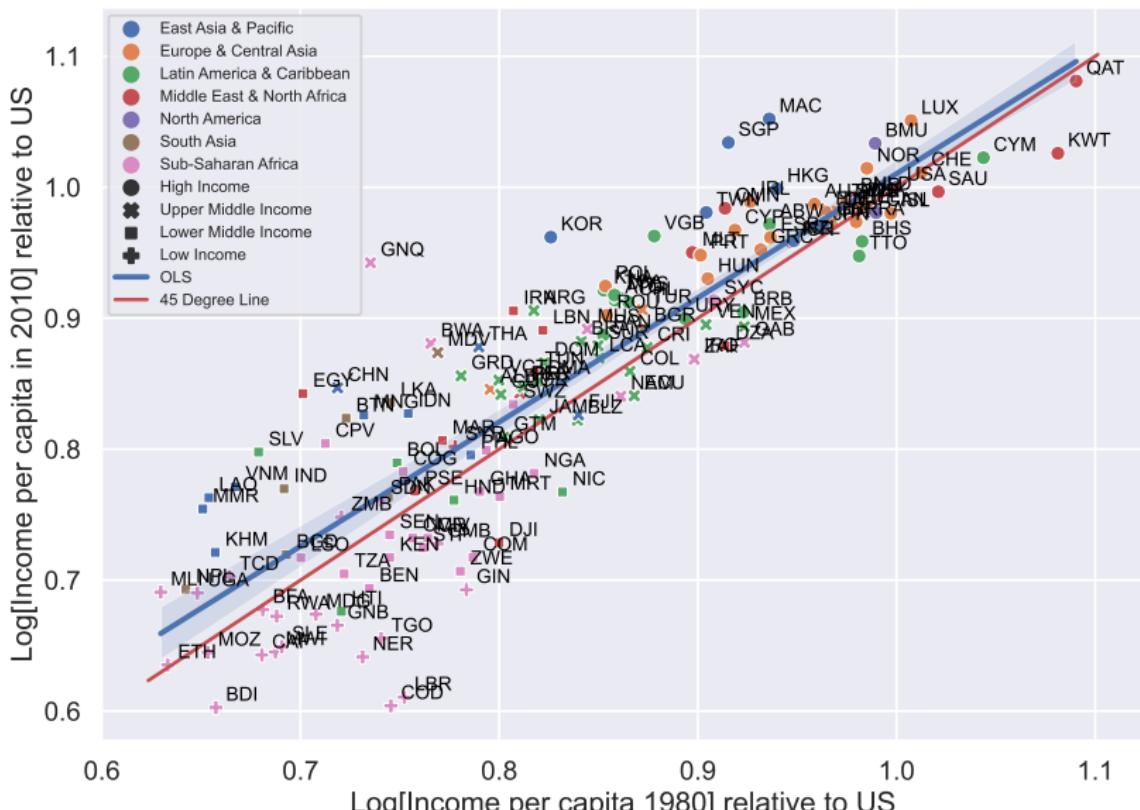


World Inequality and Its Components



Source: Bourguignon and Morrison (2002).

Persistent Inequality across Nations: 1980–2010



Fundamental Research Questions

- What is the origin of the vast inequality in income per capita across countries and regions?
- What accounts for the divergence in per-capita income across countries in the past two centuries?
- What are the factors that inhibited the convergence of poor economies toward richer ones in the past decades?
- What is the role of deep-rooted factors in explaining the observed patterns of comparative development?

Fundamental Research Questions

- What is the origin of the vast inequality in income per capita across countries and regions?
- What accounts for the divergence in per-capita income across countries in the past two centuries?
- What are the factors that inhibited the convergence of poor economies toward richer ones in the past decades?
- What is the role of deep-rooted factors in explaining the observed patterns of comparative development?

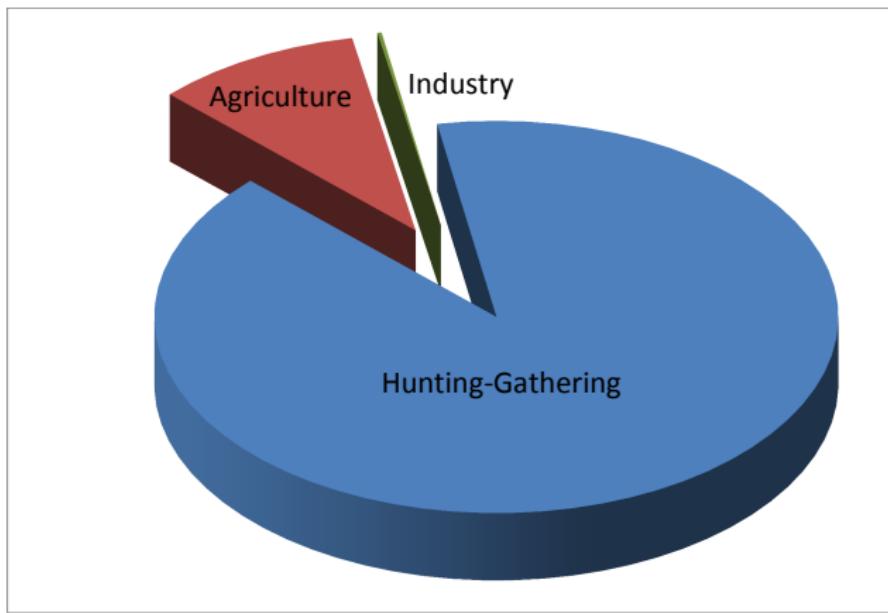
Fundamental Research Questions

- What is the origin of the vast inequality in income per capita across countries and regions?
- What accounts for the divergence in per-capita income across countries in the past two centuries?
- What are the factors that inhibited the convergence of poor economies toward richer ones in the past decades?
- What is the role of deep-rooted factors in explaining the observed patterns of comparative development?

Fundamental Research Questions

- What is the origin of the vast inequality in income per capita across countries and regions?
- What accounts for the divergence in per-capita income across countries in the past two centuries?
- What are the factors that inhibited the convergence of poor economies toward richer ones in the past decades?
- What is the role of deep-rooted factors in explaining the observed patterns of comparative development?

Phases of Development: Modes of Production



Phases of Development: Standard of Living

- The Malthusian Epoch
- The Post-Malthusian Regime
- The Modern Growth Regime

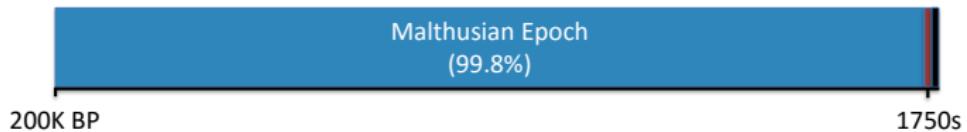
Phases of Development: Standard of Living

- The Malthusian Epoch
- The Post-Malthusian Regime
- The Modern Growth Regime

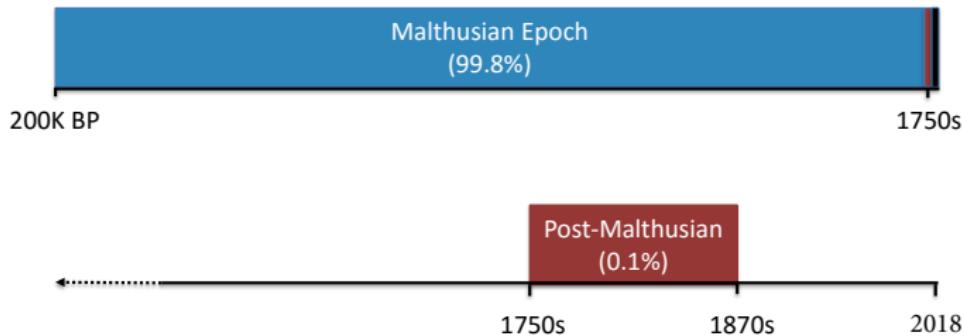
Phases of Development: Standard of Living

- The Malthusian Epoch
- The Post-Malthusian Regime
- The Modern Growth Regime

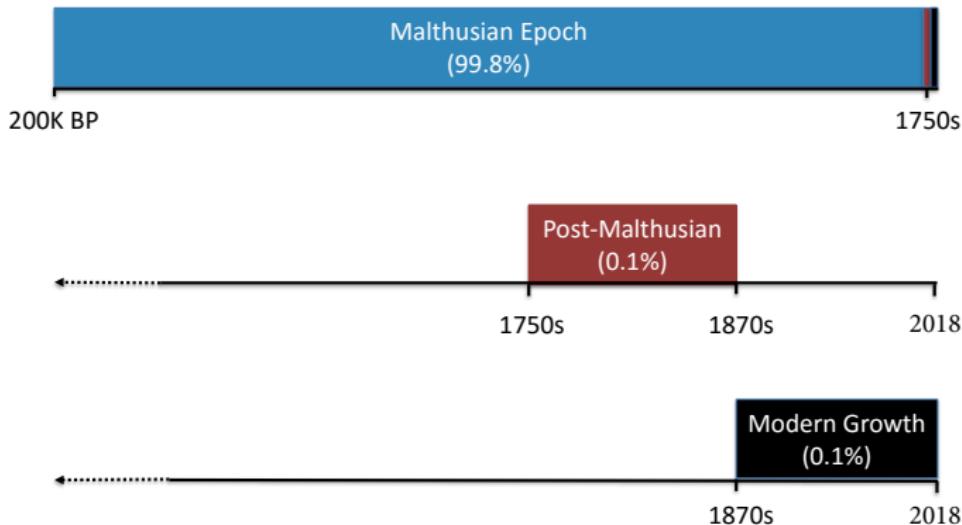
Phases of Development: Timeline of the Most Developed Economies



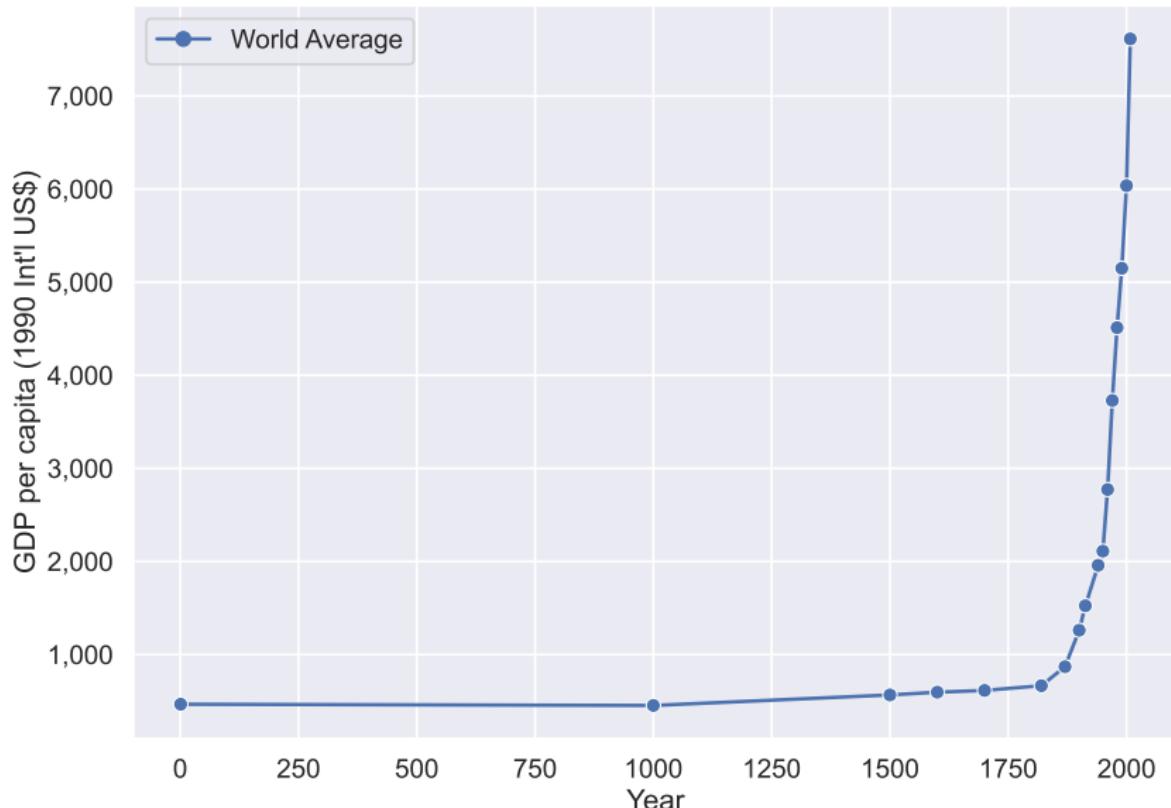
Phases of Development: Timeline of the Most Developed Economies



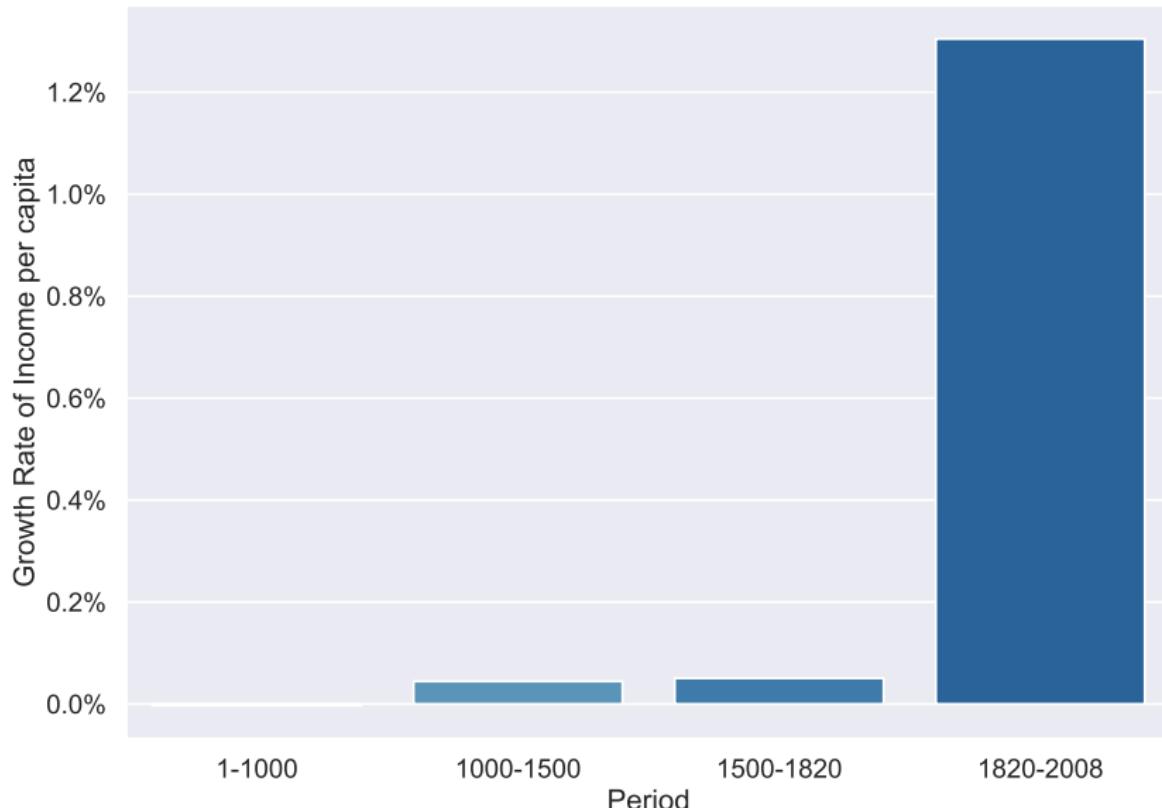
Phases of Development: Timeline of the Most Developed Economies



World Income per Capita: 1–2010



Growth of World Income per Capita: 1–2010



The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - High population density
 - Limited technological progress
 - Limited economic development
 - Limited industrialization
 - Limited urbanization
 - Limited economic diversification
- Technological progress over this period
 - Agricultural improvements
 - Irrigation systems
 - New crop varieties
 - Improved tools and techniques
 - Increased agricultural productivity
 - Improved food storage and preservation methods
- Technologically advanced & land-rich economies:
 - England
 - France
 - Holland
 - Scotland
 - Ireland
 - Russia
 - Spain
 - Portugal
 - Italy
 - Germany
 - Poland
 - Sweden
 - Norway
 - Denmark
 - Switzerland
 - Austria
 - Hungary
 - Bulgaria
 - Turkey
 - Greece
 - North Africa
 - South America
 - Australia
 - New Zealand

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increase in the number of people per unit of land
 - Increase in the number of people per unit of labor
 - Increase in the number of people per unit of capital
- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Agricultural revolution
 - Industrial revolution
 - Technological advances in transportation and communication
- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period

Technological progress during the Malthusian epoch was slow and incremental, often limited to improvements in agricultural techniques, irrigation systems, and the use of animal power. Key inventions included the three-field crop rotation system, the use of the plowshare, and the development of more efficient tools like the scythe and the hoe.

- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:
 - Higher population density
 - Similar levels of income per-capita in the long-run

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:
 - Higher population density
 - Similar levels of income per-capita in the long-run

The Malthusian Epoch

- Characterized by Malthusian dynamics and the absence of economic growth
- Central characteristics of the period:
 - Positive effect of income on population growth
 - Diminishing returns to labor (reflecting the existence of fixed factor)
- Technological progress over this period
 - Increases income per capita in the short-run
 - Population adjust, as long as income remains above subsistence
 - Income per capita ultimately returns to its long-run level
- Technologically advanced & land-rich economies:
 - Higher population density
 - Similar levels of income per-capita in the long-run

Malthusian Dynamics - Prominent Examples

- The dynamics of Irish economy (1650 - 1850)
 - Triggered by the cultivation of a new world crop – potato
- The dynamics of the Chinese Economy (1500 - 1800)
 - Triggered by the introduction of the New World crops
- The dynamics of the English economy (1348 - 1700)
 - Triggered by the Black Death

Malthusian Dynamics - Prominent Examples

- The dynamics of Irish economy (1650 - 1850)
 - Triggered by the cultivation of a new world crop – potato
- The dynamics of the Chinese Economy (1500 - 1800)
 - Triggered by the Great Chinese Famine
- The dynamics of the English economy (1348 - 1700)
 - Triggered by the Black Death

Malthusian Dynamics - Prominent Examples

- The dynamics of Irish economy (1650 - 1850)
 - Triggered by the cultivation of a new world crop – potato
- The dynamics of the Chinese Economy (1500 - 1800)
 - Triggered by superior agricultural technology
- The dynamics of the English economy (1348 - 1700)
 - Triggered by the Black Death

Malthusian Dynamics - Prominent Examples

- The dynamics of Irish economy (1650 - 1850)
 - Triggered by the cultivation of a new world crop – potato
- The dynamics of the Chinese Economy (1500 - 1800)
 - Triggered by superior agricultural technology
- The dynamics of the English economy (1348 - 1700)
 - Triggered by the Black Death

Malthusian Dynamics - Prominent Examples

- The dynamics of Irish economy (1650 - 1850)
 - Triggered by the cultivation of a new world crop – potato
- The dynamics of the Chinese Economy (1500 - 1800)
 - Triggered by superior agricultural technology
- The dynamics of the English economy (1348 - 1700)
 - Triggered by the Black Death

Malthusian Dynamics - Prominent Examples

- The dynamics of Irish economy (1650 - 1850)
 - Triggered by the cultivation of a new world crop – potato
- The dynamics of the Chinese Economy (1500 - 1800)
 - Triggered by superior agricultural technology
- The dynamics of the English economy (1348 - 1700)
 - Triggered by the Black Death

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \Rightarrow massive cultivation of potato post-1650
 - 1650-1840s
 - Potato becomes a staple food in Ireland, Scotland, and New England
 - Potato becomes a staple food in Ireland, Scotland, and New England
 - 1845-1852 Potato blight destroys crops \Rightarrow Great Famine
 - Potato becomes a staple food in Ireland, Scotland, and New England
 - Potato becomes a staple food in Ireland, Scotland, and New England

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \implies massive cultivation of potato post-1650
 - 1650-1840s
 - Population increases from 2 to 6 million
 - Income per capita increases only very modestly
 - 1845-1852 Potato blight destroys crops \implies Great Famine

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \implies massive cultivation of potato post-1650
 - 1650-1840s
 - Population increases from 2 to 6 million
 - Income per capita increases only very modestly
 - 1845-1852 Potato blight destroys crops \implies Great Famine

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \implies massive cultivation of potato post-1650
 - 1650-1840s
 - Population increases from 2 to 6 million
 - Income per capita increases only very modestly
 - 1845-1852 Potato blight destroys crops \implies Great Famine

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \implies massive cultivation of potato post-1650
 - 1650-1840s
 - Population increases from 2 to 6 million
 - Income per capita increases only very modestly
 - 1845-1852 Potato blight destroys crops \implies Great Famine
 - Population decreases by about 2 million
 - (1M Famine death & 1M emigration to the New World)

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \implies massive cultivation of potato post-1650
 - 1650-1840s
 - Population increases from 2 to 6 million
 - Income per capita increases only very modestly
 - 1845-1852 Potato blight destroys crops \implies Great Famine
 - Population decreases by about 2 million
 - (1M Famine death & 1M emigration to the New World)

Malthusian Dynamics - Ireland (1650 - 1850)

- The Columbian Exchange \implies massive cultivation of potato post-1650
 - 1650-1840s
 - Population increases from 2 to 6 million
 - Income per capita increases only very modestly
 - 1845-1852 Potato blight destroys crops \implies Great Famine
 - Population decreases by about 2 million
 - (1M Famine death & 1M emigration to the New World)

Malthusian Dynamics - China (1500 - 1800)

- Superior agricultural technology

- 1500-1820

China's population grew rapidly during the Ming and early Qing dynasties, reaching approximately 400 million by 1800. This growth was driven by several factors:

- The introduction of new crops from the Americas, such as maize and sweet potatoes, which increased food production.
- Advanced agricultural techniques, including the use of the three-field system and labor specialization.
- The opening of new land through reclamation and irrigation projects.
- The development of a dense network of canals and waterways for transport and irrigation.
- The implementation of policies that鼓励 population growth and agricultural expansion.

Malthusian Dynamics - China (1500 - 1800)

- Superior agricultural technology
 - 1500-1820
 - Population increases from 103 to 381 million
 - Share of China in world population to increase from 23% to 37%
 - Income per capita was steady at \$600

Malthusian Dynamics - China (1500 - 1800)

- Superior agricultural technology
 - 1500-1820
 - Population increases from 103 to 381 million
 - Share of China in world population to increase from 23% to 37%
 - Income per capita was steady at \$600

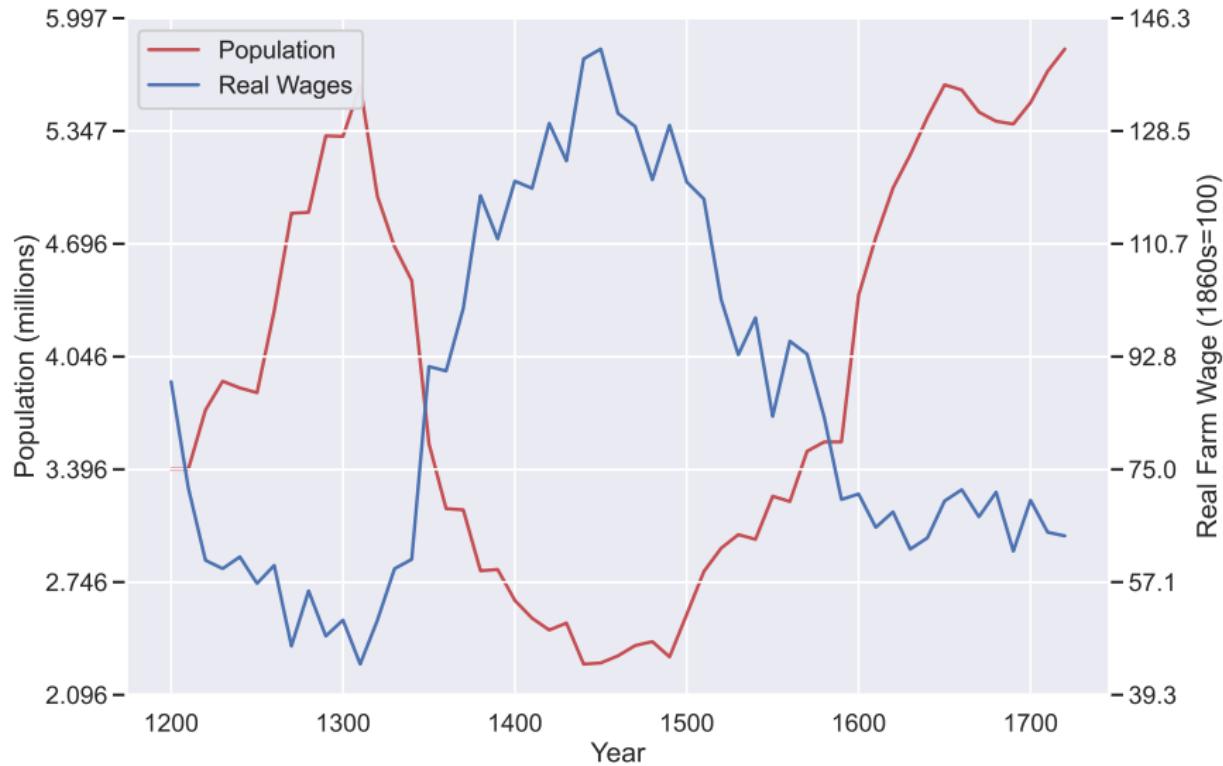
Malthusian Dynamics - China (1500 - 1800)

- Superior agricultural technology
 - 1500-1820
 - Population increases from 103 to 381 million
 - Share of China in world population to increase from 23% to 37%
 - Income per capita was steady at \$600

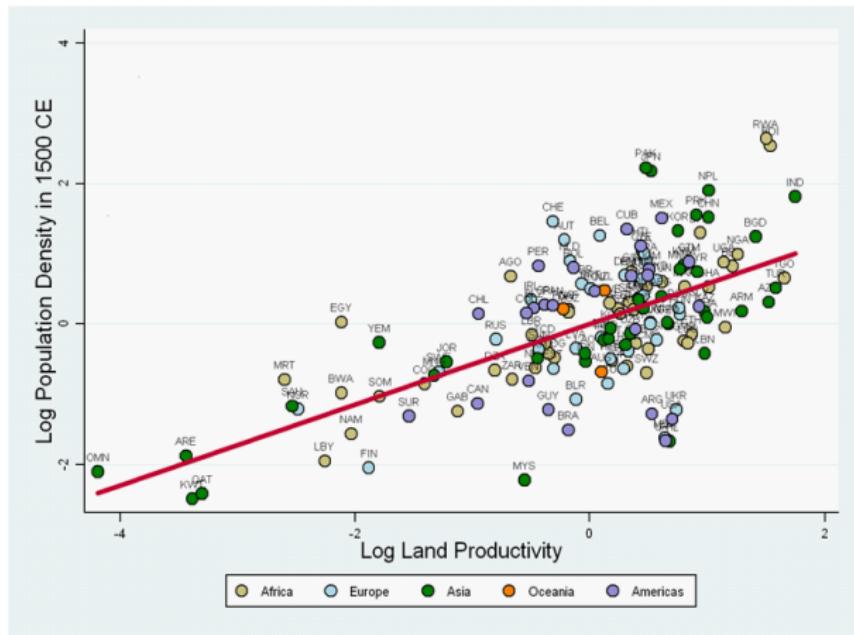
Malthusian Dynamics - China (1500 - 1800)

- Superior agricultural technology
 - 1500-1820
 - Population increases from 103 to 381 million
 - Share of China in world population to increase from 23% to 37%
 - Income per capita was steady at \$600

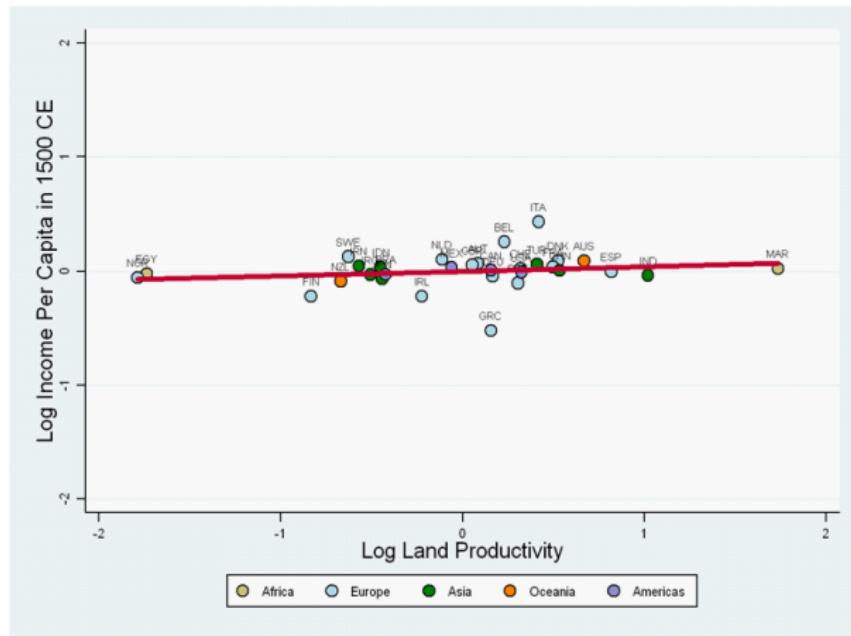
Malthusian Adjustments to the Black Death: England, 1348–1750



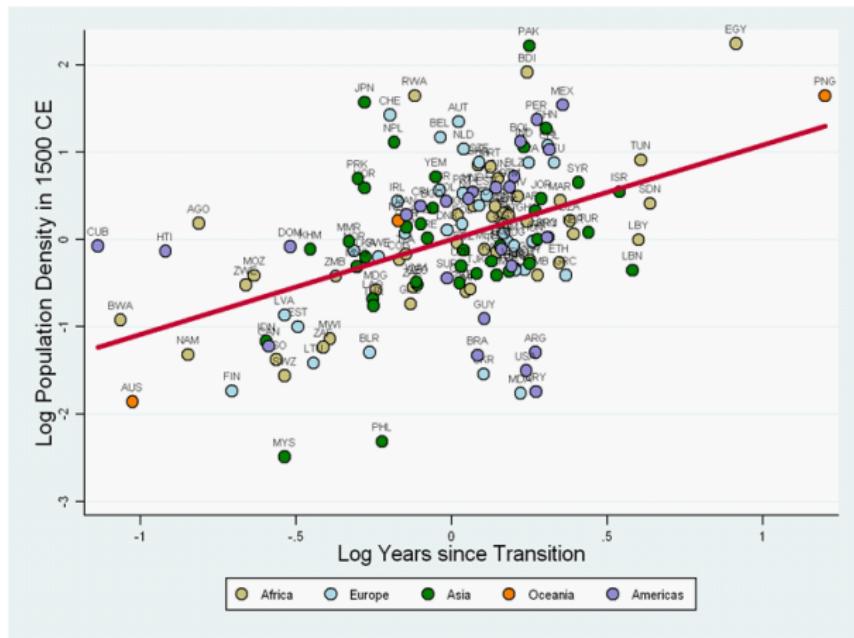
Land Productivity and Population Density in 1500



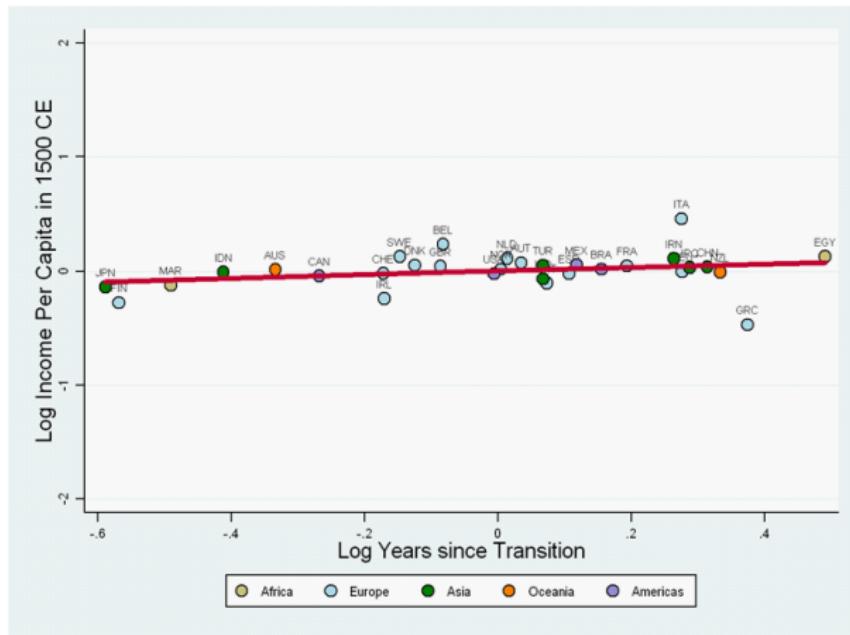
Land Productivity and Income per Capita in 1500



