
What is Macroeconomics All About?

Chapter 4

Two Branches of Economics

Microeconomics



Macroeconomics



Two Branches of Economics

Microeconomics

- Study of individual markets, decisions and interactions between individual economic agents

Macroeconomics



Two Branches of Economics

Microeconomics

- Study of individual markets, decisions and interactions between individual economic agents

Macroeconomics

- Study of the economy as a whole: how decisions of millions of households / firms determine aggregate outcomes such as output, employment or inflation etc...

Macroeconomic Analysis

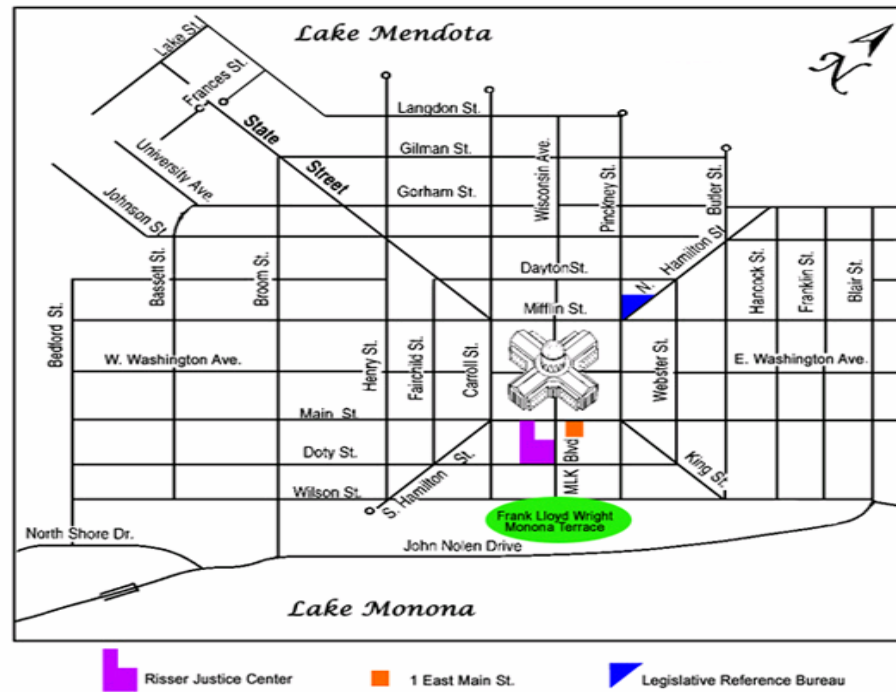
- Using aggregation, we study behavior of summary measures of economic activity on the national level
 - E.g. National product, saving rate, consumer price index, international trade
- We develop mathematical models to better understand the behavior of these measures

Macroeconomic Modeling

- Similar to microeconomics, we use models to answer questions of substantive interest
 - Models are an abstract representation of the relevant aspects of reality to address a particular question

Macroeconomic Models

- Just like a map, a good model focuses on aspects that are relevant for the question at hand



Example: Macroeconomic Questions

- What makes a country grow richer or poorer in a given period of time?
- Why do we have recessions?
- Why did prices tend to rise more rapidly in Russia than in Switzerland?
- Why inflation rate varied so much in the US in the 70s and not in the 90s?
- What determines the value of the US dollar?

Strength: Immediate Relevance

- Macroeconomic insights help design better policies to invoke desirable outcomes
 - Macroeconomists advise governments and central banks how to use *monetary* and *fiscal policy* to achieve macroeconomic goals
- **Macroeconomic goals:** long-term growth, high employment, price, employment and output stability (summarized in Humphrey-Hawkins Full Employment Act)

Main Themes

- Macroeconomics is centered around two major themes:
 - Long-term growth
 - Economic fluctuations



