

Lecture 5: Introduction to Economic Growth

I. OVERVIEW

- As we talked about briefly on the first day of class, the study of macroeconomics can be broken down into two distinct parts: the study of economic growth and the study of economic fluctuations.
- Today's class is the first of five lectures in which we will take a look at economic growth. Basically, we will try to explain why real GDP in the U.S. has been rising upwards over time.
- In Econ 202, we will take a more in-depth look at economic growth where we look at differences in growth across countries and within countries over time. For now, we will restrict ourselves to sketching a basic theory of economic growth and examining some of the important driving forces indicated by the theory.

II. WHAT IS ECONOMIC GROWTH AND WHY IS IT IMPORTANT?

- The first step is to distinguish between economic growth and economic fluctuations. A graph for output in the U.S. can be separated into two parts: the general upward trend and the fluctuations around the upward trend.
- The trend portion of GDP is known as **Potential Output**. When we talk about economic growth we are talking about increases in potential output, faster economic growth would mean a steeper trend in output.
- Rule of Thumb: If an economy grows at $g\%$ we can show that it doubles roughly every $\frac{70}{g}$ years. So if an economy grows at 2% it will double every 35 years and if it grows at 7% it will double every 10 years.
- Using this rule we can illustrate the power of economic growth using an example.
 - From 1960-1995 South Korea grew at 6% a year. Their economy doubled every 11.5 years on average, so over a period of 35 years income would double 3 times: an 8 fold increase.
 - Had they grown at 5% a year they would have doubled their income every 14 years. Over a 35 year period income would double 2.5 times: increase $2^{2.5} = 5.65$ fold.
 - Had they grown at 4% a year they would have doubled their income every 17.5 years. Over a 35 year period their income would double 2 times: increase 4 fold.
- Therefore, even a 1%-2% change in the rate of growth can lead to large changes in income. If we know what drives growth, we can make significant improvements in the living standards of people all over the world.
- Lucas Quote (1988):

"Is there some action a government of India could take that would lead the Indian economy to grow like Indonesia's or Egypt's? If so, what exactly? If not what is it about the "nature of India" that makes it so. The consequences for human welfare involved in questions like these are simply staggering. Once one starts to think about them, it is hard to think about anything else"
- Use your intuition and identify some important determinants of economic growth.

Capital	Geography	Labor
Trade	Human Capital	Corruption
Technology	Institutions/Property Rights	Infrastructure

III. WHAT ARE THE PRINCIPAL DETERMINANTS OF ECONOMIC GROWTH?

- The theory of economic growth tells us that the potential output of an economy is its average amount of goods and services produced in the economy. Output can be higher than potential for short periods of time (we will see why this can happen) and it can be lower than potential output for other periods of time.
- Overall, though, the output of the economy is determined by its ability to produce goods and services. How does it produce goods and services? It uses two important inputs: labor and capital and combines them with know-how to produce output; economists refer to the knowledge about putting inputs together as technology.
- Labor and capital are called inputs. Technology enables us to put inputs together in order to make output. Silicon and metal to make computer chips. Rubber and chrome to make tires etc.
- So we can write down a production function that describes how labor, capital and technology get transformed into output. $Y = F(K, L, T)$ where K is capital, L is labor and T is technology.
- If output is produced using these 3 factors, then growth in output must come from growth in either K, L or T. Basically, an economy can start producing more output if it has more workers, more machines, or better ways of putting together machines and workers.
- How can a country make its labor, capital or technology grow faster? That is the secret to unlocking the mysteries of economic growth. What we will do over the next 3 lectures is to examine each of these three in detail to gain some insight into what successful growth oriented policies may be.