Unit 14: unemployment and fiscal policy

We now enter the most exciting part of our journey into the world of Macroeconomics. Our discussion now turns towards policy and particularly fiscal policy. Given that our economy sits on the precipice of falling into another great depression, there is not another topic that is more relevant.

To understand how expenditure affects the outcomes that we, as macroeconomists care about- employment, output, and prices- we will introduce aggregate demand and the multiplier model based loosely off the work of John Maynard Keynes.

Video review Unit 6

No transcript available

Video review Unit 7

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Video review Unit 9

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A. Introduction

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The context for this unit

Aggregate demand fluctuates because of expenditure decisions and we will introduce the concept of the multiplier to understand how changes in the components of GDP ripple throughout the economy

I will continue to repeat that two of the greatest problems confronting our economic society are the inherent instability of capitalism and its failure to generate, let alone sustain, full employment. These problems result from the behaviour of physical investment spending and the behaviour of the financial system.

After WW2, increased G is associated with smaller economic fluctuations

Back in unit 10&13 we considered how interest rate may affect savings decision in our treatment of the temporal choice model. Now we consider how the spending/saving decision made by individual households and firms affect key macroeconomic outcomes. For instance:

What happens to the individual's stock of wealth when they increase their flow of savings?

What happens, ceteris paribus, to aggregate demand if all households increase savings?

This unit

What do you notice about the severity of the business cycles after WW2? They become much more muted.

What about the relationship between the decreased severity and the size of Govt expenditure?

Correlation is not causation

In this unit we will develop a better understanding of the government's role in stabilizing the economy. We will develop the ag. Demand and the multiplier model which will allow us to make causal statements about the role of the government as a stabilizing force.

B. The Aggregate Demand function and the multiplier model

Aggregate demand is the sum of total expenditures C+I+G+NX.

Private investment spending is driven by expected future profits and we saw previously that it occurs in clusters. In Unit 2, we were presented with an explanation that relied on the adoption of new technologies and the concept of creative destruction. In Unit 13, the explanation we were presented with was based on expectations and similar beliefs about the future.

Consumption is another expenditure component we have discussed. Some household's smooth consumption, while others are unable. One reasons households are unable to smooth their consumption results from the behavior of the financial system as they control access to credit

Recall the circularity of expenditures at the aggregate level, this concept is key to understanding the multiplier. Changes in current income influence spending which affects the income of others

So, you might be asking, what is the multiplier?

Consider a negative shock to income from a pandemic. The reduction in income would then be amplified by the indirect effects of income and spending.

Compare the total decrease in GDP to the initial decrease in spending to understand the magnitude of the multiplier.

The first step that we will take is to combine the smoothing and non-smoothing households to represent consumption smoothing for the economy as a whole and derive an aggregate consumption function.

Consumption function

Our aggregate consumption function has two components, the autonomous component is independent of income and determines the intercept on the vertical access, the second component is the marginal propensity to consume and represents how sensitive consumption expenditure is to income and determines the slope of the consumption function.
$C = c_0 + c_1Y$
C_0 is the autonomous component and c_1 is the MPC

How does the MPC change when we change the relative share of households that are not consumption smoothing?

The higher this number (the steeper the line) the less consumption smoothing there is.

Consumption function 2

The marginal propensity to consume at the level of the individual household will be larger for poorer households and households who are credit constrained. In the aggregate, the larger share of households in the nation that are poor, or credit constrained, the larger the MPC and the steeper the line representing consumption will be.

Goods market equilibrium

The 45 line represents all the combinations where output equals aggregate demand.

At any point along this line, the horizontal and vertical distance are equal.

We are assuming that whatever is demanded can be supplied- that we are not at full capacity utilization. We have also assumed that there is no government spending, no international trade, investment occurs independent of level of output, and prices are constant.

The intercept of the AD function is the sum of the autonomous components- those that are independent of income. In this simplified case it is autonomous consumption and investment.

The multiplier process

Let's work through the multiplier process. We start on the AD function going through point A. Assume a negative shock to Investment of 1.5 reducing it from I to I'. This shock shifts the AD function down and lowers output & income to point Z. The change from A to Z is more than the initial shock of -1.5. This difference is the multiplier.