Long-Term Growth

An Overview

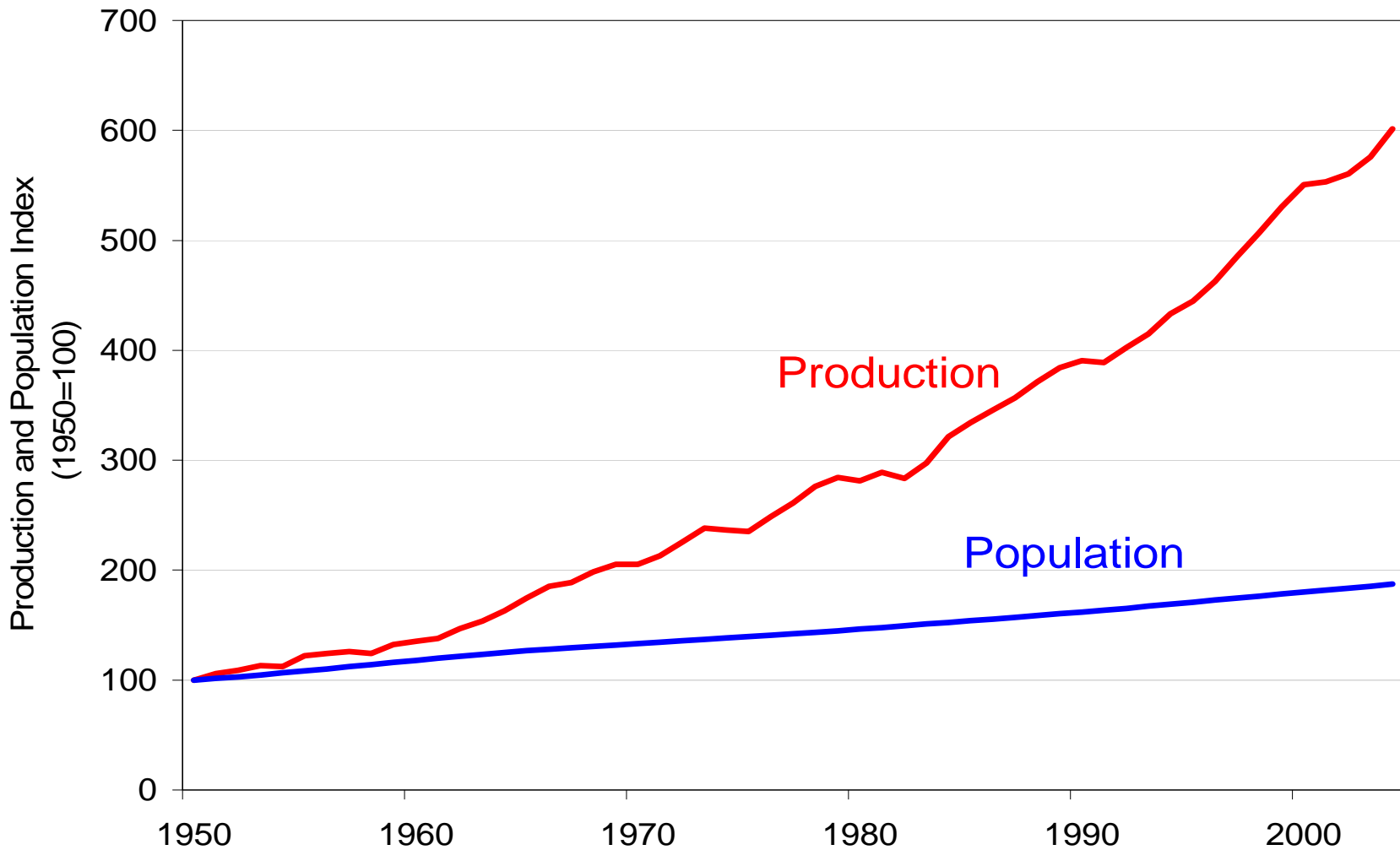
Long-Term Growth

- Economists measure long-term growth by looking at the growth rate of output (production) per capita
 - The economy is growing when output per capita grows: **output growth outpaces population growth**
- Output is measured by **real GDP**
 - **Real GDP** is a measure of total quantity of goods and services produced in a country over a year

Growth in Industrial Countries

- Same pattern of growth over the last century
 - Steadily improving standard of living (measured by output per person)
 - High rate of output growth; low rate of population growth

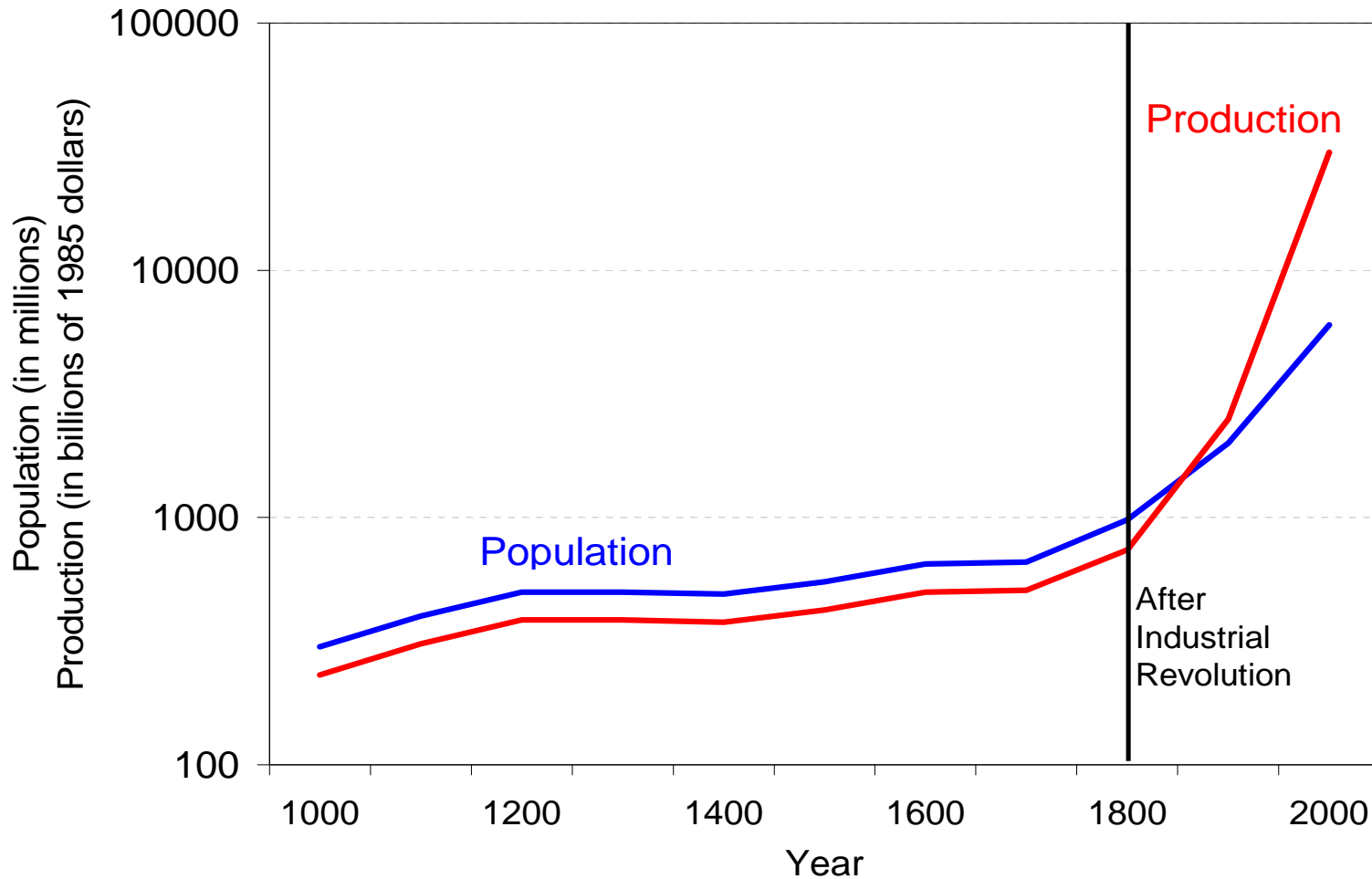
Output and Population Growth in the US



Historically, Unprecedented Pattern

- Our experience is unprecedented
 - It is a recent phenomenon that output growth systematically outpaces population growth
- In the past, output and population were moved in tandem – standards of living remained stagnant for a long period of time