Technology and Population Density in 1500



Technology and Income per Capita in 1500



The Post-Malthusian Regime

- Characterized by the onset of economic growth:
 - Technological progress accelerates
 - Income per capita still has a positive effect on population growth
 - Technological progress:
 - Technological progress is endogenous
 - Technological progress is exogenous

The Post-Malthusian Regime

- Characterized by the onset of economic growth:
 - Technological progress accelerates
 - Income per capita still has a positive effect on population growth
 - Technological progress:
 - Accelerates economic growth
 - Reduces population pressure

The Post-Malthusian Regime

- Characterized by the onset of economic growth:
 - Technological progress accelerates
 - Income per capita still has a positive effect on population growth
 - Technological progress:

The Post-Malthusian Regime

- Characterized by the onset of economic growth:
 - Technological progress accelerates
 - Income per capita still has a positive effect on population growth
 - Technological progress:
 - Increases output more than population
 - \Rightarrow growth in income per capita

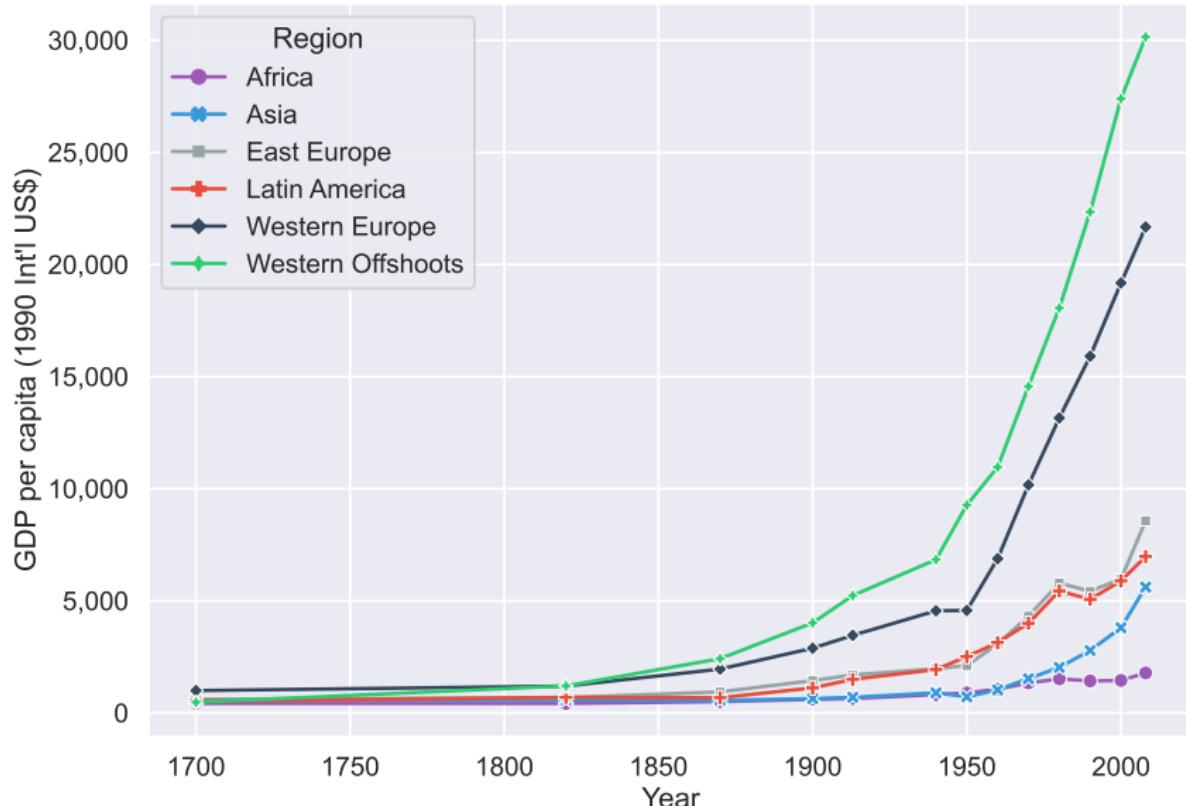
The Post-Malthusian Regime

- Characterized by the onset of economic growth:
 - Technological progress accelerates
 - Income per capita still has a positive effect on population growth
 - Technological progress:
 - Increases output more than population
 - \Rightarrow growth in income per capita

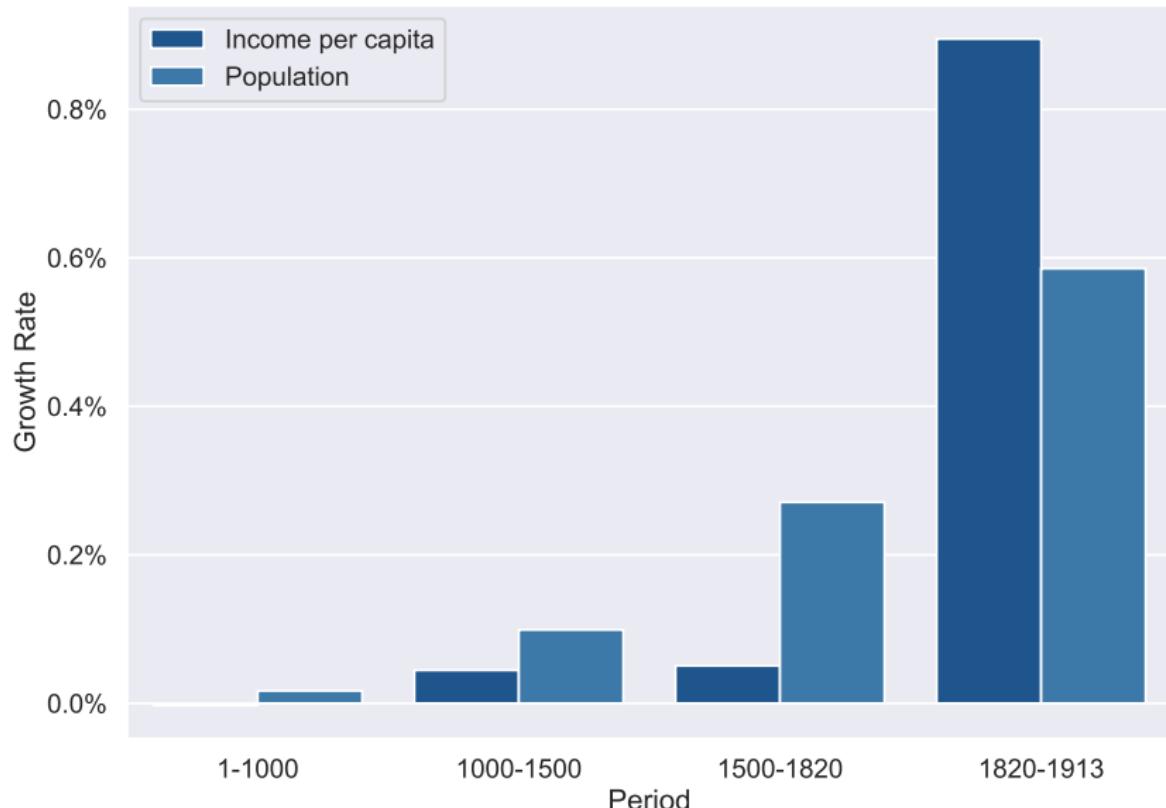
The Post-Malthusian Regime

- Characterized by the onset of economic growth:
 - Technological progress accelerates
 - Income per capita still has a positive effect on population growth
 - Technological progress:
 - Increases output more than population
 - \Rightarrow growth in income per capita

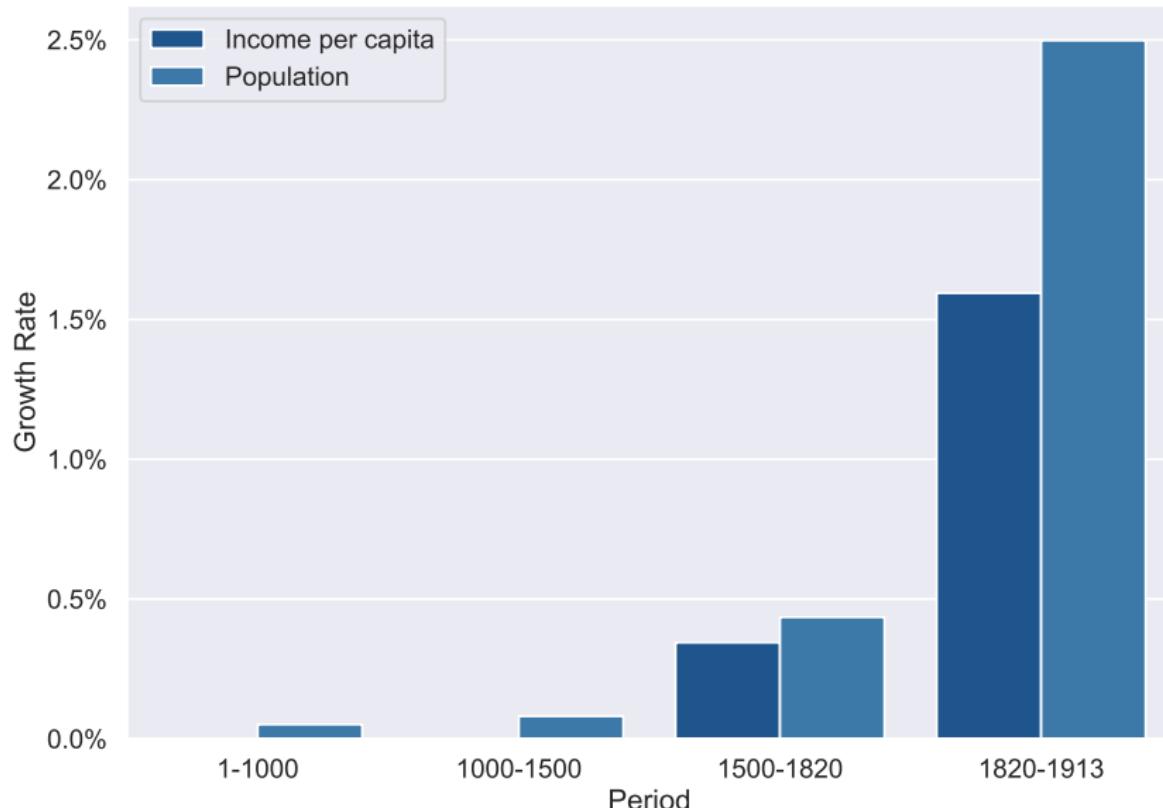
Regional Variation in the Timing of the Take-off



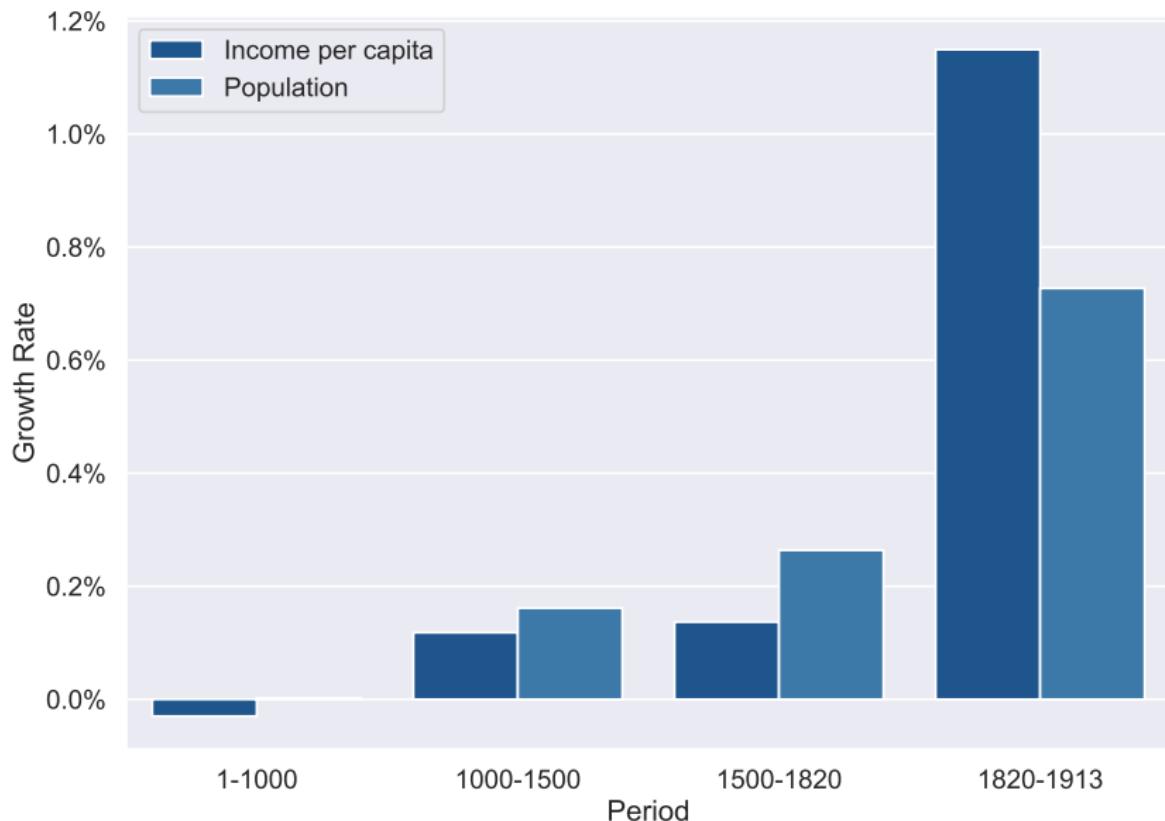
Take-off: Growth of Population & Income per Capita – World



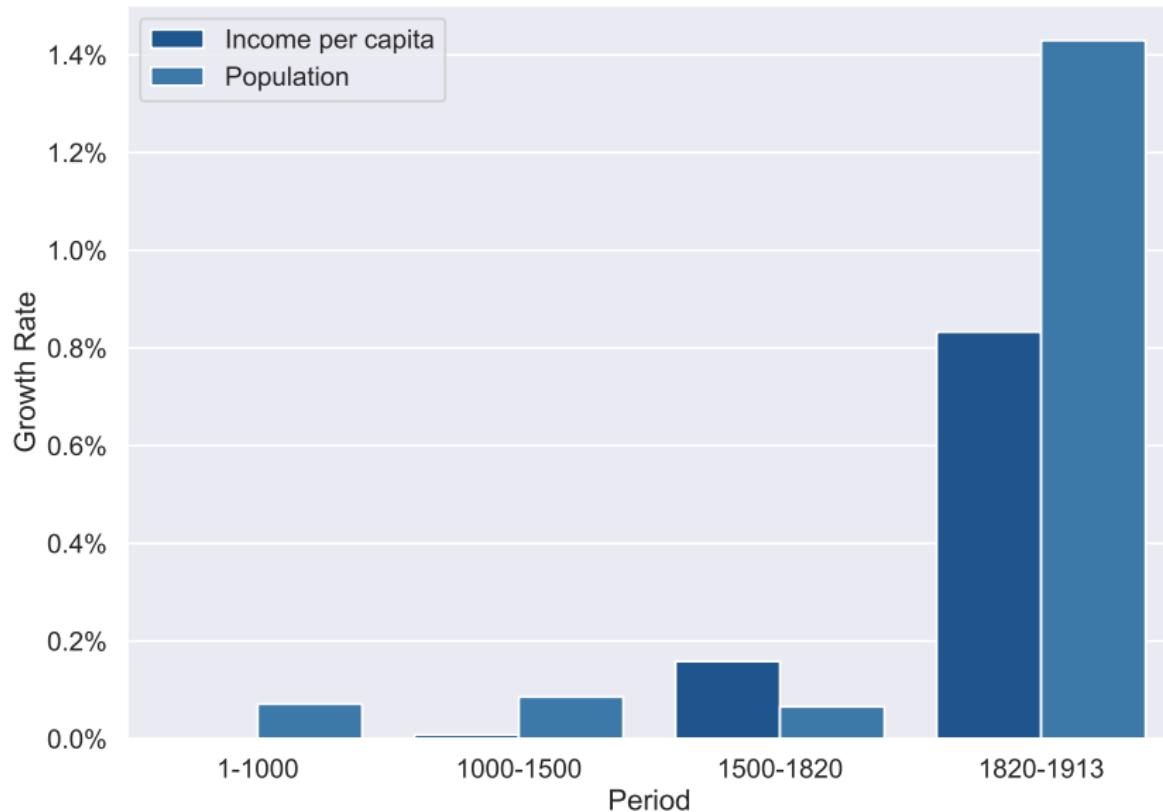
Take-off: Growth of Population & Income per Capita – Western Offshoots