The negative shock reduces AD by 1.5 and is shown in the movement from A->B. The reduction in AD reduces output & income by an equivalent amount (-1.5) and is represented in the movement from B→C.

As income falls, household reduce their aggregate consumption by the product of the MPC and the change in income $c_1*\Delta Y=0.6*1.5$. Consumption expenditure falls which reduces AD and is shown by the movement from C->D. The process continues, as AD falls from C->D output & income fall an equivalent amount shown by the movement from D->E.

Since the MPC is less than 1, the reduction in AD becomes smaller and eventually goes to 0 and we settle at the new equilibrium at Point Z

Following the negative shock to investment output declined 250% more than the shock

The decline in AD leads to a decline in production and equivalent fall in income. This is the equivalency between the three ways we can measure GDP.

The multiplier is the sum of all these successive decreases in production in a system where Production adjusts to demand. It is demand that drives the system, expenditures are the motor which keep us moving forward. The importance of expenditure can help us understand why the current pandemic and shelter in place order is wrecking business- there are no customers, people are not out spending money.

Now let's discuss a limitation of the assumptions we made. If we did not assume prices were constant and that there existed excess capacity so that supply can adjust to changes in demand, then it is conceivable that some of the changes in spending may translate into changing prices rather than changing real output (next unit) and the multiplier would be smaller. We will see a similar result once we introduce taxes and international trade. It's worth noting that capitalism is extremely flexible and maintains excess capacity so that it can meet unanticipated increases in demand- one very troubling form of the excess capacity is involuntary unemployment.

The multiplier effect 2

When the total change in output is greater than the initial change in demand, the multiplier is greater than 1. It is safe to assume that the multiplier is greater than 1, the only time I can think of when it may not have been is during WW2 when the economy was operating at true full employment of both labor and capital.

Video: solving for the multiplier

Transcript unavailable.

Changes in consumption function

Recall from the lecture on unit 13, the greater the share of households in the economy that can smooth their consumption, the less pronounced the change in consumption is to a shock in income.

Households which have constrained access to credit are not able to smooth their consumption and thus, their consumption spending is much more sensitive to changes in income.

Two questions.

How does the relative mixture of credit constrained households show up in the consumption function? Larger c1?

What implications does this have on economic stability via the impact on the size of the multiplier? Larger c1=larger multiplier=wider fluctuations?

The great depression

While there have been projections that we currently are staring at another depression, The Great Depression starting in 1929 brought with it the greatest contraction a market economy had ever experienced. So let's see how well our model helps us understand what was happening nearly a century ago.

WE start in equilibrium and then add a shock, looking at the data from 1929 we see that there was a reduction in Investment. In our model, the negative shock to investment is movement from A->B. The downward shift in the AD function resulted from a decline in investment and associated reduction in household spending which is partly attributable to credit constraints as credit dried up and banks shut their doors permanently.

The story continues, as people realized it was not a temporary shock household begin making downward adjustment their consumption. The revised consumption plans of households move the AD function from B->C

Note: Revising Expectations about the future impacts the autonomous component of consumption.

This is a story we will return to and cover in more depth in U17

The uncertainty associated with a downturn like the Great Depression or even with the current pandemic increases cautionary behavior

Pessimism and a desire to increase savings results in lower incomes and reductions in the levels of wealth as asset prices deflated

A key part of understanding the great depression derives from the Banking crisis and the collapse of credit that it brought.

C. Household wealth

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Household wealth

We assume that households have a targeted level of wealth that they want to maintain.

When Actual wealth deviates away from targeted wealth households adjust spending to restore their targeted wealth.

Think about what happened in 2008 when the housing market tanked. Lending had become quite exotic, caution was thrown to the wind, and the credit flowed like beer from a volcano in pastafarian heaven. A lot of Highly leveraged went underwater on their mortgage- they had negative equity. With such a large hit to their actual wealth holdings, how would they respond? The same way a household in 1929 would respond given the realization that their expected earnings from future employment needed to be revised downward. Households respond by increasing their precautionary savings.

Precautionary saving

The transition from Column A to col B results from a fall in expected earnings. Expectations are extremely important in a capitalist economic system because of the influence that they have on expenditure and because they are formed in the face of uncertainty.