World Output and Population Growth



Malthusian Theory of Stagnation

- At the time, resulted in a famous proposition:
Malthusian Theory of Stagnation
- Thomas Malthus (1766-1834) forcefully argued:
 - No hope for improvement in standard of living
 - Higher output (production of food) – higher standard of living – encourages people to have more children – population grows – standard of living go back to the “*usual*” level

Growth After Industrial Revolution

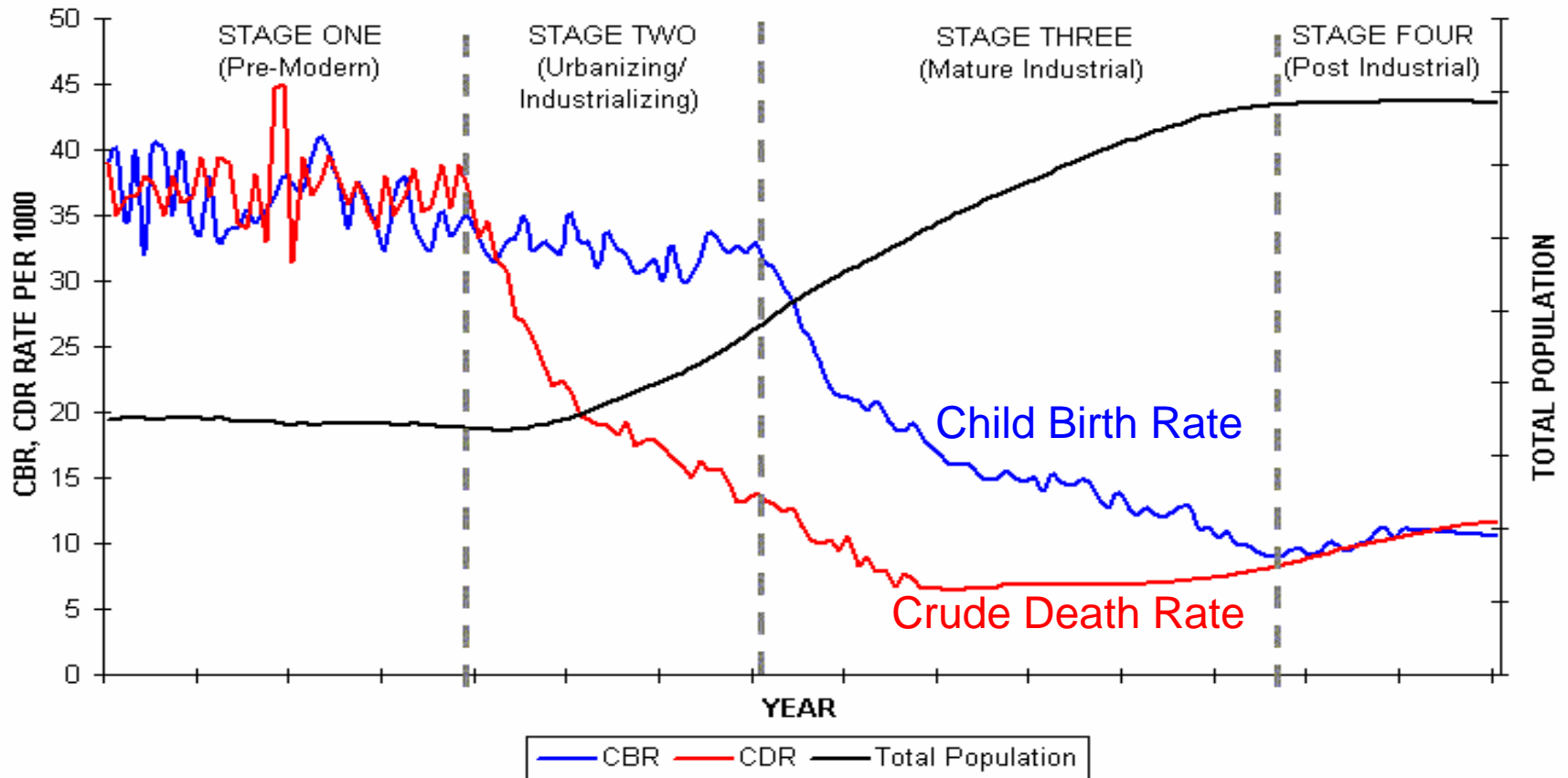
- Malthus did not see the data after his death, but would be surprised to see what happened
 - Malthusian Theory of Stagnation does not apply to any of the countries that underwent **industrial revolution**

Reasons behind this Change

- Industrial revolution invariably related to **demographic transition**
 - Population growth largely invariant to improving standard of living
- Demographic transition made possible for living standards to improve over time
 - *Question why our standards of living have improved = question why demographic transition happened*