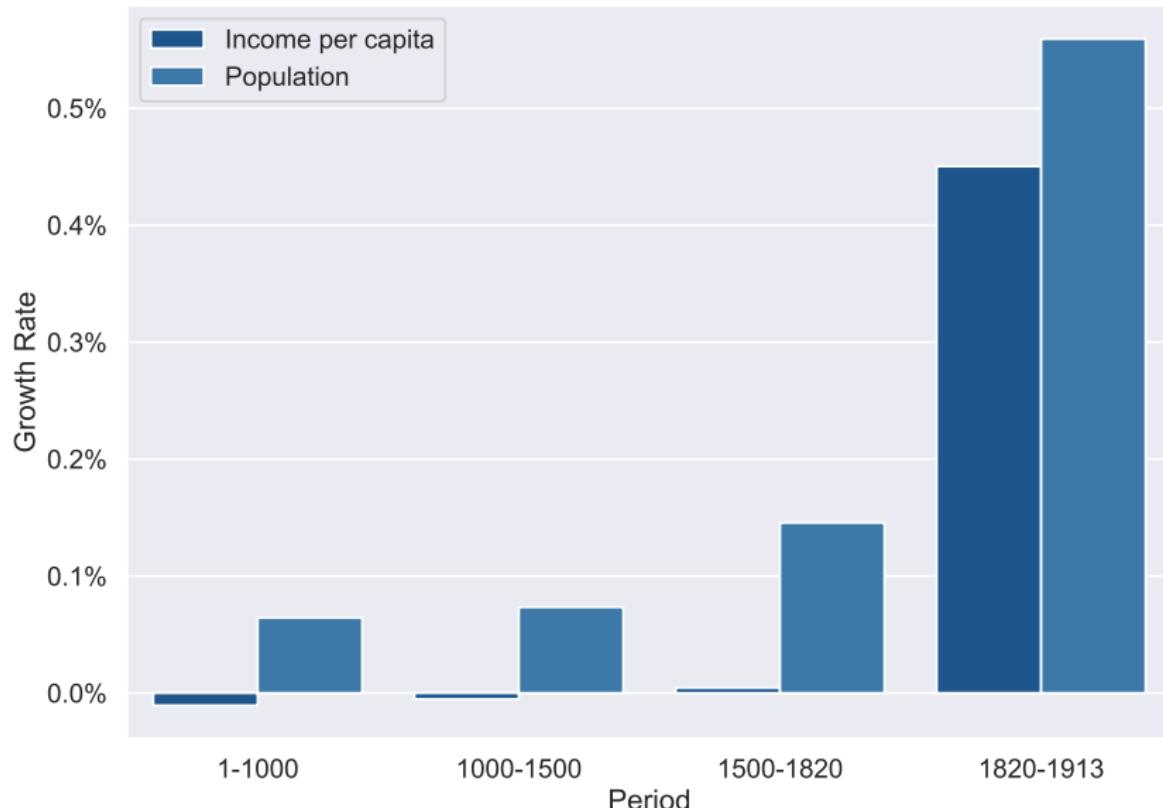
Take-off: Growth of Population & Income per Capita – Western Europe



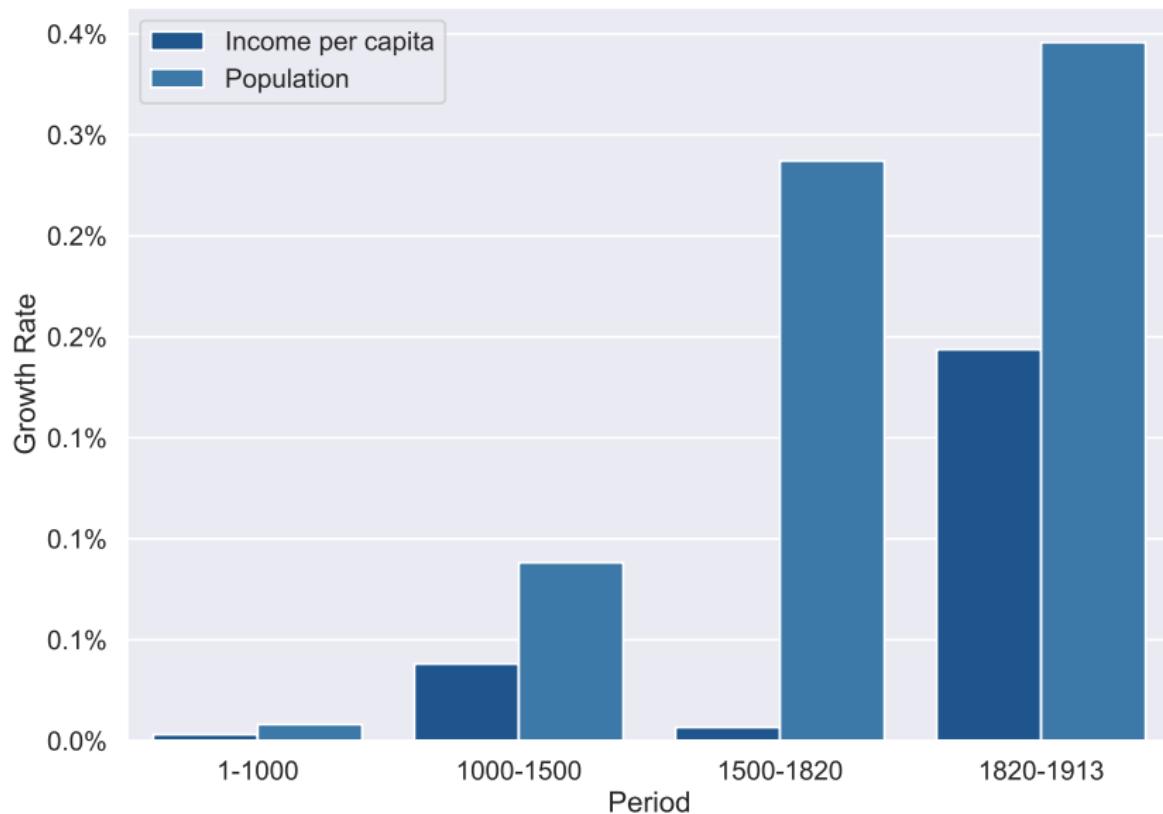
Take-off: Growth of Population & Income per Capita – Latin America



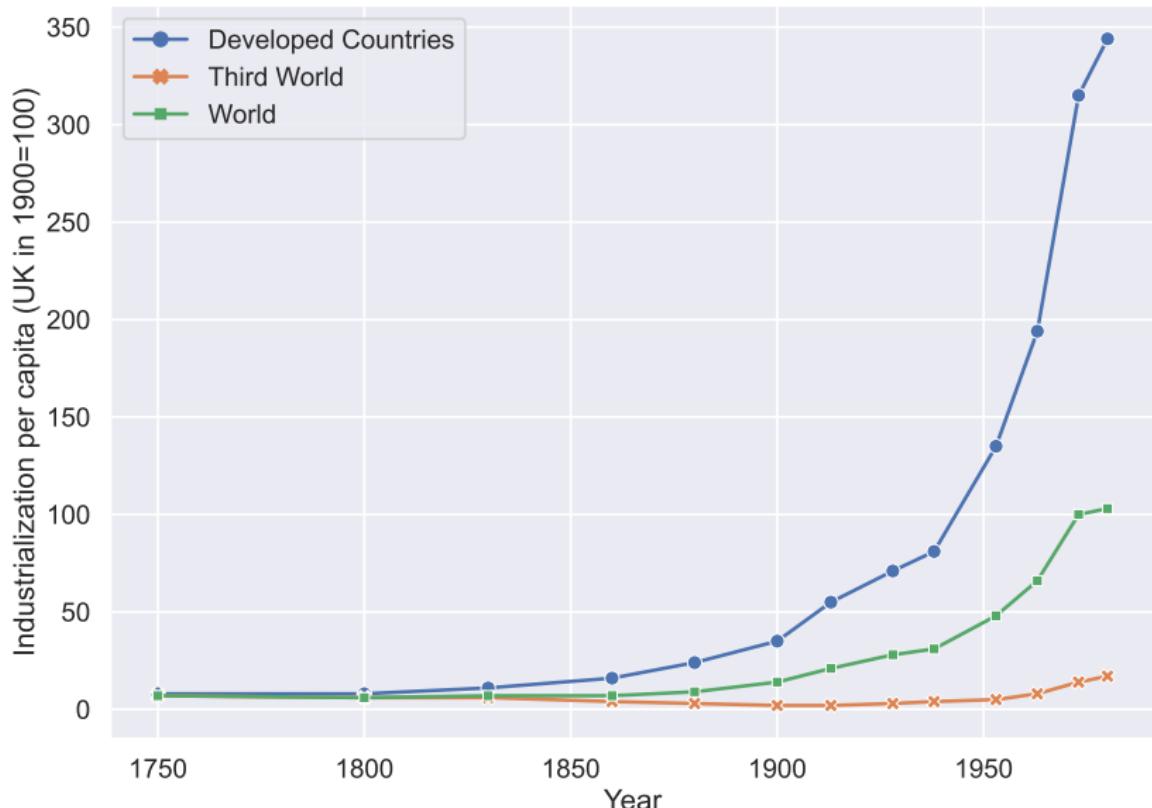
Take-off: Growth of Population & Income per Capita – Africa



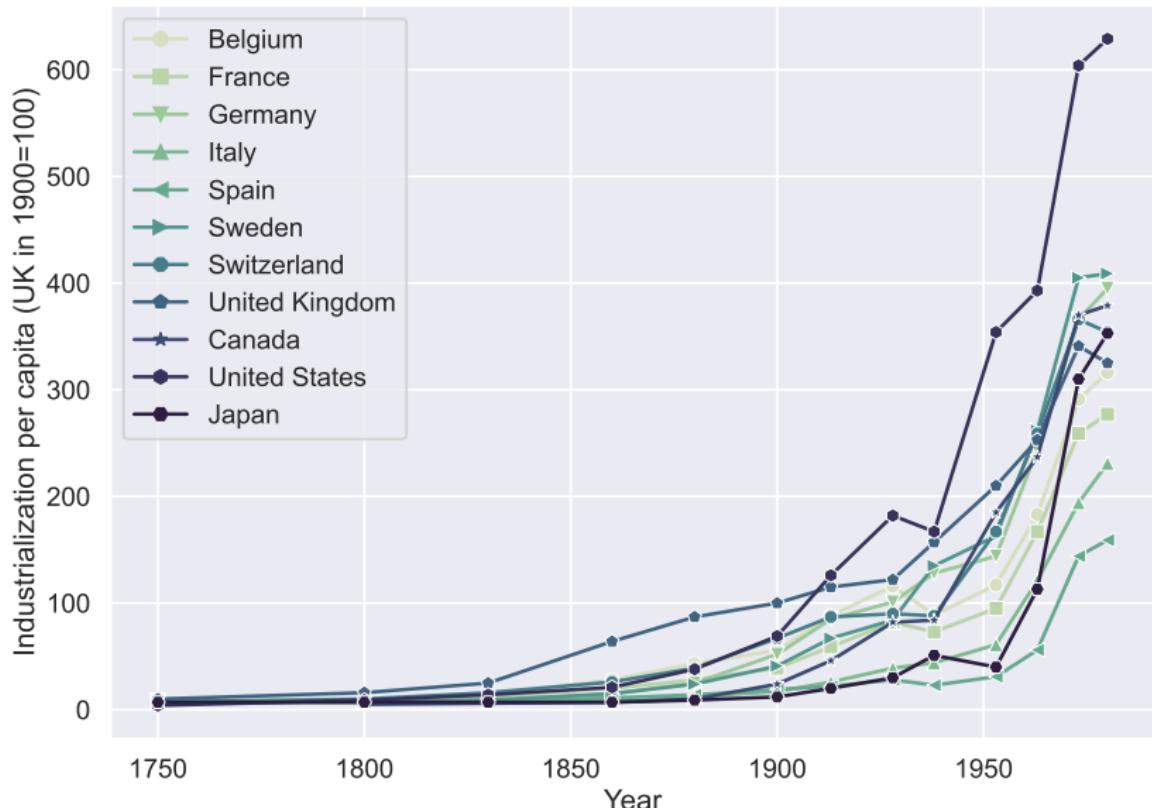
Take-off: Growth of Population & Income per Capita – Asia



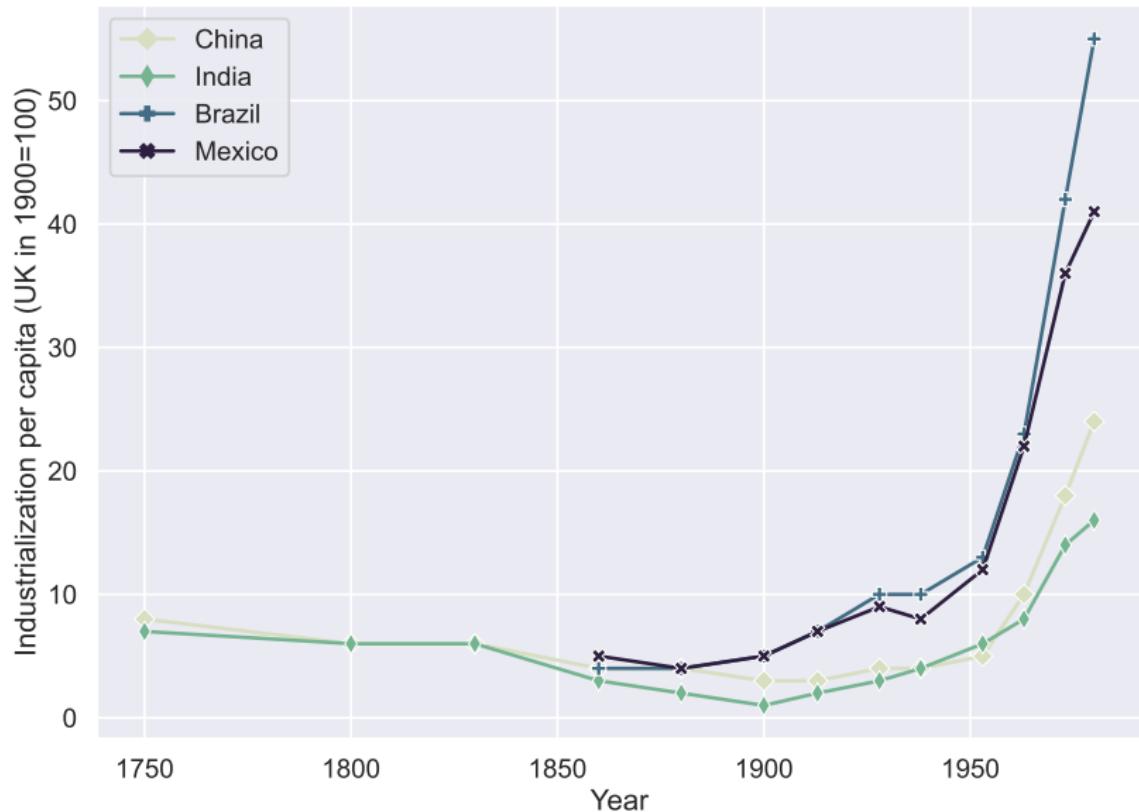
Take-off & Increased Industrialization per Capita



Take-off & Increased Industrialization per Capita – Developed Countries



Take-off in Developed Economies & Decline in Industrialization in LDCs



The Modern Growth Regime

- Sustained economic growth

- Acceleration in technological progress

→ Technological progress → Capital accumulation → Output growth

- Human capital formation

→ Technological progress → Capital accumulation → Output growth
→ Education → Health → Productivity

- The decline in population growth

→ Technological progress → Capital accumulation → Output growth
→ Decline in population growth → Capital accumulation

- Technological progress, human capital formation & decline in population growth

→ Technological progress → Capital accumulation → Output growth

The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Industrial demand for human capital
 - The decline in population growth
 - ⇒ Industrial demand for human capital
 - Technological progress, human capital formation & decline in population growth
 - ⇒ Industrial demand for human capital

