Unit 13 Lecture Transcript

Capitalism is inherently unstable & tends toward less-than-full employment.

Capitalism has some fundamental problems, chief among those are its inability to generate full employment and inherent instability. These are problem which I have emphasized since our very first lecture. What we will investigate in this lecture is the role of physical investment spending in contributing to this problem.

Boom & Bust. Measures to help understand fluctuations in output, employment, and prices.

Fluctuations in output affect unemployment and this is a hardship for people. This insight raises an important question, how can we measure these fluctuations. To measure fluctuations and growth, we will introduce national accounts. Moreover, we will see that Households save and borrow to smooth consumption, as a result it tends to be relatively stable. However there exists constraints on people's ability to borrow. On the other end of the stability spectrum resides investment which is more volatile

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A. Introduction

The context for this unit

In unit 10 we introduced the intertemporal consumption decision. From the assumption of diminishing marginal utility we provided a causal explanation for why consumption tends to be more stable relative to the two other components of GDP. However, the consumption and investment decisions are much more complicated and hinge upon additional economic conditions beyond preferences, endowment, and the interest rate- some of which we will investigate further in this unit.

Things we will consider in this lecture

Looking at the aggregate economy, consider how do decisions by households and firms to economic incentives amplify or dampen economy-wide fluctuations. Key point of this unit is that at the aggregate level there exists instability in economic activity

B. The business cycle

The business cycle

Instability manifest itself empirically as a business cycle- that is the alternate periods of positive and negative growth. A recession, which we are entered with the covid-19 pandemic is defined by the National bureau of Economic research as two consecutive quarters of negative growth.

The business cycle is an empirical regularity and has serious consequences for labor market outcomes.

Okun's law

The business cycle affects labor market outcomes. The strength and stability of the correlation between GDP growth and unemployment is known as Okun's law. Let me be clear, Okun's law simply states that there is a negative correlation between GDP growth and unemployment. We will not develop the knowledge until next unit to make a casual statement explaining how expenditure affects employment.

We are at the part of the model building process where we make an empirical observation- we see that unemployment and expenditure are related and we ask the question why, next unit we will develop a model known with its roots in the General Theory written by JMK in 1936, a work which revolutionized economics to understand this relationship.

C. Measuring the aggregate economy

Measuring the aggregate economy

Consider the diagrammatic model. Are the three measures of the aggregate economy -expenditure, value added, and income- stocks or flows?

These flows are equivalent because all flows must come from somewhere and must go somewhere. Think about water running through a pipe, if there are no leaks in the pipe, the flow of water going in will be the same as the flow of water coming out the other end. In terms of this diagrammatic model- One person's expenditure is another's' income.

This is an important dynamic in macroeconomics. One person's expenditure is another's' income. In fact this alone will help you understand how our current lockdown is thrusting our economy towards the precipice.

In todays globalized world, where the flow is coming from or going to may very well be another country

The equality becomes important when we start considering recessions which are periods of negative output growth. The reason is that we know a good deal about what determines expenditure which can then shed insight into further understanding recessions.

Exports, imports, and government

In the previous slide we considered the flows that result from interaction between households and firms. But what about the foreign sector and the government?

We need to exclude domestic consumption on foreign production and include domestic production for foreign consumption. That is, we need to exclude imports and include exports.

The government is treated simply as another producer and/or consumer.

Components of GDP

We now introduce the five components of Gross Domestic Product (GDP).

Consumption is the expenditure on consumer goods and services. Investment is not the same as you speak about with your financial advisor; it represents the expenditure on newly produced capital goods. Government spending is the expenditure by the public sector on goods and services. The final two, net exports or trade balance, are simply exports minus imports. It is production domestically for foreign consumption minus foreign production for domestic consumption. You will also see GDP referred to as Y=C+I+G+X-M or aggregate demand AD=C+I+G+X-M.

Net exports in the US

As you look at this graph, I want you to consider a couple of things.

- Does the US import or export more?
- What are the implications for the deficit?
- What are the implications for COFER (composition of Official Foreign Exchange Reserves)? What are the implications for US dollars held by foreign central banks?

Answer to the questions

The US imports more than it exports. The US has a very privileged position in the world economy as everyone wants to accumulate us dollars which serves as the global reserve currency. There is only one institution which can create those highly coveted dollars- the US federal Government. The principal way dollars are attained is by exporting to the united states. In the US people get to consume without using any real resources and without expending any labor power; rather, in exchange for goods, we simply increase the checking account of the foreign country at the federal reserve. Note that this account is denominated in the unit of account that us government controls: dollars.