Typical Demographic Transition

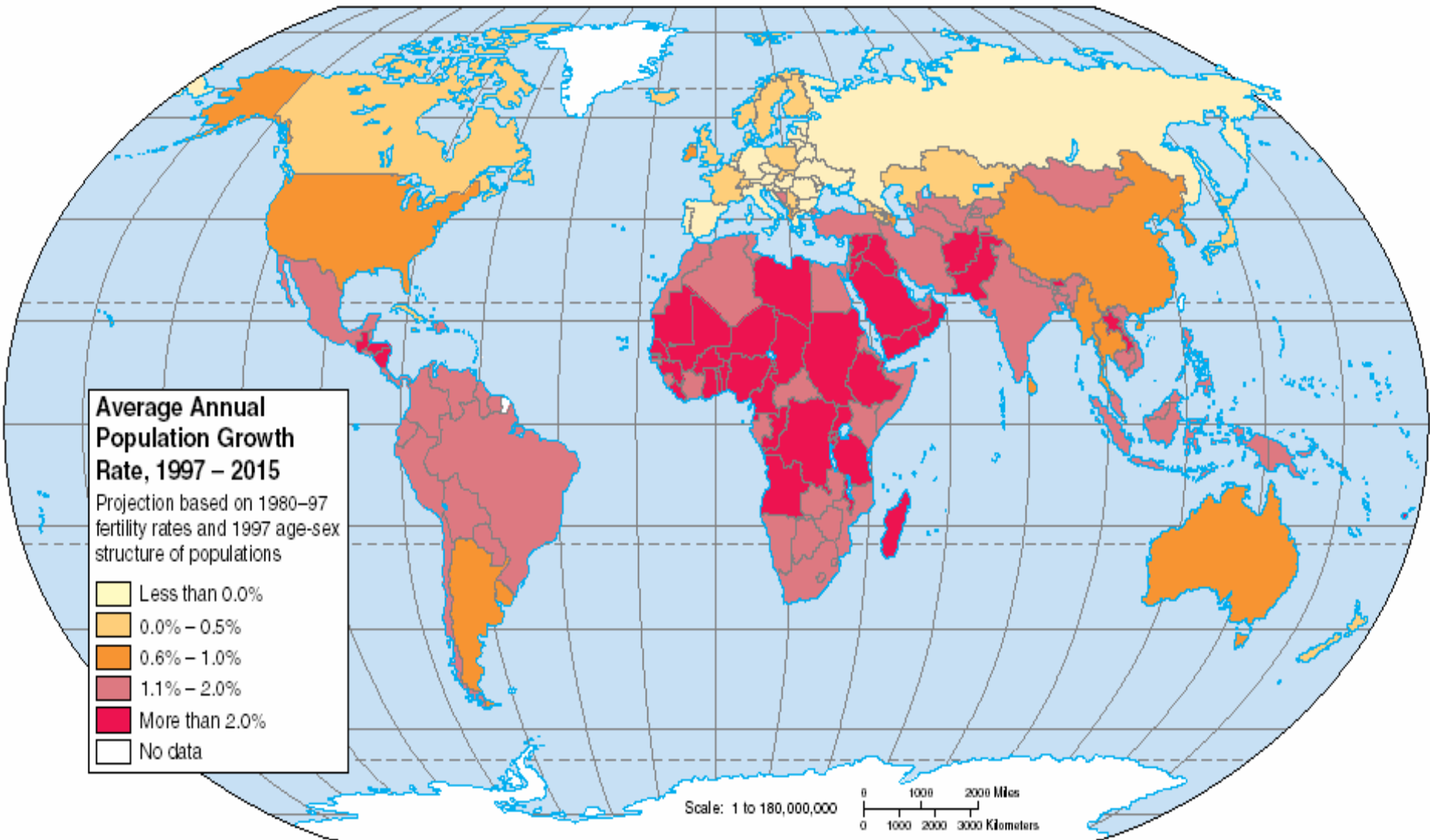
THE DEMOGRAPHIC TRANSITION MODEL



Population Growth in the World

- Unprecedented pattern in population growth
 - Richest country in the world have slowest population growth (even negative in some parts of Europe)

Population Growth in the World



Causes of Demographic Transition

- Widely accepted explanation due to Gary Becker:
 - Just like Malthus theory, links population growth with output into causal relationship
 - In addition to Malthus theory, links industrial revolution and demographic transition into causal relationship

Causes of Demographic Transition

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- Industrialization and falling mortality rate → higher returns from **human capital**
 - **Human capital** – accumulated knowledge and skills through training, experience and education

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- Widely accepted explanation due to Gary Becker:
- Industrialization and falling mortality rate → higher returns from **human capital**
 - **Human capital** – accumulated knowledge and skills through training, experience and education
- Trade-off between “quantity vs. quality” in fertility choice, absent from simple agricultural societies → *parents want to have less children, but instead educate them better so that they have better lives*

Is Malthusian Trap Already Behind Us?



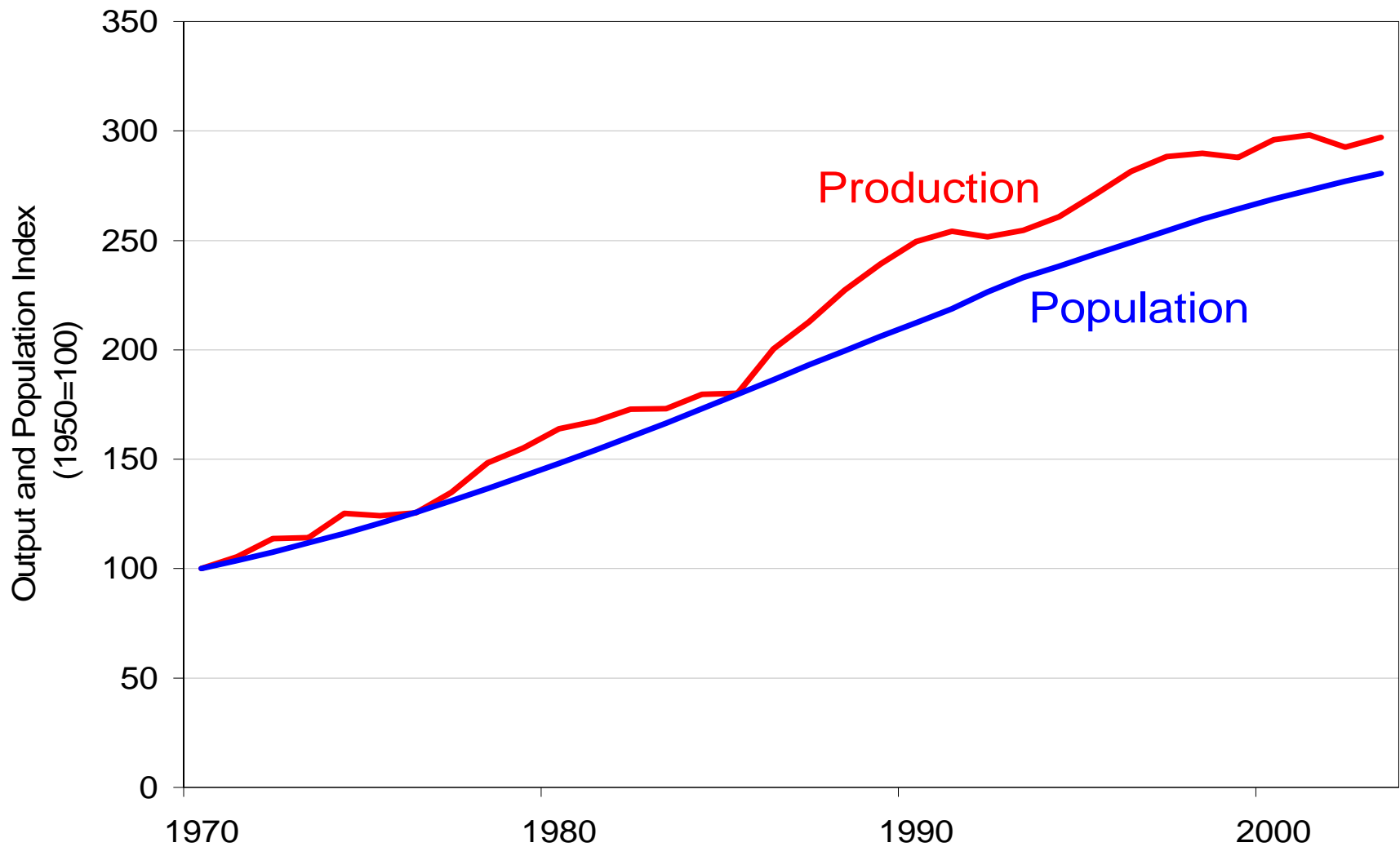
Is Malthusian Trap Already Behind Us?