The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Industrial demand for human capital
 - The decline in population growth
 - ⇒ Industrial demand for human capital
 - Technological progress, human capital formation & decline in population growth
 - ⇒ Industrial demand for human capital

The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Decline in fertility rates (substitution of quantity by quality)
 - The decline in population growth
- Technological progress, human capital formation & decline in population growth

The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Decline in fertility rates (substitution of quantity by quality)
 - The decline in population growth
- Technological progress, human capital formation & decline in population growth

The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Decline in fertility rates (substitution of quantity by quality)
 - The decline in population growth
 - ⇒ Freed the growth process from counterbalancing effects of population growth
 - Technological progress, human capital formation & decline in population growth

The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Decline in fertility rates (substitution of quantity by quality)
 - The decline in population growth
 - ⇒ Freed the growth process from counterbalancing effects of population growth
 - Technological progress, human capital formation & decline in population growth

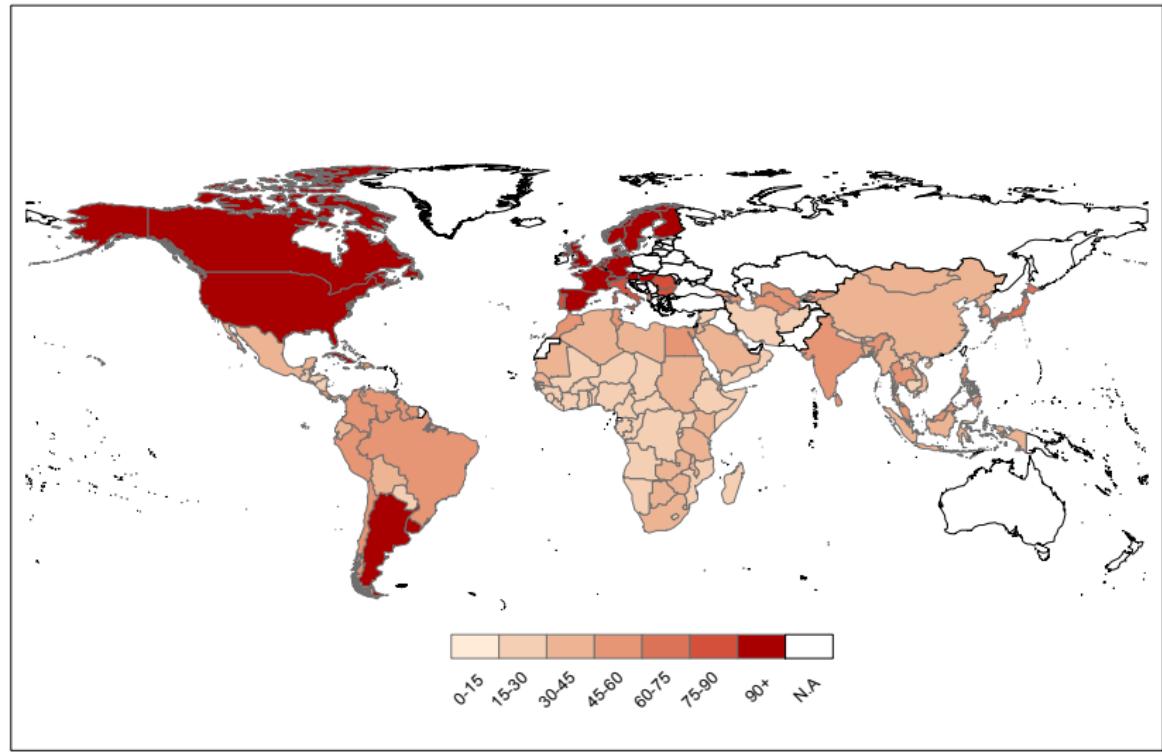
The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Decline in fertility rates (substitution of quantity by quality)
 - The decline in population growth
 - ⇒ Freed the growth process from counterbalancing effects of population growth
 - Technological progress, human capital formation & decline in population growth
 - Sustained economic growth

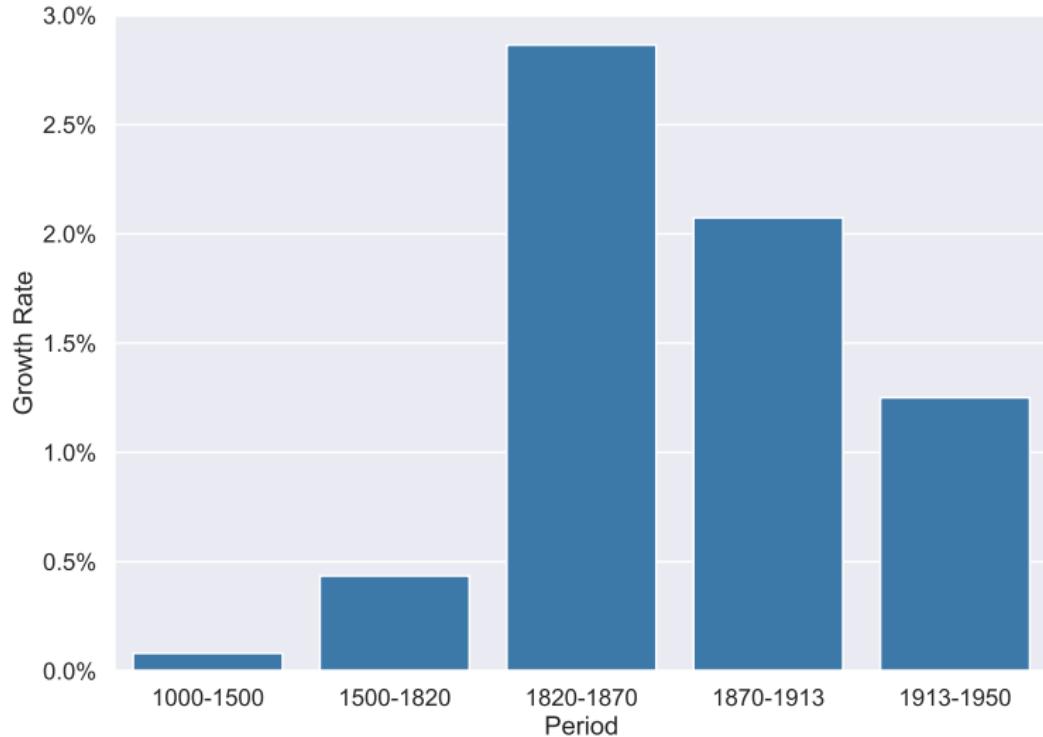
The Modern Growth Regime

- Sustained economic growth
 - Acceleration in technological progress
 - ⇒ Industrial demand for human capital
 - Human capital formation
 - ⇒ Decline in fertility rates (substitution of quantity by quality)
 - The decline in population growth
 - ⇒ Freed the growth process from counterbalancing effects of population growth
 - Technological progress, human capital formation & decline in population growth
 - ⇒ Sustained economic growth

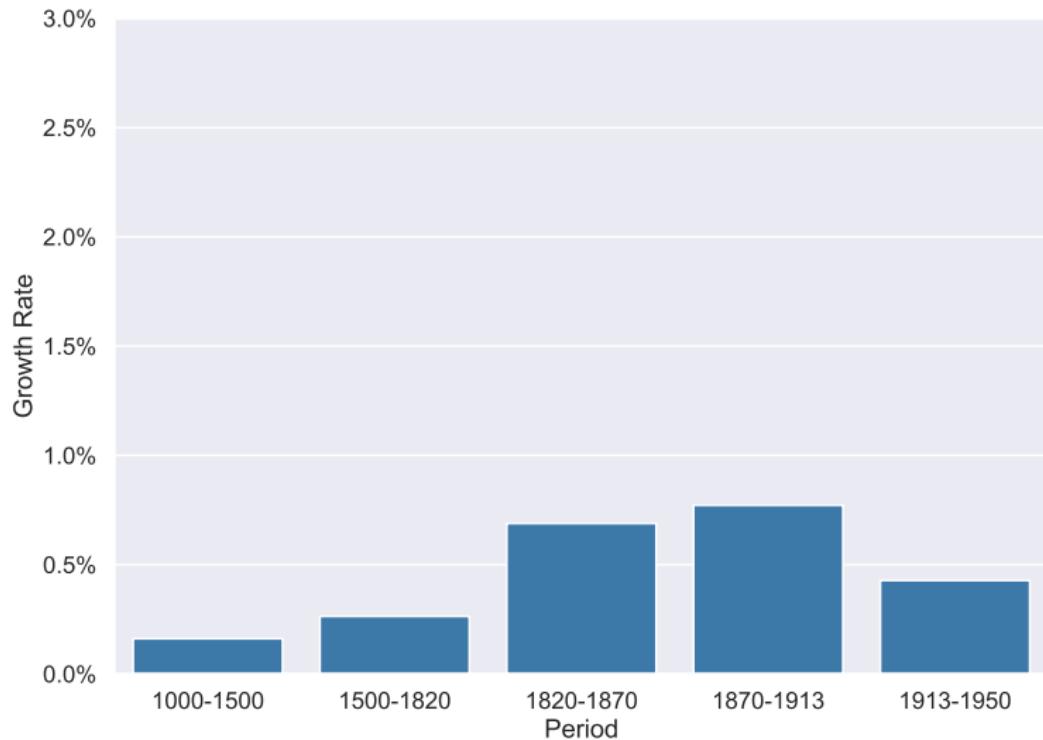
Variation in Years Elapsed since the Onset of the Fertility Decline



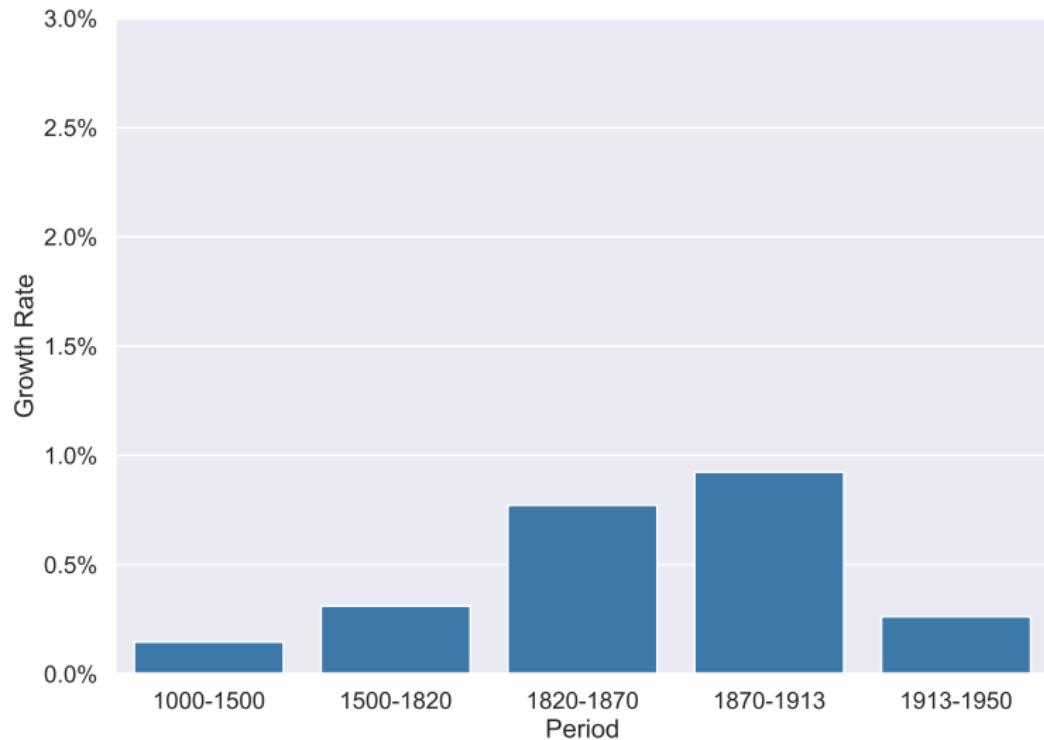
Early Fertility Decline – Western Offshoots



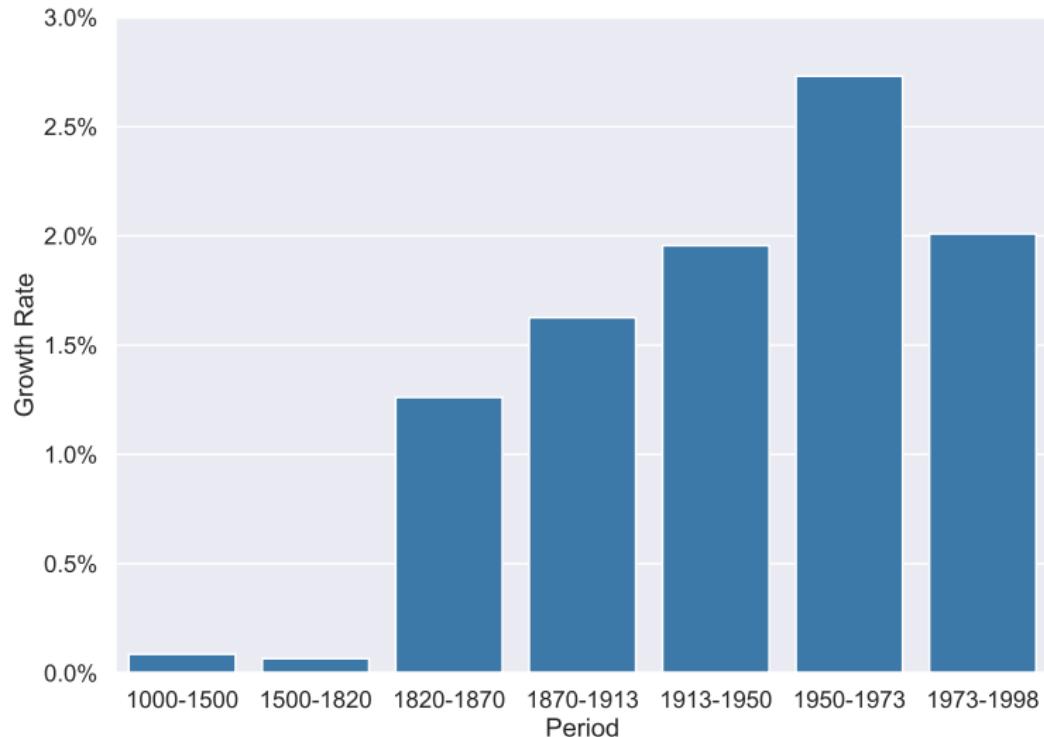
Early Fertility Decline – Western Europe



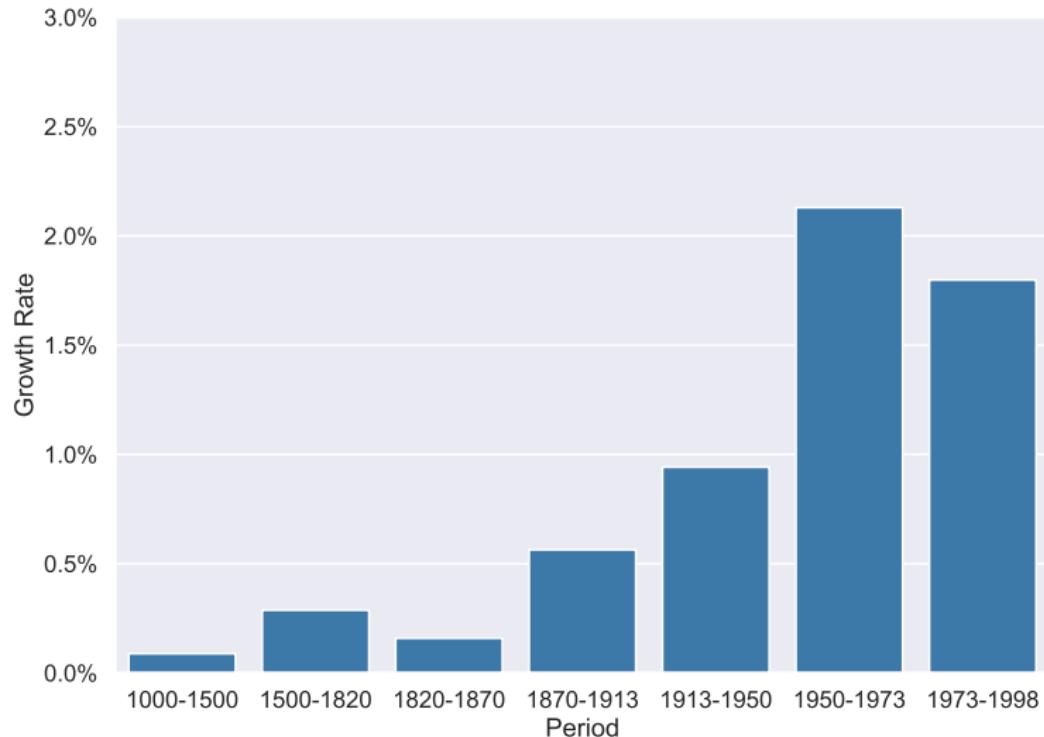
Early Fertility Decline – Eastern Europe