As we will see in the coming slides, there is an identity which states that the accumulation of dollars in the foreign sector plus the accumulation of dollars in the private domestic sector must be exactly equal to the accumulated deficit of the US federal government. Think about it this way, if only the federal government can create dollars and it does so by spending more than it taxes, then if there exists dollars being held by either the foreign or domestic sector they must have spent into existence by the federal government. In the image here, we can see that the foreign sector desires to accumulate dollars, I am imagining that you as well as every other member of the domestic sector would also like to have a positive savings account, for both of those to be true it must be the case that the federal government runs a deficit.

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Sectoral balances diagram

On the previous slide, we Started with definitions did some simple algebra, and we arrived at a very important result. Here we can see that result represented diagrammatically.

Budget deficits are equivalent to adding net financial assets to the accumulated holdings of the domestic private and foreign sectors. Let me state that again, when the US government runs a budget deficit it is

equivalent to adding net financial assets to the holdings of the sum of domestic private and foreign sectors.

If the US government were to increase taxes, ceteris paribus, what happens to net financial assets held by the other two sectors? The financial assets of the other sectors will be reduced by an equivalent amount.

Sectoral balances graph

Here we see the graphical representation of the sectoral balances, they are mirror images because by identity the government deficit is equal to the sum of the accumulation of us dollars by the other two sectors. This result is independent of theory and results straight from definitions. Are deficits inherently bad… not only are they not inherently bad, but deficits are also necessary if the domestic private and foreign sectors want to continue accumulating dollars.

Components of GDP

This table shows us what percentage each component of GDP contributes to the total value. For most countries, consumption is the largest component.

The eurozone and china are both net exporters. Can every country be a net exporter? No, it is a zero-sum game- these are flows which must go somewhere and must come from somewhere.

Given that the us dollar is the global reserve currency, the US has assumed the role of absorbing the worlds exports.

Components of GDP growth.

GDP is a conventional measure of the size of the economy, but there are a lot of shortcomings- impact to environment, happiness, etc…

In the lower table we are looking a how each component of GDP contributed to the decline experienced during the great recession.

While consumption represents 70% and investment only 20%, the total decline in GDP experienced that year was overwhelmingly due to fluctuations in investment.

D. Economic fluctuations and consumption

Economic fluctuations

Here we can see that the instability not only plagues the industrialized economies of the west but is also true for the more agrarian societies.

Shocks

Shocks are how economist introduce changes into our models. The shocks can either be good or bad and can affect individuals or the entire economy.

Household shocks

Here are two different ways that individuals deal with the possibility of experiencing a shock.

Both types of insurance derive from a desire to smooth consumption- to avoid consuming a lot in one period and a little in another period.

What assumption did we make that caused people to want to smooth their consumption? … Diminishing marginal returns to consumption.

Economy wide shocks

When an economy wide shock hits, like the current pandemic, co-insurance becomes even more necessary. I am not the only who believes this, look at the recent stimulus package which included a massive increase in co-insurance, I am referring to the increases in the amount of unemployment insurance as well as the length of the benefit. There are examples of co-insurance well before the industrialized economies of today. The Incan empire maintained stores of grains for rainy days like the ones that lie ahead of us right now.

Smoothing consumption

The image seen here is a representation of a lifetime consumption plan. The path of income is anticipated to rise with a promotion in the future. In anticipation of the greater income in the future, the rational consumer will borrow against that to spend today. When the promotion happens, they will pay off the debt and accumulate savings in anticipation of retirement.

When an individual experiences a permanent shock to income, they will adjust the path of lifetime consumption.

Consumption smoothing and the aggregate economy

Consumption smoothing stabilizes the economy. Behavior with regards to consumption serves to dampens shocks because this decision is based on long-term considerations including the desire to avoid fluctuations.

Here's how consumption smoothing works in our model.

- Assume a shock and consider a lifetime consumption plan
- Judgement- is it temporary or permanent?
    - If its permanent- adjust consumption path.
    - If its temporary- very little changes beyond smoothing consumption during blip.

There are Limits to consumption smoothing which require discussion

Credit constraints restrict the ability to borrow and thus to smooth consumption when income has fallen. Some individuals may experience Weakness of will preventing them from carrying out plans- like saving for retirement. Some individuals may have only Limited or no co-insurance and cannot expect support in sustaining their income.

Limitations to smoothing credit constraints

Let's investigate a little bit further how credit constraints limit our ability to smooth our consumption.

Left panel we see two lifetime consumption plans with and Expected future increase to income

The Upper panel represents an individual that is not credit constrained

The Lower panel represents and individual that is credit constrained

In the panel on the right we see how credit constraints prevent the utility maximizing intertemporal consumption bundle from being chosen. We start out at point A with income Y. Unanticipated negative shock to current income, reducing it to y'. Without borrowing, the endowment point and pattern of consumption coincide- our consumption after the shock would be the same as our endowment y'.

Compare smoothing house to credit constrained, the credit constrained consumes less this period and more next period. The indifference curve passing through A' is lower than that passing through A''.