Production and Population in Kenya

- Just like predicted by Malthusian theory
 - High population growth seems to wash out any improvements in output
- The truth might be a bit more complex
 - There is polygamy that may additionally contribute to high population growth, and leave little space for more than “subsistence” level of output

Production and Population in Kenya





Measuring Economic Growth



Growth Rate Calculation

- Growth rate formula:

$$g_{1991} = \frac{GDP_{1991} - GDP_{1990}}{GDP_{1990}} * 100\%$$

- Question: How fast is 1%, 2% or 3% growth rate of output per capita? Does it make a big difference to grow 1% instead of 2%?

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- Question: How fast is 1%, 2% or 3% growth rate of output per capita? Does it make a big difference to grow 1% instead of 2%?
- Answer: It makes a huge difference!

Small Differences in Growth Matter

- Small differences in long-term growth rates can imply huge differences in standard of living
- The reason is that effects of past growth cumulate due to *compounding*

Understanding the Power of Growth

- Growth rate formula:

$$g_{1991} = \frac{GDP_{1991} - GDP_{1990}}{GDP_{1990}} * 100\%$$

- Suppose growth rate of GDP is constant at rate 4% per year since 1990. What is the value of GDP in 2008?

$$GDP_{1991} = (1 + .04)GDP_{1990}$$

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...

$$GDP_{2008} = (1 + .04)^{18} GDP_{1990} \approx 2GDP_{1990}$$

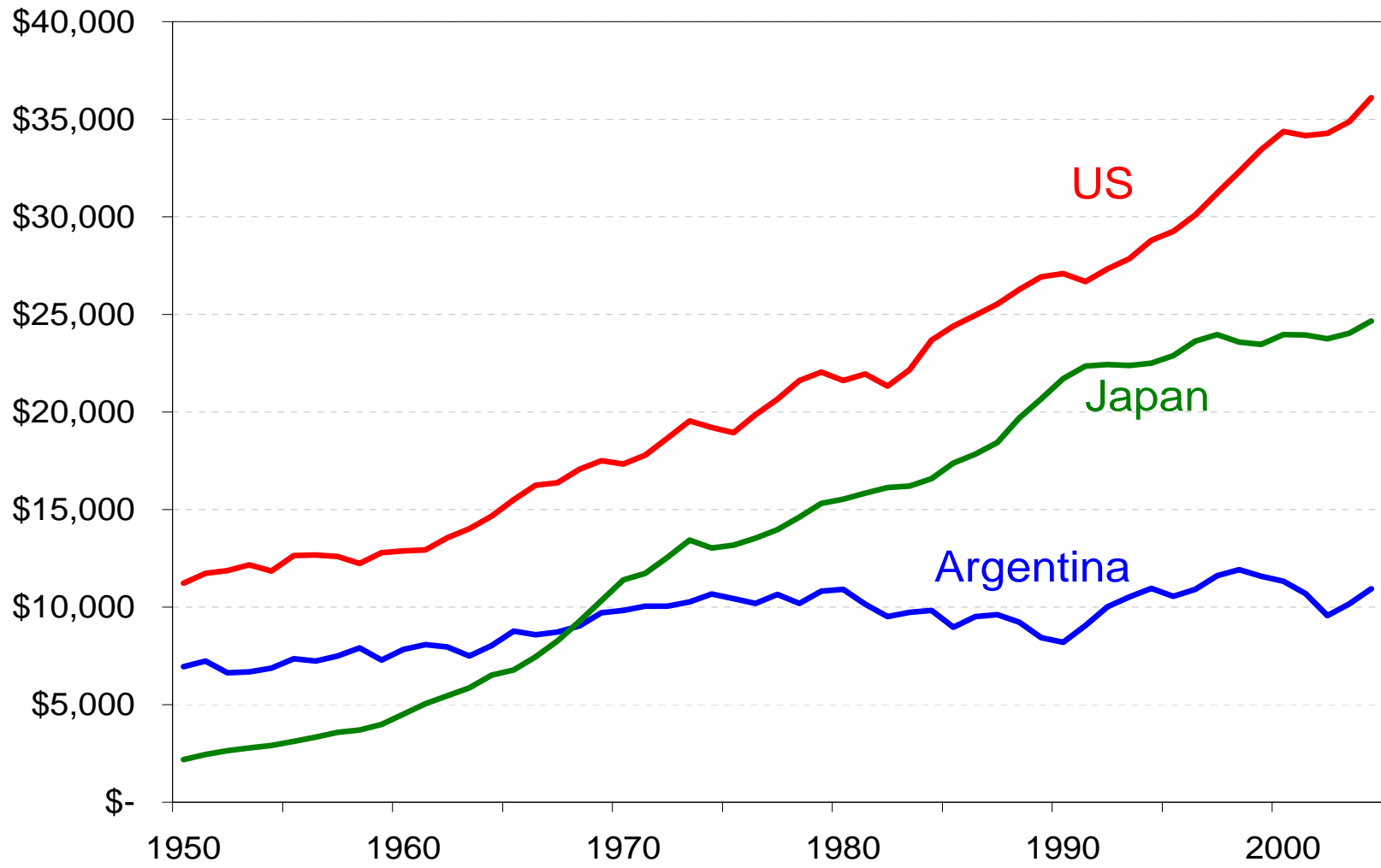
Rule of 70

- Economists use rule of 70 to compute quickly how many years it takes for a GDP to double
 - $70/g$ – number of years after which GDP doubles
 - Going back to our example from the previous slide: $70/4=17.5$ years (about right!)
- Rule of 70 shows the power of growth occurring over a longer period of time
 - A notion easier to grasp intuitively