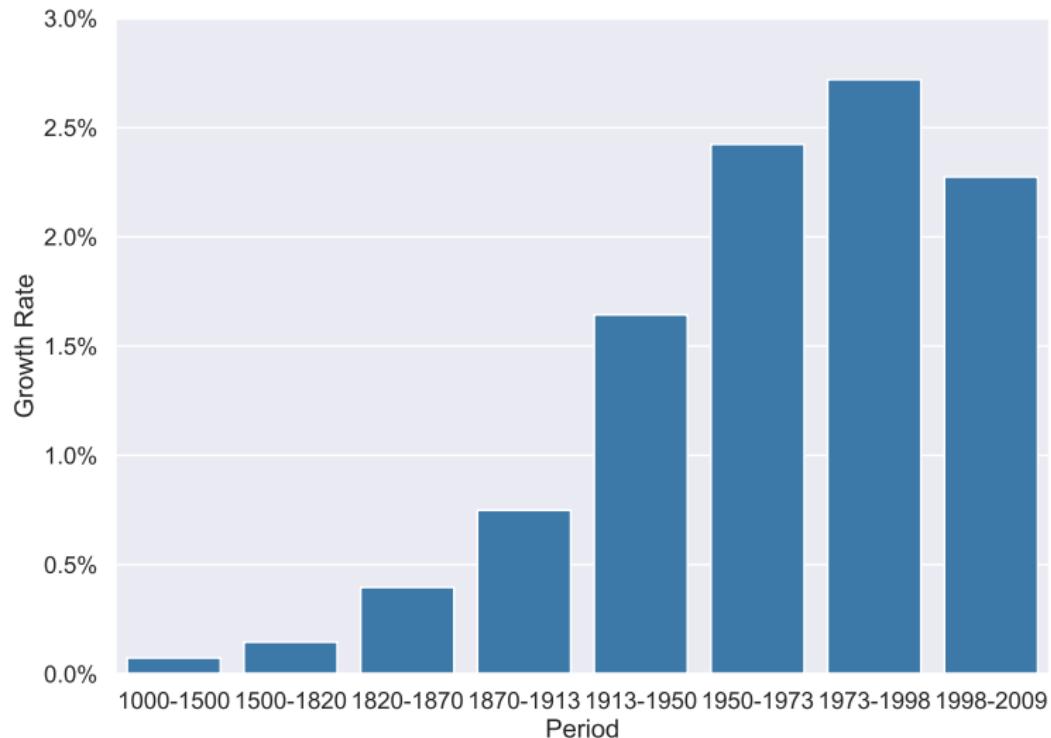
Late Fertility Decline – Latin America



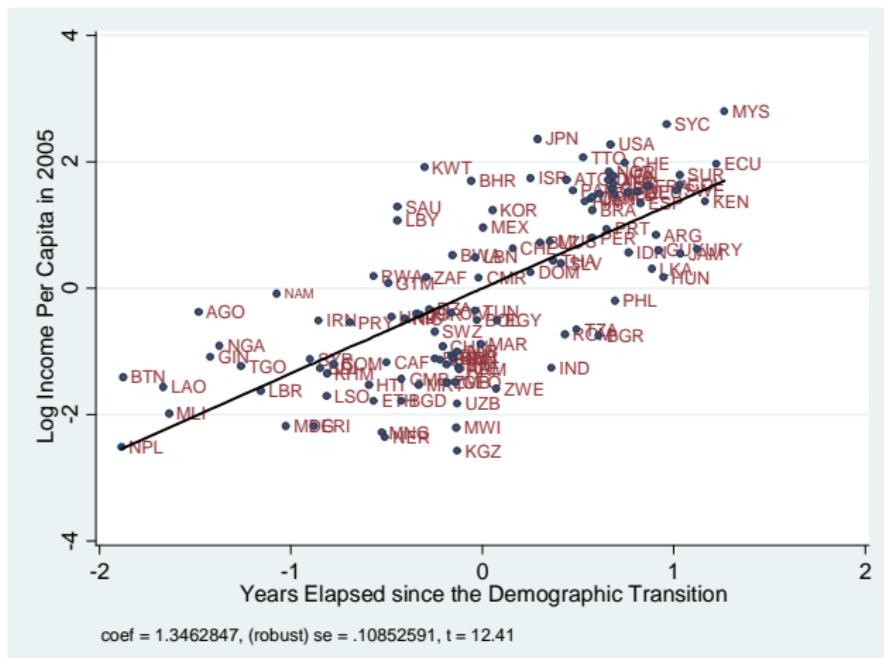
Late Fertility Decline – Asia



Late Fertility Decline – Africa

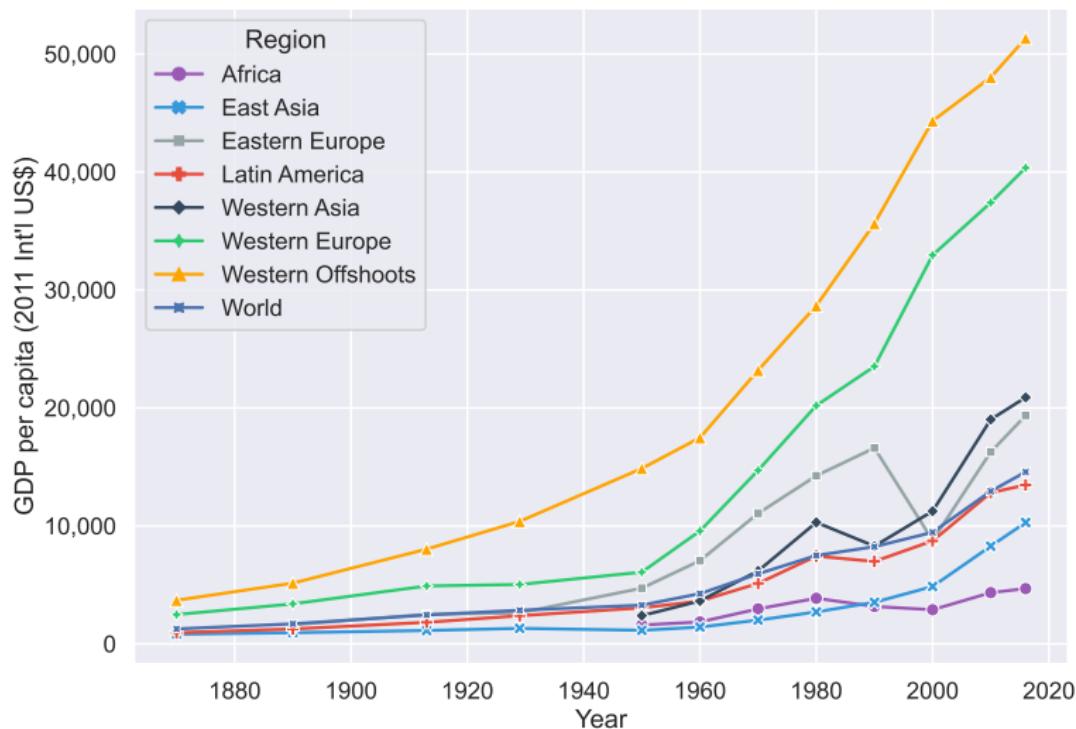


Timing of the Demographic Transition and Current Income per Capita

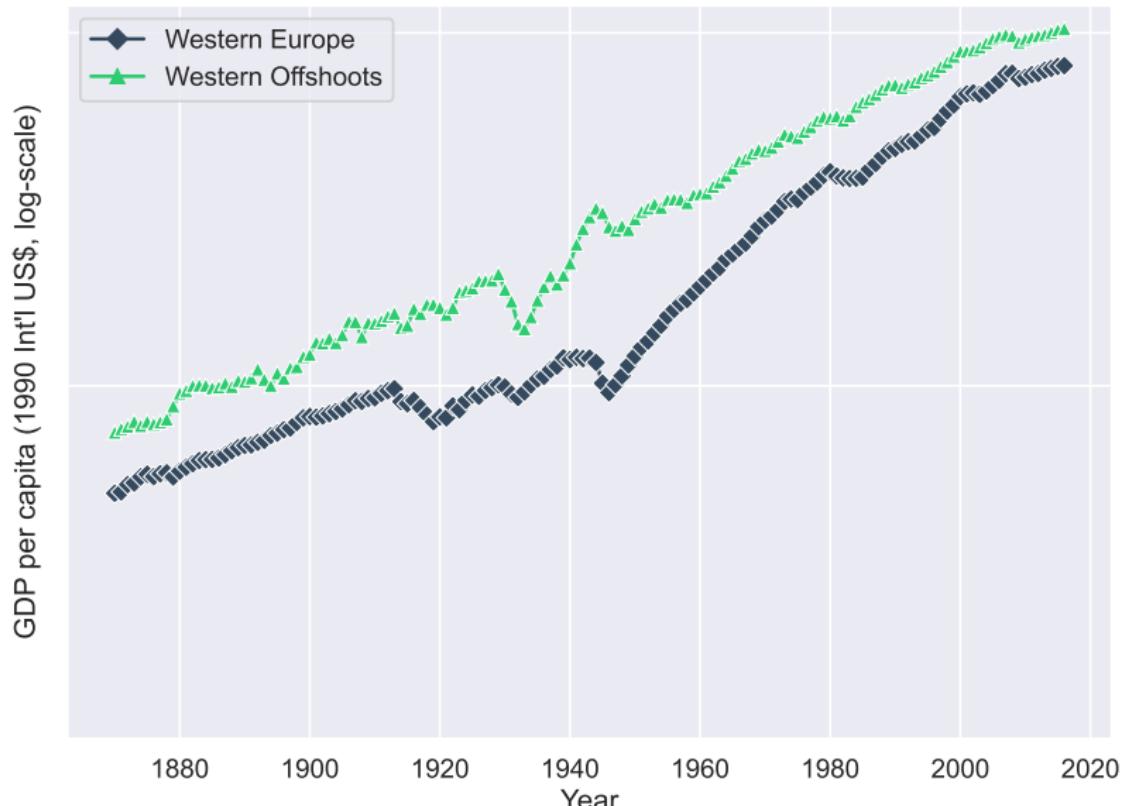


Conditional on absolute latitude.

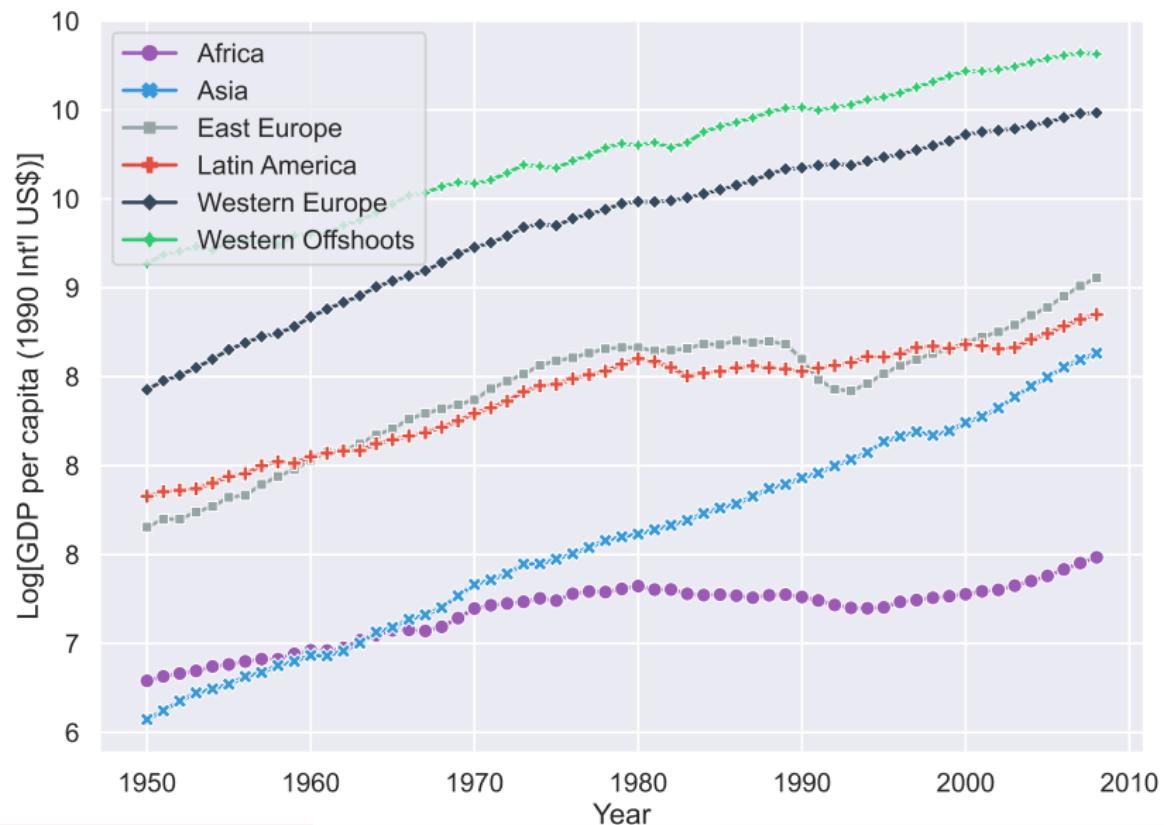
Timing of the Demographic Transition and Divergence across Regions



Sustained Economic Growth: 1870–2000



Regional Variation in Growth of Income per Capita: 1950–2000



Fundamental Research Questions: The Malthusian Epoch

- What accounts for the epoch of stagnation that characterized most of human history?
 - Why did episodes of technological progress in the pre-industrialization era fail to generate sustained economic growth?
 - Why did increased productivity generated population growth rather than growth in income per capita?

Fundamental Research Questions: The Malthusian Epoch

- What accounts for the epoch of stagnation that characterized most of human history?
 - Why did episodes of technological progress in the pre-industrialization era fail to generate sustained economic growth?
 - Why did increased productivity generated population growth rather than growth in income per capita?

Fundamental Research Questions: The Malthusian Epoch

- What accounts for the epoch of stagnation that characterized most of human history?
 - Why did episodes of technological progress in the pre-industrialization era fail to generate sustained economic growth?
 - Why did increased productivity generated population growth rather than growth in income per capita?

Fundamental Research Questions: Transition from Stagnation to Growth

- What are the factors that generated the transition from stagnation to growth of DCs?
- What are the hurdles faced by LDCs in the transition from stagnation to growth?
- What triggered the demographic transition?
- Is the demographic transition a necessary condition for sustained economic growth?

Fundamental Research Questions: Transition from Stagnation to Growth

- What are the factors that generated the transition from stagnation to growth of DCs?
- What are the hurdles faced by LDCs in the transition from stagnation to growth?
- What triggered the demographic transition?
- Is the demographic transition a necessary condition for sustained economic growth?

Fundamental Research Questions: Transition from Stagnation to Growth

- What are the factors that generated the transition from stagnation to growth of DCs?
- What are the hurdles faced by LDCs in the transition from stagnation to growth?
- What triggered the demographic transition?
- Is the demographic transition a necessary condition for sustained economic growth?

Fundamental Research Questions: Transition from Stagnation to Growth

- What are the factors that generated the transition from stagnation to growth of DCs?
- What are the hurdles faced by LDCs in the transition from stagnation to growth?
- What triggered the demographic transition?
- Is the demographic transition a necessary condition for sustained economic growth?

Fundamental Research Questions: Comparative Development

- What accounts for the transition from stagnation to growth in some countries and the persistent stagnation in others?
- What governs the differential timing of the demographic transition across nations?
- What is the origin of the vast inequality that emerged across countries in the past two centuries?
- Has the earlier transition of advanced economies adversely affected the process of development in LDCs?
- What is the contribution of deep rooted factors to the vast inequality across countries?

Fundamental Research Questions: Comparative Development

- What accounts for the transition from stagnation to growth in some countries and the persistent stagnation in others?
- What governs the differential timing of the demographic transition across nations?
- What is the origin of the vast inequality that emerged across countries in the past two centuries?
- Has the earlier transition of advanced economies adversely affected the process of development in LDCs?
- What is the contribution of deep rooted factors to the vast inequality across countries?