Column A shows that actual wealth was in equilibrium and equal to targeted wealth.

The great depression begins in late 1929 and Price deflation ensues as asset values decline causing a Reduction in wealth relative to target. The reduction in wealth causes an Increase in precautionary savings which is the same as a Reduction in expenditures.

Recall U10- principal agent problem associated with borrowing, one way this problem is addressed is by requiring the borrower to pledge collateral, to put up assets that the bank can take if the loan is note repaid. We can now see another way which the financial system contributes to the instability: The Financial accelerator. The financial accelerator describes the process by which the ability to borrow increases with an increase in value of collateral. Think about the housing market before its crash in 2008. The financial accelerator was so strong that lenders didn't even care if the borrower had no income, no job, and no assets- lenders were issuing NINJA loans which undoubtedly contributed to the inflation of the housing market bubble. A very similar story can be told with the behavior of the stock market in 1929.

Consumption and the housing market

Most Americans hold their wealth in the form of their home. Thus, changing home prices affect consumption. This phenomenon of wealth existing in the form of a home also helps explain the racial wealth gap and is at least partially attributable to redlining which excluded black Americans form

accessing credit to purchase homes. The practice of racial driven credit exclusion was not explicitly outlawed until 1968 with the passage of the fair housing act.

D. Investment

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Investment spending

Capitalists are driven by the singular pursuit of profit, but what do they do with the profits after they have been taken. We assume that they have three options:

1. Paid out in dividends
2. Saved- buy financial asset or pay debt
3. Invested- domestically or internationally

This decision is very similar to the Intertemporal choice model of consumption now vs consumption later.

Which of those factors is controlled by policy makers? The interest rate is controlled by the federal reserve who uses it to affect spending decisions in an attempt to guide the economy towards the stable price employment level- the equilibrium of our aggregate labor market model.

Aggregate Investment function

Earlier in this lecture we assumed that Investment was exogenous- Investment took the value that we gave it and didn't change, its value was determined outside the model. We now relax that assumption and introduce the investment function. The level of investment depends on the interest rate and expected profit rate. Notice that we have the interest rate on the vertical axis, so that as the interest rate changes, we move along the investment function. Whereas a change in expectations about the profitability of investment will cause the investment function to shift. Note that:

Expectations must be formed in the face of uncertainty, which is particularly problematic given the longevity of this decision.

Since capitalist make this decision in the face of uncertainty, what matters–according to Keynes chapter 12- is the confidence which we attach to these expectations.

We have focused on investment generating profit through its employment in production.

There is another reason capitalist will invest- capital appreciation- Speculation.

Keynes General Theory

Take a moment and ponder these quotes from Keynes.

E. The Role of government

Recall that our capitalist system has some serious problems, two of which are instability and unemployment. Contributing to these problems are the behavior of physical investment spending and the behavior of the financial sector. To address these problems, there is a role for the federal government. And it is to this that we now turn.

Video of Stephanie Kelton

Adding government to aggregate demand

We now want to study the role of the government. To do so we need to extend the AD function and introduce both the government and foreign sector.

The government sector affects AD through its spending and tax decisions. Households now consume a portion of their after-tax income: their disposable income

we will continue to assume that there are No supply constraints.

Net exports and aggregate demand

We will treat the foreign sector as a single entity. Exports is exogenous and imports depends on income.

The multiplier model again

Here we have AD after substituting the behavioral equations for consumption and imports.

To solve for the multiplier, isolate the dependent variable- income on the left-hand side.

What happens to the multiplier when:

Increase the propensity to import? Reduces multiplier-flatter AD curve.

Increase exports? - parallel shift of AD curve up.

Increase tax rate? Reduces multiplier- flatter AD curve.

Stabilizing the economy

The role of the government before and after WW2 is drastic. Post ww2, the government has had a much more active role in stabilizing the economy. In this chapter we focus on fiscal policy which involves decision on spending on taxes.

The paradox of thrift

Whether it was the Great Recession of 2008 or the great depression of 1929, households cut their spending and attempted to increase their savings. However, because of the relationship between spending and income at the aggregate level, when households as a whole attempt to increase their savings, incomes fall, and the flow from which they are saving is reduced, so that an attempt to increase savings leads to a reduction in savings. This is the paradox of thrift.