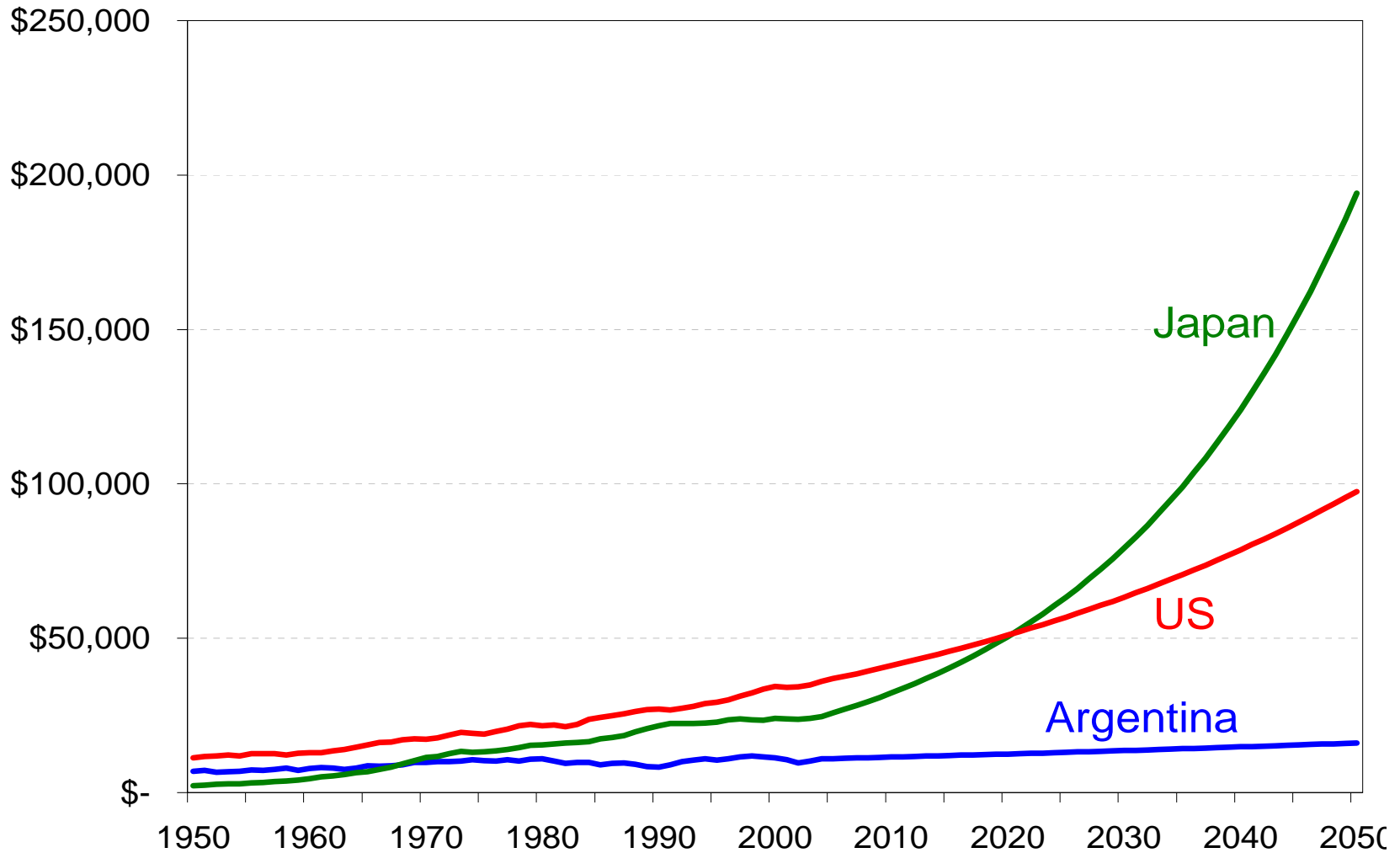
Example: The Power of Steady Growth

- Between 1950-2004 average annual growth rate was:
 - in Argentina less than 1%
 - in Japan about 4.5%
 - in US about 2.2%
- These growth rates imply: **income in Japan doubles every 15 year, in US every 30 years, in Argentina more than every 70 years**
- As you can see: In the long-run it makes a huge difference