Fundamental Research Questions: Comparative Development

- What accounts for the transition from stagnation to growth in some countries and the persistent stagnation in others?
- What governs the differential timing of the demographic transition across nations?
- What is the origin of the vast inequality that emerged across countries in the past two centuries?
- Has the earlier transition of advanced economies adversely affected the process of development in LDCs?
- What is the contribution of deep rooted factors to the vast inequality across countries?

Fundamental Research Questions: Comparative Development

- What accounts for the transition from stagnation to growth in some countries and the persistent stagnation in others?
- What governs the differential timing of the demographic transition across nations?
- What is the origin of the vast inequality that emerged across countries in the past two centuries?
- Has the earlier transition of advanced economies adversely affected the process of development in LDCs?
- What is the contribution of deep rooted factors to the vast inequality across countries?

Fundamental Research Questions: Comparative Development

- What accounts for the transition from stagnation to growth in some countries and the persistent stagnation in others?
- What governs the differential timing of the demographic transition across nations?
- What is the origin of the vast inequality that emerged across countries in the past two centuries?
- Has the earlier transition of advanced economies adversely affected the process of development in LDCs?
- What is the contribution of deep rooted factors to the vast inequality across countries?

Proximate Causes of Growth

- Factor Accumulation:

- Physical capital accumulation (Solow, QJE 1956)
- Human capital accumulation (Lucas, JME 1988)

- Technological Progress:

Technological progress is often attributed to the accumulation of knowledge and ideas, which can be transmitted through education, research, and innovation.

Proximate Causes of Growth

- Factor Accumulation:
 - Physical capital accumulation (Solow, QJE 1956)
 - Human capital accumulation (Lucas, JME 1988)
- Technological Progress:

Proximate Causes of Growth

- Factor Accumulation:
 - Physical capital accumulation (Solow, QJE 1956)
 - Human capital accumulation (Lucas, JME 1988)
- Technological Progress:

Proximate Causes of Growth

- Factor Accumulation:
 - Physical capital accumulation (Solow, QJE 1956)
 - Human capital accumulation (Lucas, JME 1988)
- Technological Progress:
 - Endogenous Growth (Romer, JPE 1990; Grossman-Helpman, 1991; Aghion-Howitt, ECT 1992)

Proximate Causes of Growth

- Factor Accumulation:
 - Physical capital accumulation (Solow, QJE 1956)
 - Human capital accumulation (Lucas, JME 1988)
- Technological Progress:
 - Endogenous Growth (Romer, JPE 1990; Grossman-Helpman, 1991; Aghion-Howitt, ECT 1992)

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - GT: technological progress increases steady-state income per capita
 - GT: does not capture the demographic transition (DT)
 - GT: does not capture the take-off from stagnation to growth
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Evidence: convergence
 - GT: does not capture the demographic transition (DT)
 - Evidence: population growth rate declines over time
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: industrialization and urbanization
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Evidence: convergence
- GT: does not capture the demographic transition (DT)
 - Evidence: population growth rate declines over time
- GT: does not capture the take-off from stagnation to growth
 - Evidence: industrialization and urbanization
- GT: convergence
 - Evidence: steady-state income per capita converges over time

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - GT: does not capture the take-off from stagnation to growth
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - GT: does not capture the take-off from stagnation to growth
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - Evidence: DT is central for the take-off to modern growth
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: stagnation in the long run
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - Evidence: DT is central for the take-off to modern growth
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: stagnation period is too long
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - Evidence: DT is central for the take-off to modern growth
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: key for the understanding of comparative development
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - Evidence: DT is central for the take-off to modern growth
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: key for the understanding of comparative development
 - GT: convergence

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - Evidence: DT is central for the take-off to modern growth
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: key for the understanding of comparative development
 - GT: convergence
 - Evidence: divergence in the past two centuries

Neoclassical Growth Theory (GT)

- Inconsistent with the development process over most of human history:
 - GT: growth rates decline in the transition to sustained growth
 - Evidence: non-decreasing growth rates in the development of DCs
 - GT: technological progress increases steady-state income per capita
 - Malthusian Epoch - tech progress had no effect on LR income
 - GT: does not capture the demographic transition (DT)
 - Evidence: DT is central for the take-off to modern growth
 - GT: does not capture the take-off from stagnation to growth
 - Evidence: key for the understanding of comparative development
 - GT: convergence
 - Evidence: divergence in the past two centuries

Non-Unified Growth Theory

- Captures the role of factor accumulation and technological progress in the modern growth regime
- Not designed to shed light on:
 - The sources of long-run growth in income per capita across countries
 - The sources of long-run growth in income per capita over time
 - The sources of cross-country differences in living standards
 - The sources of cross-country differences in economic development

Non-Unified Growth Theory

- Captures the role of factor accumulation and technological progress in the modern growth regime
- Not designed to shed light on:
 - The historical origins of vast and persistent inequality across countries
 - The forces that triggered the transition of DCs from stagnation to growth
 - The hurdles faced by LDCs in their take-off from stagnation to growth
 - The factors that hindered convergence across countries

Non-Unified Growth Theory

- Captures the role of factor accumulation and technological progress in the modern growth regime
- Not designed to shed light on:
 - The historical origins of vast and persistent inequality across countries
 - The forces that triggered the transition of DCs from stagnation to growth
 - The hurdles faced by LDCs in their take-off from stagnation to growth
 - The factors that hindered convergence across countries

Non-Unified Growth Theory

- Captures the role of factor accumulation and technological progress in the modern growth regime
- Not designed to shed light on:
 - The historical origins of vast and persistent inequality across countries
 - The forces that triggered the transition of DCs from stagnation to growth
 - The hurdles faced by LDCs in their take-off from stagnation to growth
 - The factors that hindered convergence across countries

Non-Unified Growth Theory

- Captures the role of factor accumulation and technological progress in the modern growth regime
- Not designed to shed light on:
 - The historical origins of vast and persistent inequality across countries
 - The forces that triggered the transition of DCs from stagnation to growth
 - The hurdles faced by LDCs in their take-off from stagnation to growth
 - The factors that hindered convergence across countries

Non-Unified Growth Theory

- Captures the role of factor accumulation and technological progress in the modern growth regime
- Not designed to shed light on:
 - The historical origins of vast and persistent inequality across countries
 - The forces that triggered the transition of DCs from stagnation to growth
 - The hurdles faced by LDCs in their take-off from stagnation to growth
 - The factors that hindered convergence across countries

Unified Growth Theory



Unified Growth Theory

- Captures the:

- Process of development in its entirety
- Forces that permitted the transition from stagnation to growth
- Hurdles faced by LDCs in their transitions from stagnation to growth
- The origins of the uneven distribution of wealth across the globe
- Persistent effect of initial biogeographical factors on the growth process

Unified Growth Theory

- Captures the:
 - Process of development in its entirety
 - Forces that permitted the transition from stagnation to growth
 - Hurdles faced by LDCs in their transitions from stagnation to growth
 - The origins of the uneven distribution of wealth across the globe
 - Persistent effect of initial biogeographical factors on the growth process

Unified Growth Theory

- Captures the:
 - Process of development in its entirety
 - Forces that permitted the transition from stagnation to growth
 - Hurdles faced by LDCs in their transitions from stagnation to growth
 - The origins of the uneven distribution of wealth across the globe
 - Persistent effect of initial biogeographical factors on the growth process

Unified Growth Theory

- Captures the:
 - Process of development in its entirety
 - Forces that permitted the transition from stagnation to growth
 - Hurdles faced by LDCs in their transitions from stagnation to growth
 - The origins of the uneven distribution of wealth across the globe
 - Persistent effect of initial biogeographical factors on the growth process

Unified Growth Theory

- Captures the:
 - Process of development in its entirety
 - Forces that permitted the transition from stagnation to growth
 - Hurdles faced by LDCs in their transitions from stagnation to growth
 - The origins of the uneven distribution of wealth across the globe
 - Persistent effect of initial biogeographical factors on the growth process

Unified Growth Theory

- Captures the:
 - Process of development in its entirety
 - Forces that permitted the transition from stagnation to growth
 - Hurdles faced by LDCs in their transitions from stagnation to growth
 - The origins of the uneven distribution of wealth across the globe
 - Persistent effect of initial biogeographical factors on the growth process

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- failed to generate convergence
- Why do some societies fail to:
 - Implement policies that promote economic development
 - Create institutions that support growth

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- failed to generate convergence
- Why do some societies fail to:
 - Implementing policies that are consistent with growth theory
 - Overcoming initial conditions

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- failed to generate convergence
- Why do some societies fail to:

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- failed to generate convergence
- Why do some societies fail to:

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- \Rightarrow failed to generate convergence
- Why do some societies fail to:

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- ➡ failed to generate convergence
- Why do some societies fail to:
 - Efficiently invest in physical and human capital?
 - Adopt advanced technologies?

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- ➡ failed to generate convergence
- Why do some societies fail to:
 - Efficiently invest in physical and human capital?
 - Adopt advanced technologies?

Major Challenge

- Policy based on insights from growth theory encourage
 - Investment in education and health
 - Openness to international capital markets
 - Technological diffusion
- ➡ failed to generate convergence
- Why do some societies fail to:
 - Efficiently invest in physical and human capital?
 - Adopt advanced technologies?

Barriers to Accumulation and Innovation

● Inequality

- Suboptimal accumulation of human and physical capital

→ Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

● Inefficient Institutions (limited protection of property rights & rule of law)

- Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

● Ethnic fractionalization

- Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

● Limited Social capital (limited trust & cooperation)

- Capital accumulation is lower than optimal due to unequal access to resources

→ Capital accumulation is lower than optimal due to unequal access to resources

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Limited access to credit and markets (Engerman-Sokoloff, 1997)
 - Incomplete contracts (Acemoglu-Dixit, 2000)
 - Ethnic fractionalization
 - Limited access to credit and markets (Acemoglu-Dixit, 2000)
 - Limited Social capital (limited trust & cooperation)
 - Limited access to credit and markets (Acemoglu-Dixit, 2000)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Limited protection of property rights (Acemoglu-Darling, 2000)
 - Rule of law (Acemoglu-Darling, 2000)
 - Ethnic fractionalization
 - Limited protection of property rights (Acemoglu-Darling, 2000)
 - Rule of law (Acemoglu-Darling, 2000)
 - Limited Social capital (limited trust & cooperation)
 - Limited trust (Acemoglu-Darling, 2000)
 - Cooperation (Acemoglu-Darling, 2000)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
- Ethnic fractionalization
- Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
- Ethnic fractionalization
- Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
- Inefficient Institutions (limited protection of property rights & rule of law)
 - Incomplete contracts (Fudenberg-Tadelis, 1992)
 - Excessive regulation (Barro-Nelson, 1994)
 - Poor institutions (Acemoglu-Angrist-Pischke, 2001)
- Ethnic fractionalization
 - Ethnic conflict (Acemoglu-Angrist-Pischke, 2001)
 - Ethnic discrimination (Acemoglu-Angrist-Pischke, 2001)
- Limited Social capital (limited trust & cooperation)
 - Social norms (Acemoglu-Angrist-Pischke, 2001)
 - Religious fractionalization (Acemoglu-Angrist-Pischke, 2001)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Sociopolitical instability & Inefficient provision of public goods
 - Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Sociopolitical instability & Inefficient provision of public goods
 - Suboptimal investment (Easterly-Levine, QJE 1997; Alesina et al., JEG 2003)
 - Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Sociopolitical instability & Inefficient provision of public goods
 - Suboptimal investment (Easterly-Levine, QJE 1997; Alesina et al., JEG 2003)
 - Limited Social capital (limited trust & cooperation)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Sociopolitical instability & Inefficient provision of public goods
 - Suboptimal investment (Easterly-Levine, QJE 1997; Alesina et al., JEG 2003)
 - Limited Social capital (limited trust & cooperation)
 - Suboptimal investment (Putnam, 1993; Guiso et al., JEP 2006; Tabellini, JEEA 2010)

Barriers to Accumulation and Innovation

- Inequality
 - Suboptimal accumulation of human and physical capital
 - Credit market imperfections (Galor-Zeira, RES 1993)
 - Sociopolitical instability (Alesina et al., JEG 1996)
 - Inferior institutions (Engerman-Sokoloff, 1997)
 - Inefficient provision of education (Galor-Moav-Vollrath, RES 2009)
 - Inefficient Institutions (limited protection of property rights & rule of law)
 - Reduced incentive to accumulate/innovate (North, 1981; Acemoglu-Robinson, 2012)
 - Ethnic fractionalization
 - Sociopolitical instability & Inefficient provision of public goods
 - Suboptimal investment (Easterly-Levine, QJE 1997; Alesina et al., JEG 2003)
 - Limited Social capital (limited trust & cooperation)
 - Suboptimal investment (Putnam, 1993; Guiso et al., JEP 2006; Tabellini, JEEA 2010)

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Slave trade and colonialism increased the number of slaves and their descendants in the Americas, leading to a higher share of black population in the US and Brazil.
- Persistent effect of the legal system of colonial powers
 - Slave codes and other laws established during colonial times have had a lasting impact on the legal systems of many countries.
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Slave trade and colonialism increased the number of slaves and their descendants in the Americas
- Persistent effect of the legal system of colonial powers
 - Slave codes and other laws imposed by colonial powers
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Slave trade and its effects on the human capital and diversity of the population
- Persistent effect of the legal system of colonial powers
 - Slave codes and their effects on the legal system and economic development
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Slave trade & colonialism increased the number of slaves in Africa and reduced the number of slaves in Europe and America.
- Persistent effect of the legal system of colonial powers
 - Slave codes in the Americas were adopted from English common law.
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
- Persistent effect of the legal system of colonial powers
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Larger effect of colonizers in sparsely populated areas (Glaeser et al., JEG 2004; Easterly-Levine, 2012; Ashraf-Galor, 2014)
- Persistent effect of the legal system of colonial powers
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Larger effect of colonizers in sparsely populated areas (Glaeser et al., JEG 2004; Easterly-Levine, 2012; Ashraf-Galor, 2014)
- Persistent effect of the legal system of colonial powers
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Larger effect of colonizers in sparsely populated areas (Glaeser et al., JEG 2004; Easterly-Levine, 2012; Ashraf-Galor, 2014)
- Persistent effect of the legal system of colonial powers
 - Common law (Britain) is more complementary than civil law (France, Spain & Portugal) to the development of financial systems (La Porta et al., JF 1997)
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Larger effect of colonizers in sparsely populated areas (Glaeser et al., JEG 2004; Easterly-Levine, 2012; Ashraf-Galor, 2014)
- Persistent effect of the legal system of colonial powers
 - Common law (Britain) is more complementary than civil law (France, Spain & Portugal) to the development of financial systems (La Porta et al., JF 1997)
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Larger effect of colonizers in sparsely populated areas (Glaeser et al., JEG 2004; Easterly-Levine, 2012; Ashraf-Galor, 2014)
- Persistent effect of the legal system of colonial powers
 - Common law (Britain) is more complementary than civil law (France, Spain & Portugal) to the development of financial systems (La Porta et al., JF 1997)
- Persistent effect of artificial borders & ethnic division created by

Colonialism and the Persistent Effects of Institutions and Human Capital

- Persistent effect of institutions implemented by colonial powers
 - Reversal of fortune (Engerman-Sokoloff, 1997; Acemoglu et al., AER 2001, QJE 2002)
 - Exclusive institutions imposed in densely populated areas
 - Inclusive institutions implemented in sparsely populated areas
 - Slavery (Nunn, QJE 2008)
- Persistent effect of the human capital and diversity brought by the colonists
 - Larger effect of colonizers in sparsely populated areas (Glaeser et al., JEG 2004; Easterly-Levine, 2012; Ashraf-Galor, 2014)
- Persistent effect of the legal system of colonial powers
 - Common law (Britain) is more complementary than civil law (France, Spain & Portugal) to the development of financial systems (La Porta et al., JF 1997)
- Persistent effect of artificial borders & ethnic division created by

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Protestant work ethic (Fagerberg, 1994; Acemoglu and Angrist, 2001; Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)
 - Religious tolerance (Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)
- Intergenerational transmission of:
 - Religious beliefs (Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)
 - Cultural traits (Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Protestant work ethic (Fagerberg, 1994; Acemoglu and Angrist, 2001; Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)
 - Religious tolerance (Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)
- Intergenerational transmission of:
 - Religious transmission (Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)
 - Cultural transmission (Acemoglu and Angrist, 2005; Acemoglu and Angrist, 2009)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Protestant work ethic (Fagerberg, 1994; Acemoglu-Davidson, 2012)
 - Religious tolerance (Acemoglu-Davidson, 2012)
- Intergenerational transmission of:
 - Religious beliefs (Acemoglu-Davidson, 2012)
 - Cultural traits (Acemoglu-Davidson, 2012)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Protestant work ethic (Fagerberg, 1994; Acemoglu and Angrist, 2011)
 - Religious tolerance (Acemoglu and Angrist, 2011)
 - Religious heterogeneity (Acemoglu and Angrist, 2011)
- Intergenerational transmission of:
 - Religious beliefs (Acemoglu and Angrist, 2011)
 - Religious tolerance (Acemoglu and Angrist, 2011)
 - Religious heterogeneity (Acemoglu and Angrist, 2011)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Religious beliefs and practices (Beck, 2008; Bechtel et al., 2012; Bechtel et al., 2014; Bechtel et al., 2016)
 - Religious institutions (Bechtel et al., 2012; Bechtel et al., 2014; Bechtel et al., 2016)
- Intergenerational transmission of:
 - Religious beliefs and practices (Bechtel et al., 2012; Bechtel et al., 2014; Bechtel et al., 2016)
 - Religious institutions (Bechtel et al., 2012; Bechtel et al., 2014; Bechtel et al., 2016)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:

● Religious beliefs and practices have been shown to influence economic outcomes.