Fiscal stimulus

Having learned from the great depression, when the federal government is confronted with a contracting economy, like the contraction we are currently experiencing with the covid pandemic, the government can increase its spending to offset a reduction in private domestic spending.

We start in equilibrium mat point A and assume a negative shock to autonomous consumption, a scenario like that of the great depression. The negative shock reduces AD to point B. The government responds by engaging in fiscal stimulus which can be either an increase in spending or a reduction in taxes. The stimulus increases AD to point C.

When the multiplier is greater than 1, as it is in most cases, the increase to output and income from the fiscal stimulus will be greater than the increase in government expenditure.

Financing fiscal stimulus

The federal government of the US has consistently run a deficit since WW2. One exception being the early 2000's under Bill Clinton. Recall the sectoral balances from the previous lecture, the deficit of the federal government creates assets for the private domestic and foreign sectors combined. Likewise, a surplus lead to a reduction.

Financial sector balances

One very important implication of the deficit becomes very clear in this image; the sum of financial balances held by the private domestic and foreign sector mirrors the position of the federal government. The one exception to the consistent deficit by the federal government occurred in the early 2000's. The surplus by the government meant that either the domestic private or foreign sector was running a deficit- it was the private domestic sector who ran the deficit.

Let me ask a question: Who issues currency? Answering this question elucidates why it is not sustainable for the domestic private sector to consistently run a deficit. If you want to accumulate dollars and the foreign sector wants to accumulate dollars, well then, the federal government must deficit spend those dollars into existence- there is no alternative!

Austerity policy

Austerity is not the way out of a recession. If you ever find yourself in charge of a small country that ends up in trouble do not listen to the IMF or world bank when they tell you to engage in austerity policy which is a reduction in government expenditures or an increase in taxes.
Austerity only increases the contraction.

Positive/negative feedback mechanisms

Take a moment and consider the different stabilizing and destabilizing forces present in a capitalist economy. Can you explain why each of these is a stabilizing or destabilizing force? You should be able because it will probably be on the exam…..

The multiplier in practice

It is important to be aware of the limitations of our models. WE have made some gross simplifications, but this is how the modeling process works, start simple and gradually add complexity. This is how I perform my own research. The first iteration of the model is always much simpler than the final product.

The government's finances

The federal government of the US is the sole issuer of the currency it spends. It is not constrained by tax revenue in its spending. Because the federal government issues the currency it spends, it can afford to purchase whatever is for sale in the currency it issues, whether it should or not is a different discussion from whether it can afford to.

The national debt…ohhhh…boogey man is not really bad, it is simply the sum of outstanding securities issued by the federal government; it consists of marketable securities- those held by the private domestic and foreign sector and the non-marketable securities- those held by other arms within the federal government.

US government debt is denominated in the currency it issues- this is important because it's a different story if the debt is denominated in a foreign currency.

Imagine the government deficit spends, it results in an increase in the checking accounts at the federal reserve, whether the checking accounts belong to domestic commercial banks or a foreign central bank is irrelevant to this story. The spending increases the amount of base money but does not impact the debt. The base money sitting in the checking account does not earn interest, but it can be used to purchase government issued securities which do pay interest. The purchase of the security is akin to you moving money from your checking account to your saving account. It really is that innocent.

Government debt

Remember that government debt is an interest bearing and extremely safe financial asset held by one of the other sectors. The national debt becomes a lot less scary when we start talking about it as an asset for private domestic and foreign sectors.

F. Linking Aggregate Demand and unemployment

Aggregate demand and unemployment

We now link the multiplier model to the labor market model. Introducing a very simple production function allows us to do, let's assume that Y (output)=N (employment). The horizontal axis is now the same in the labor market and multiplier model.

In the labor market model, we allow wages and prices to change whereas in the multiplier model, we allow output and employment to change.

The level of employment is determined by the level of aggregate demand. If AD is such that employment is equal to the equilibrium of the labor market, then we have inflation at the rate targeted by the federal reserve. But we will have to wait to next week's lecture before introducing price dynamics.

Cyclical unemployment

For now it suffices to say that fluctuations in employment around the equilibrium level stems from changes in AD.