GDP Per Capita in US, Japan, Argentina



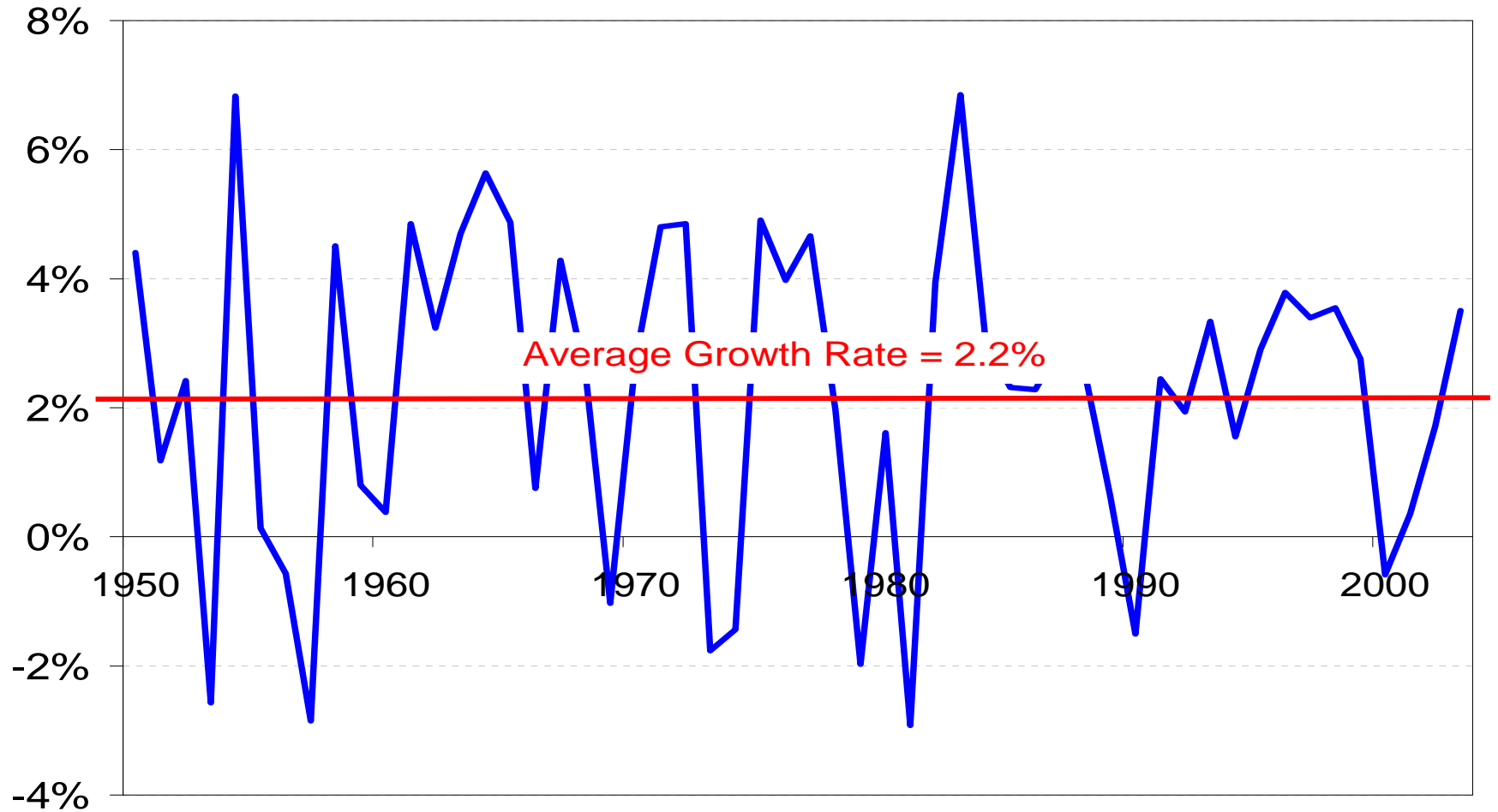
Look What Would Happen by 2050



Business Cycle Fluctuations

Overview

Economic Growth Is Not Constant



What is Business Cycle?

- **Business cycles:** fluctuations in real GDP around its long-term growth trend

Phases of the Business Cycles

- Expansion
 - a period of real GDP increasing faster than usual
- Contraction
 - a period of real GDP increasing slower than usual