● Religious beliefs and practices have been shown to influence economic outcomes.

● Religious beliefs and practices have been shown to influence economic outcomes.

- Intergenerational transmission of:

● Religious beliefs and practices have been shown to influence economic outcomes.

● Religious beliefs and practices have been shown to influence economic outcomes.

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:
 - Preferences for human capital (Galor-Moav, QJE 2002)
 - Entrepreneurial spirit & thrift (Deopke-Zilibotti, QJE 2008; Galor-Michalopoulos, JET 2012)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:
 - Preferences for human capital (Galor-Moav, QJE 2002)
 - Entrepreneurial spirit & thrift (Deopke-Zilibotti, QJE 2008; Galor-Michalopoulos, JET 2012)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:
 - Preferences for human capital (Galor-Moav, QJE 2002)
 - Entrepreneurial spirit & thrift (Deopke-Zilibotti, QJE 2008; Galor-Michalopoulos, JET 2012)

Origin and Persistence of Cultural Factors

- Geographical origins and persistence of:
 - Trust & Cooperation (Guiso et al., QJE 2009; Algan-Cahuc, AER 2010; Durante, 2010; Litina, 2016)
 - Cultural diversity (Ashraf-Galor, 2012)
 - The European Marriage Pattern (Voigtlander-Voth, AER 2013)
 - Female labor force participation (Alesina et al., QJE 2013)
 - Time preference (Galor and Özak, AER 2016)
- Religious origins of:
 - Preferences for human capital (Becker-Woessmann, QJE 2009; Botticini-Eckstein, 2012)
 - Work ethic & thrift & entrepreneurial spirit (Weber, 1905; Andersen et al., 2013)
- Intergenerational transmission of:
 - Preferences for human capital (Galor-Moav, QJE 2002)
 - Entrepreneurial spirit & thrift (Deopke-Zilibotti, QJE 2008; Galor-Michalopoulos, JET 2012)
 - Time preference (Galor-Moav, QJE 2002)

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution

- Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)

Geographical factors like climate, soil quality, and availability of domesticable plants and animals provided a technological head-start for early agricultural societies.

These factors influenced the development of agriculture, which in turn led to population growth, urbanization, and the rise of complex societies.

Geographical factors also influenced the spread of diseases, which had a significant impact on population health and life expectancy.

- Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)

- Disease environment

Geographical factors like climate and soil quality influenced the spread of diseases, particularly in pre-industrial societies.

Regions with more disease-carrying vectors and less access to medical knowledge and resources tended to have lower life expectancies.

- Geographical isolation

Geographical isolation from other civilizations limited exposure to new technologies, ideas, and trade.

This lack of external influence contributed to slower rates of technological progress and economic development.

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
 - Disease environment
 - Disease environment (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
 - Geographical isolation
 - Geographical isolation (Galor-Moav, 2009; Franck-Galor-Özak, 2019)

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)

- Disease environment

↳ Disease environment → more infectious diseases → higher mortality rates → lower population density → less technological progress → lower income per capita

- Geographical isolation

↳ Geographical isolation → less technological progress → less economic development

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)

Disease environment

Geographical factors have been shown to have a significant impact on disease environments. For example, the presence of malaria in subtropical regions has been linked to lower levels of economic development and slower growth rates.

Geographical isolation

Geographical isolation can limit access to markets and technology, which can hinder economic development. For example, countries located in remote or mountainous areas may face challenges in establishing trade routes and developing infrastructure.

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)

- Disease environment

Geographical factors have been shown to have a significant impact on disease environments, particularly in terms of the prevalence of certain diseases like malaria and cholera.

- Geographical isolation

Geographical isolation has been shown to have a significant impact on economic development, particularly in terms of trade and access to markets.

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
- Disease environment
 - Persistent effect on labor productivity & investment in human capital (Gallup-Sachs, 2001; Andersen-Dalgaard-Selmayr, REStud 2012; Alsan AER 2015)
- Geographical isolation

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
- Disease environment
 - Persistent effect on labor productivity & investment in human capital (Gallup-Sachs, 2001; Andersen-Dalgaard-Selmayr, REStud 2012; Alsan AER 2015)
- Geographical isolation

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
- Disease environment
 - Persistent effect on labor productivity & investment in human capital (Gallup-Sachs, 2001; Andersen-Dalgaard-Selmayr, REStud 2012; Alsan AER 2015)
- Geographical isolation
 - Reduced trade and technological diffusion (Gallup-Mellinger-Sachs, 1999)
 - Persistence of culture conducive for innovations (Ashraf-Galor-Özak, JEEA 2010; Özak, JOEG 2018)

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
- Disease environment
 - Persistent effect on labor productivity & investment in human capital (Gallup-Sachs, 2001; Andersen-Dalgaard-Selmayr, REStud 2012; Alsan AER 2015)
- Geographical isolation
 - Reduced trade and technological diffusion (Gallup-Mellinger-Sachs, 1999)
 - Persistence of culture conducive for innovations (Ashraf-Galor-Özak, JEEA 2010; Özak, JOEG 2018)

Persistent Effects of Geographical Factors

- Biogeographical conditions that triggered the Neolithic Revolution
 - Technological head-start: (Diamond, 1997; Olsson-Hibbs, EER, 2005)
 - Persistent effect on population density (1-1500) (Ashraf-Galor, AER 2011)
 - No effect on contemporary income per capita (Ashraf-Galor, AER 2013)
 - Persistent effect on life expectancy (Galor-Moav, 2009; Franck-Galor-Özak, 2019)
- Disease environment
 - Persistent effect on labor productivity & investment in human capital (Gallup-Sachs, 2001; Andersen-Dalgaard-Selmayr, REStud 2012; Alsan AER 2015)
- Geographical isolation
 - Reduced trade and technological diffusion (Gallup-Mellinger-Sachs, 1999)
 - Persistence of culture conducive for innovations (Ashraf-Galor-Özak, JEEA 2010; Özak, JOEG 2018)

Persistent Effects of Geographical Factors

- Land suitable for large plantations

- Inequality:

- Inequality in land distribution leads to inefficient allocation of land resources.

- Concentration of landownership:

- Concentration of land ownership leads to inefficient allocation of land resources.

- Inequality in land distribution leads to inefficient allocation of land resources.

- Soil quality conducive for agriculture

- Specialization in agricultural output.

Persistent Effects of Geographical Factors

- Land suitable for large plantations

- Inequality:

- Extractive institutions (Engerman-Sokoloff, 1997)

- Concentration of landownership:

- Land ownership concentrated among a few individuals

- Land ownership concentrated among a few individuals

- Soil quality conducive for agriculture

- Specialization in one-farmed crops

Persistent Effects of Geographical Factors

- Land suitable for large plantations
 - Inequality:
 - Extractive institutions (Engerman-Sokoloff, 1997)
 - Concentration of landownership:
- Soil quality conducive for agriculture
 - Specialization in one particular crop

Persistent Effects of Geographical Factors

- Land suitable for large plantations
 - Inequality:
 - Extractive institutions (Engerman-Sokoloff, 1997)
 - Concentration of landownership:
 - Suboptimal investment in public education (Galor-Moav-Vollrath, RES 2009)
 - Soil quality conducive for agriculture
 - Long-term effects of climate and soil characteristics (Acemoglu et al., 2012)

Persistent Effects of Geographical Factors

- Land suitable for large plantations
 - Inequality:
 - Extractive institutions (Engerman-Sokoloff, 1997)
 - Concentration of landownership:
 - Suboptimal investment in public education (Galor-Moav-Vollrath, RES 2009)
- Soil quality conducive for agriculture
 - Fertile soil → more food → more population → more labor → more output

Persistent Effects of Geographical Factors

- Land suitable for large plantations
 - Inequality:
 - Extractive institutions (Engerman-Sokoloff, 1997)
 - Concentration of landownership:
 - Suboptimal investment in public education (Galor-Moav-Vollrath, RES 2009)
- Soil quality conducive for agriculture
 - Specialization in unskilled-intensive goods

Source: Acemoglu and Angrist (2011) "How Much Does Education Raise Income?" NBER Working Paper No. 17247

Persistent Effects of Geographical Factors

- Land suitable for large plantations
 - Inequality:
 - Extractive institutions (Engerman-Sokoloff, 1997)
 - Concentration of landownership:
 - Suboptimal investment in public education (Galor-Moav-Vollrath, RES 2009)
- Soil quality conducive for agriculture
 - Specialization in unskilled-intensive goods
 - Reduces human capital formation & increases fertility & slows the transition to modern growth (Galor-Mountford, RES 2008)

Persistent Effects of Geographical Factors

- Land suitable for large plantations
 - Inequality:
 - Extractive institutions (Engerman-Sokoloff, 1997)
 - Concentration of landownership:
 - Suboptimal investment in public education (Galor-Moav-Vollrath, RES 2009)
- Soil quality conducive for agriculture
 - Specialization in unskilled-intensive goods
 - Reduces human capital formation & increases fertility & slows the transition to modern growth (Galor-Mountford, RES 2008)

Persistent Effects of Geographical Factors

- Range of soil quality

- Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)

Geographical factors have been shown to have a significant effect on economic development through their influence on human capital accumulation and ethnic fractionalization.

- Ecological diversity & storables crops

Ecological diversity has been shown to have a positive effect on economic development through its influence on the availability of food and the potential for agriculture.

- Geographical determinants of body size

Geographical determinants of body size have been shown to have a significant effect on economic development through their influence on labor productivity and technological innovation.

Persistent Effects of Geographical Factors

- Range of soil quality
 - Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)
 - Persistent effect of ethnic fractionalization (Easterly-Levine, QJE 1997)
- Ecological diversity & storables crops
 - Higher ecological diversity \implies more storable crops \implies higher agricultural output per capita \implies higher income per capita
- Geographical determinants of body size
 - Larger body size \implies more muscle mass \implies more physical strength \implies more food production per capita \implies higher income per capita

Persistent Effects of Geographical Factors

- Range of soil quality
 - Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)
 - Persistent effect of ethnic fractionalization (Easterly-Levine, QJE 1997)

- Ecological diversity & storables crops

Ecological diversity \implies more food storage options \implies more stable food supply \implies more stable population growth

- Geographical determinants of body size

Geographical determinants of body size \implies more energy available for work \implies higher output per capita

Persistent Effects of Geographical Factors

- Range of soil quality
 - Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)
 - Persistent effect of ethnic fractionalization (Easterly-Levine, QJE 1997)
- Ecological diversity & storable crops
 - Emergence & persistence of state capacity (Fenske, JEEA 2014; Mayshar-Moav-Neeman, 2013)
- Geographical determinants of body size

Persistent Effects of Geographical Factors

- Range of soil quality
 - Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)
 - Persistent effect of ethnic fractionalization (Easterly-Levine, QJE 1997)
- Ecological diversity & storable crops
 - Emergence & persistence of state capacity (Fenske, JEEA 2014; Mayshar-Moav-Neeman, 2013)
- Geographical determinants of body size

Persistent Effects of Geographical Factors

- Range of soil quality
 - Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)
 - Persistent effect of ethnic fractionalization (Easterly-Levine, QJE 1997)
- Ecological diversity & storable crops
 - Emergence & persistence of state capacity (Fenske, JEEA 2014; Mayshar-Moav-Neeman, 2013)
- Geographical determinants of body size
 - Determined fertility & income per capita in the Malthusian epoch and the timing of the take-off (Dalgaard-Strulik, 2013)

Persistent Effects of Geographical Factors

- Range of soil quality
 - Emergence of geographical specific human capital \implies reduced mobility \implies ethnic fractionalization (Michalopoulos, AER 2012)
 - Persistent effect of ethnic fractionalization (Easterly-Levine, QJE 1997)
- Ecological diversity & storable crops
 - Emergence & persistence of state capacity (Fenske, JEEA 2014; Mayshar-Moav-Neeman, 2013)
- Geographical determinants of body size
 - Determined fertility & income per capita in the Malthusian epoch and the timing of the take-off (Dalgaard-Strulik, 2013)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:

- Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)

- Cultural distance between societies reduces:

- Distance from Europe (Acemoglu et al., 2012)
 - Distance from equator (Acemoglu et al., 2012)

- Cultural diversity within a society:

- Fraction of religious population (Acemoglu et al., 2012)

- Fraction of ethnic minorities (Acemoglu et al., 2012)

- Fraction of immigrants (Acemoglu et al., 2012)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Distance from Europe
 - Distance from the Mediterranean
- Cultural diversity within a society:
 - Fraction of immigrants

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Distance from Europe
 - Distance from the Mediterranean
- Cultural diversity within a society:
 - Fraction of immigrants

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Distance from Europe
 - Distance from the Mediterranean
 - Distance from the Americas
- Cultural diversity within a society:
 - Ethnic fractionalization
 - Religious fractionalization

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Technological progress (Acemoglu, Angrist, Pischke, 2019)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Higher cultural fragmentation (Ashraf-Galor, AER-PP 2013)
 - Increased mistrust & prevalence of civil conflict (Arbatli-Ashraf-Galor, 2018)
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Higher cultural fragmentation (Ashraf-Galor, AER-PP 2013)
 - Increased mistrust & prevalence of civil conflict (Arbatli-Ashraf-Galor, 2018)
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Higher cultural fragmentation (Ashraf-Galor, AER-PP 2013)
 - Increased mistrust & prevalence of civil conflict (Arbatli-Ashraf-Galor, 2018)
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Higher cultural fragmentation (Ashraf-Galor, AER-PP 2013)
 - Increased mistrust & prevalence of civil conflict (Arbatli-Ashraf-Galor, 2018)
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)

→ Emergence of states & autocracy (Depetris-Özak, 2015; Galor-Klemp, 2015)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Higher cultural fragmentation (Ashraf-Galor, AER-PP 2013)
 - Increased mistrust & prevalence of civil conflict (Arbatli-Ashraf-Galor, 2018)
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)
 - ➡ Emergence of states & autocracy (Depetris-Özak, 2015; Galor-Klemp, 2015)

Persistent Effects of Intergenerationally Transmitted Traits

- Natural selection of traits that are complementary to the growth process:
 - Preference for education (Galor-Moav, QJE 2002; Galor-Klemp, 2018)
 - Entrepreneurial spirit (Galor-Michalopoulos, JET 2012)
 - Time Preference (Galor-Özak, AER 2016)
- Cultural distance between societies reduces:
 - Diffusion from the technological frontier (Spolaore-Wacziarg, QJE 2009)
 - Conflict (Spolaore-Wacziarg, REStat 2016; Depetris-Özak, 2019)
- Cultural diversity within a society:
 - Reduces cohesiveness:
 - Higher cultural fragmentation (Ashraf-Galor, AER-PP 2013)
 - Increased mistrust & prevalence of civil conflict (Arbatli-Ashraf-Galor, 2018)
 - Generates a wider range of complementary traits conducive for specialization & innovations (Ashraf-Galor, AER 2013; Depetris-Özak, 2015, 2016)
 - ➡ Emergence of states & autocracy (Depetris-Özak, 2015; Galor-Klemp, 2015)

Growth and Comparative Development

The Big Picture & Overview

Ömer Özak

Department of Economics
Southern Methodist University

Economic Growth and Comparative Development