The fed reduced the interest rate to zero in response the COVID-19 induced recession. Focus on intertemporal decision model presented in the right panel in answering the following quesion. When the interest rate is reduced what changes and how does it impact the equilibrium?

Limitations to smoothing weakness of will

Here again we see the limitations to smoothing, this time from weakness of will.

One of the most important implications of the limitation to smoothing derives from the result we arrived at earlier, one person's expenditure is another's income. A shock to income may be then amplified and affect other households.

In the next unit we will consider how this contributes to deficient aggregate demand and to shed insight into the business cycle.

E. Economic fluctuations and investment

Volatile investment

Firms only concern themselves with the singular pursuit of profit, they do not have any desire to smooth investment. It comes down to a single question is it profitable or not. Its much easier to postpone an investment decision than decision about eating.

The volatility of investment is accurately portrayed as a Positive feedback loop shown the image here: any change introduced is amplified over time. This causes investment to occur in waves

The volatility of investment is Further compounded by behavior of financial system.

Structure of production requires the use of capital which is long lived and expensive. When the Economy is expanding there is easier to access credit, further reinforcing the positive feedback loop shown here.

Positive feedback loop can also lead to downward spiral.

Introduce a negative change and it will be amplified over time just like the positive shock.

Investment. A coordination game

Let's model the investment decision as a game. The rules to our game are clearly spelled out on the slide.

Assume that each player knows the payout. Firm A receives the payout in the lower left of each box. Reading across the upper row where Firm a decides to invest we see that if B also invests A receives 100, if b does not invest A receive -40. In the lower row, where A has decided not to invest, if B invests A receives a payout of 80 and if B does not invest receives a payout of 10. You can do the same for B's payout by reading down the columns. To solve this game, I recommend the dot and circle approach. Let us consider the first column when B decides to invest, place a dot in the row which represents the best decision for A. If A also invests, they receive a payout of 100 which is greater than not investing and receiving a payout of 80. Thus, the dot should go in the first row. Do it again for the second column, where you should place a dot in the second row? Do this for B, first row then second row. What you end up with a dot and circle in both the upper left and lower right.

Where the dots and circles coincide, we have a Nash equilibrium. There is no dominant strategy in this game- regardless of what others do, there is not one decision that is best for the player. One of the two Nash equilibria is superior- the upper left square representing both players investing yields the highest payout for both. The outcome of this game, however, depends on the expectations of the other firm's decision, which is often referred to as business confidence.

Business confidence

Here we see an empirical measure of business confidence which coordinates firms to invest at the same time. More generally, investment spending by firms responds positively to the growth of demand in the economy (C+I+G+NX).

Investment and the aggregate economy

Investment is very volatile because it is driven by self-reinforcing dynamics. Firms respond positively to the growth of demand, a part of which is Investment. When GDP is growing Investment tends also to be strong. When GDP is declining, investment tends to recede. Both scenarios serve to further reinforce the movement in GDP and thus in investment.

Other components of GDP

Government spending in the united states post great depression has served as a large and strategic flow to stabilize the economy. A great deal of the stability emerges from the countercyclical nature of government expenditure. As GDP starts to slide, we would expect given Okun's law that unemployment would start to rise. As unemployment rises so too does the transfer payments. Unemployment insurance is an easy example illustrating the counter cyclical nature of government expenditure, but it is not the only example. Can you think of any others?

F. Inflation

Inflation, GDP, and unemployment

We now introduce inflation for the first time. Recall this is one of the three phenomena I expect you to be able to explain by the end of the course.

Inflation is an increase in the price level. The most common measures, like the Consumer price index and personal consumption expenditures are best understood as a basket of goods where the price is measured at the start of the period and compared to the price of the same basket of goods at the end of the period.

In the 1970s the US economy experienced stagflation, this is a period of rising inflation and rising unemployment. This phenomenon led to the (temporary) Death of Keynesian dominance. The combination of falling GDP, rising unemployment, and rising prices left many economists dumbfounded. The stagflation was due to the Oil crisis- price of oil rose and is an input into everything.

What happens to the price when costs goes up? Price is determined as a markup over costs, if costs goes up, ceteris paribus, price goes up.

More recently, the fed has been unable to generate the type of inflation that they would like. Coming out of the Great Recession they struggled to get inflation to the 2% explicitly targeted rate of inflation in the US.

Trends in inflation

Here we are looking at inflation rates measured using the consumer price index for a variety of regions. There are a few notable trends in the data. Since the 1970s there has been general downward trend in inflation, while inflation remains higher in poorer countries than in richer countries.

Measuring inflation

Be aware that there are different measures of inflation and like all measures, each has limitations. It is your duty as informed citizens to be aware of these limitations both when using these measures or when confronted with someone else who is using these measures.

Summary

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In the next unit

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