Contraction with Negative Growth

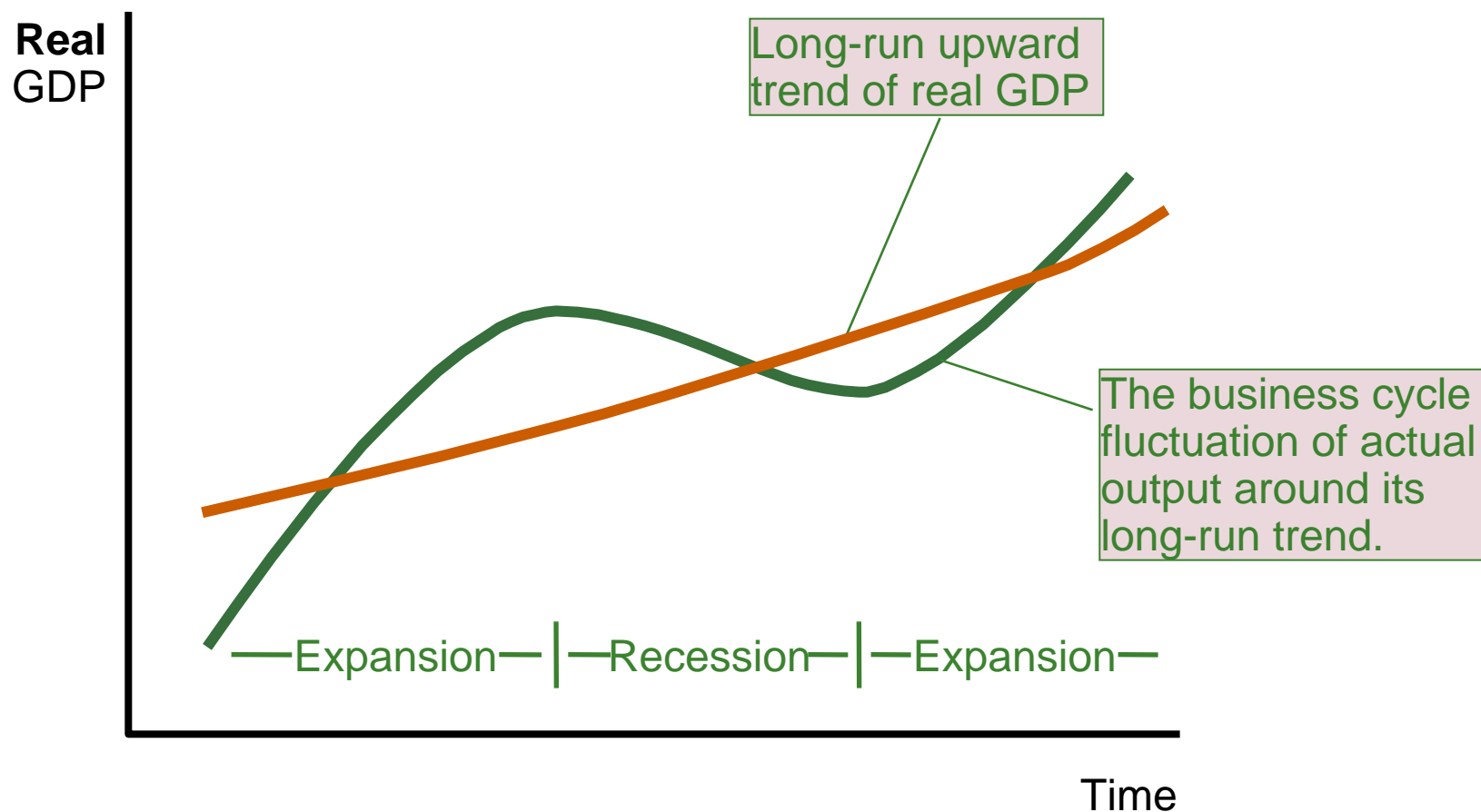
■ Recession

- ❑ A fall in real GDP of significant depth and duration (technically NBER declares recessions in the US, rule of thumb 2 quarters negative growth of output)

■ Depression

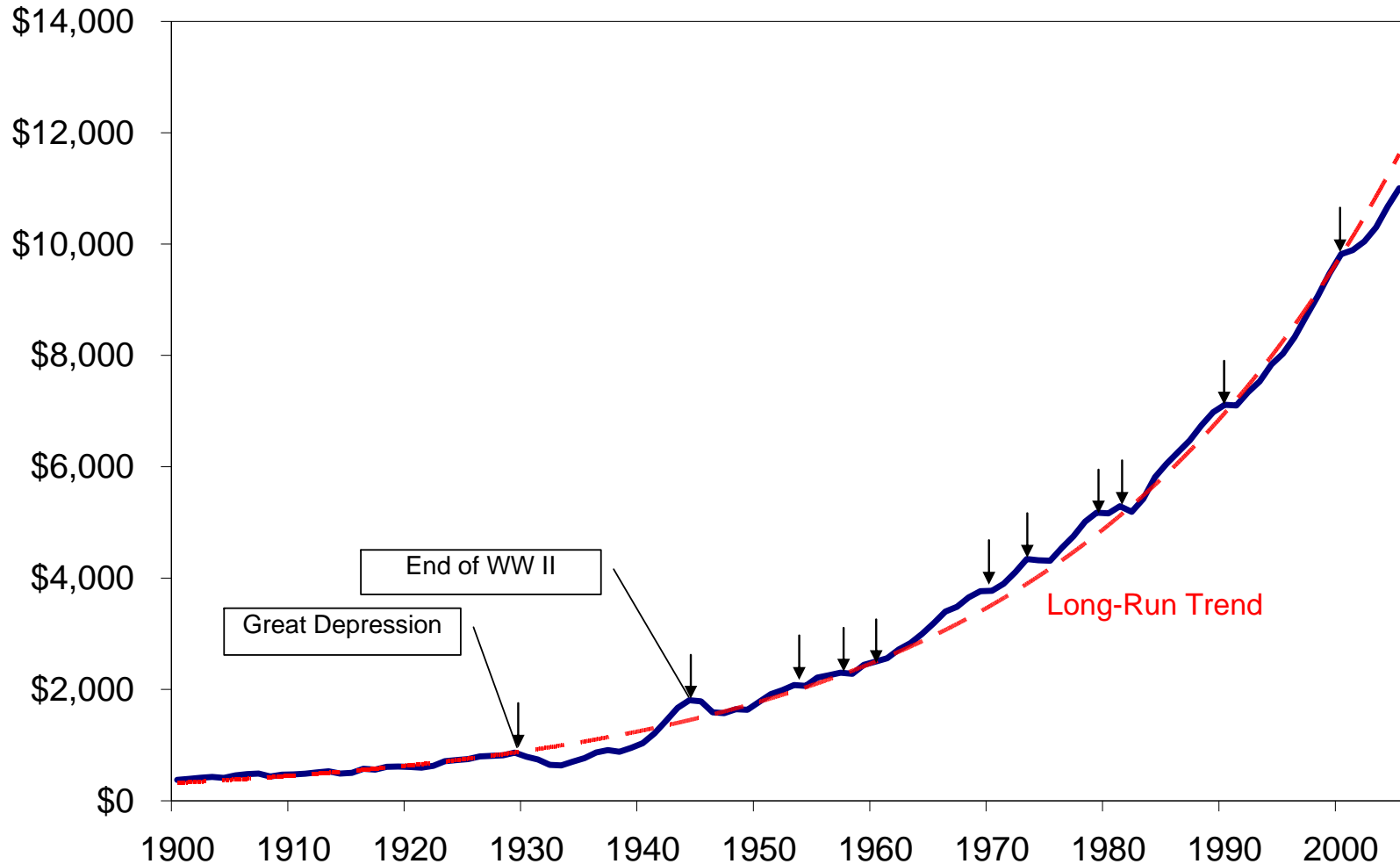
- ❑ An unusually severe recession
- ❑ Last one in the US in was in 1929 (The Great Depression)

Phases of the Business Cycle



Should We Care? Tempted to Say No?

Real GDP in the US, 1900-2005



Should We Care? Tempted to Say No?

- From a distance, everything seems small
 - From 10000 feet NY city looks small
- We do not live on 10,000 feet
 - Unfortunately, in our everyday life, recessions matter, and we do care

What Happens During a Recession

- Unemployment
 - People lose jobs and cannot find jobs - loss of income - recession is a big deal for them (these are usually low income people without much assets)
- Firms driven out of business due to 'tougher than usual' economic conditions
 - Some owners and stock holders unhappy

Unemployment in the US, 1960-2006

- Recessionary periods in the data are clearly linked to persistent hikes in unemployment
 - Unemployment rate = $\frac{\text{People without a job and looking for one}}{\text{people without a job and looking for one} + \text{people with a job}}$
 - Unemployment rate is countercyclical
 - low during booms, high during recessions

Unemployment in the US, 1960-2006

