

What is Macroeconomics All About?

Chapter 4

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Two Branches of Economics

Microeconomics



Macroeconomics



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Two Branches of Economics

Microeconomics

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

Macroeconomics



3

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...

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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

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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

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Macroeconomic Models

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



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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?

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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](#))

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Main Themes

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

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Long-Term Growth

An Overview

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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

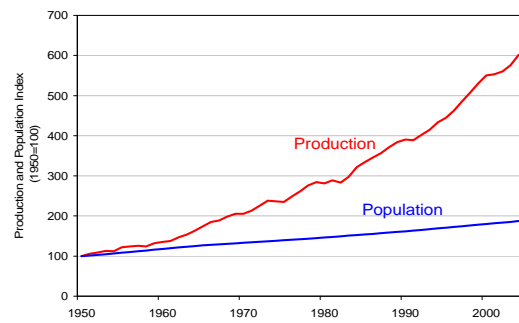
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Growth in Industrial Countries

- 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

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Output and Population Growth in the US



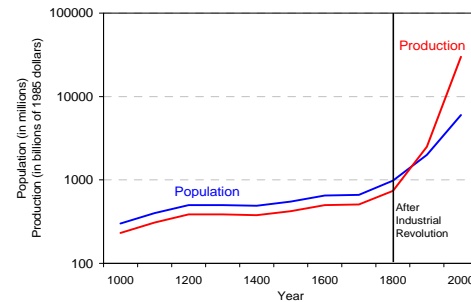
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Historically, Unprecedented Pattern

- 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

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World Output and Population Growth



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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

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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**

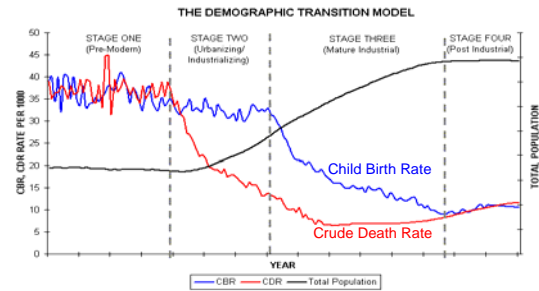
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Reasons behind this Change

- 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*

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Typical Demographic Transition



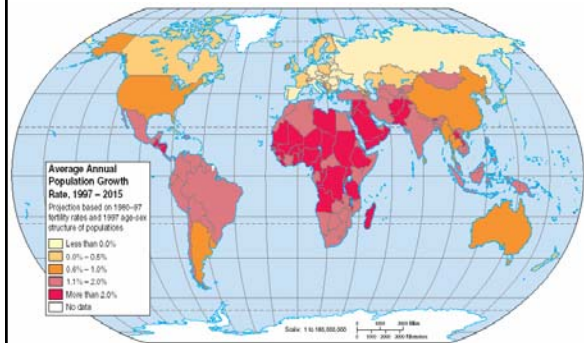
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Population Growth in the World

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

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Population Growth in the World



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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

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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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Causes of Demographic Transition

- 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*

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Is Malthusian Trap Already Behind Us?



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Is Malthusian Trap Already Behind Us?



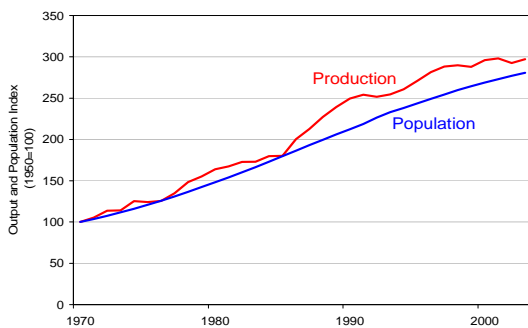
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Production and Population in Kenya

- 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

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Production and Population in Kenya



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Measuring Economic Growth

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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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Growth Rate Calculation

■ Growth rate formula:
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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!

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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*

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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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$$GDP_{1992} = (1 + .04)(1 + .04)GDP_{1990} = (1 + .04)^2 GDP_{1990}$$

...

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

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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

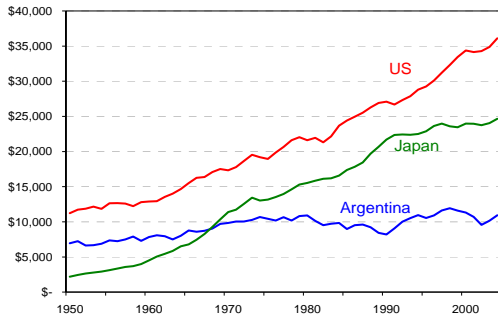
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Example: The Power of Steady Growth

- 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

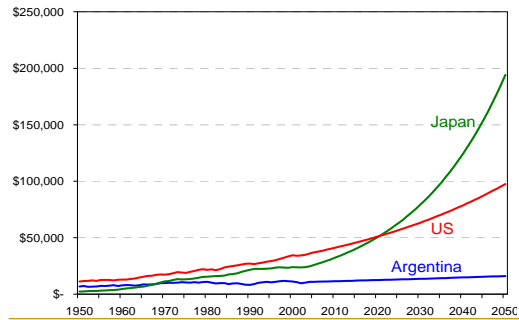
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GDP Per Capita in US, Japan, Argentina



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Look What Would Happen by 2050



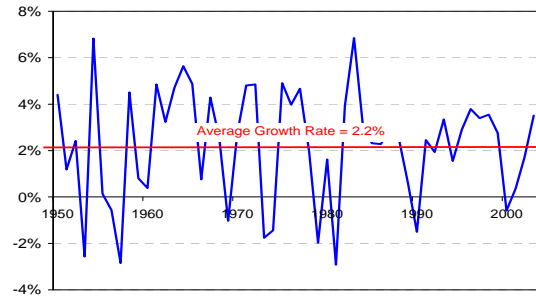
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Business Cycle Fluctuations

Overview

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Economic Growth Is Not Constant



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What is Business Cycle?

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

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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

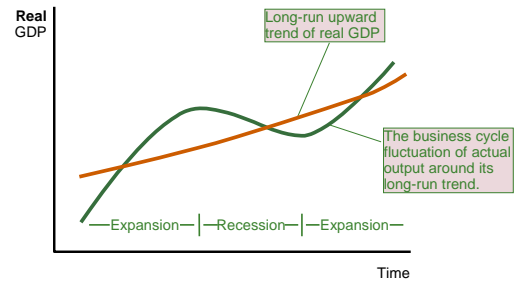
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Contraction with Negative Growth

- **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)

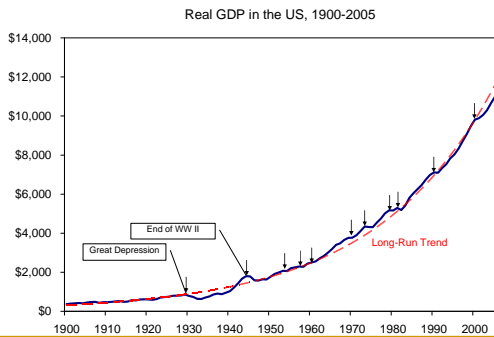
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Phases of the Business Cycle



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Should We Care? Tempted to Say No?



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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

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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

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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

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Unemployment in the US, 1960-2006

