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Welcome to the power of macro economics.

The purpose of this lesson is to first illustrate why classical economics gave way to Keynesianism in the 1930s.

This discussion sets the stage for the development of

one of the most important tools used in macro economics.

The aggregate supply-aggregate demand framework.

The debate between classical economists and Keynesians ranks as one of the most important in macroeconomics.

It is a debate that goes back to the 1930s in the Great Depression.

However, it remains a very important one, even today.

This is because many of the macroeconomic policies now

avored by conservatives, have their roots in classical economics.

While those on the other side of the ideological spectrum,

are generally much more supportive of the Keynesian approach.

In analyzing this debate, the most important point we'll

make is that the classical versus

Keynesian controversy is

primarily a dispute over how an economy adjusts during

a recession and finds its way back to full employment.

On the one hand, the classical economists believe that

a price adjustment mechanism would cure the economy.

Specifically, they believe that in the event of

unemployment, prices, wages and interest rates would all fall.

This would in turn increase consumption, production and investment, and

quickly return the economy back to its full employment equilibrium.

In contrast, the Keynesian school argued that

before the price adjustment mechanism had time to work, it would

be overpowered by a more deadly income adjustment mechanism.

To the Keynesians when an economy sinks into a recession people's incomes fall.

This fall in income causes them to both spend less

and save less, while businesses respond by investing and producing less.

This reduction in consumption, savings, investment, and output in turn

drives the economy deeper into recession rather than back to full employment.

You can see now why this debate is so important.

One school of economics, the classical approach, believes that the best

cure for a recession is to leave the free market alone.

This approach is also known as Laissez faire.

And laissez faire economists are those who believe that most government

policies will probably make things worse, not better, so the best policy is

relatively little government.

On the other hand, the other schools, the Keynesians,

prescribes large-scale government expenditures to prime the economic pump.

Keynesians typically are activist

economists who believe that the government can create and implement policies that

will positively affect the economy.

To frame this debate, let's start with classical economics.

Classical economics has its roots in the free market writings

of eighteenth century economists like Adam Smith, David Ricardo, and most

importantly, Jean Baptiste Say.

These classical economists

believe that the problem of unemployment was a natural part of the business cycle.

That it was self-correcting, and most importantly, that there was no need

for the government to intervene in the free market to correct it.

They blamed unemployment on wages that were too high

and believed that in the event of a recession,

unemployed workers would be willing to work for less.

Wages would then fall back down to levels where it once again made

it profitable for firms to hire the

workers and the recession would end.

Thus in terms of our discussion of unemployment in the first lecture, classical economists agreed that frictional and structural unemployment could exist.

But they did not agree that cyclical unemployment could be caused by a shortage of aggregate demand.

Between the Civil War and the roaring 20s, America sustained periodic booms and busts recording no less than five official depressions.

However, after every bust the economy always bounced back exactly as the classical economists predicted.

That was true until the classic economists met their match in the Great Depression of the 1930s.

While President Herbert Hoover kept promising that prosperity was just around the corner, and the classical economists kept waiting for what they viewed as the inevitable recovery, a towering figure walked on to the macroeconomic stage.

Economist John Maynard Keynes.

John Maynard Keynes was born in 1883, the son of a British economist famous in his own right, John Neville Keynes.

Maynard Keynes was by all accounts a genius who made millions as a stock market speculator.

He was also a distinguished patron of the arts.

A faculty member at Cambridge University, and a key appointee to the British Treasury.

In 1946, with the global economy flat on its back, Keynes published the general theory of employment, interest, and money.

In that book Keynes flatly rejected the classical notion of a self-correcting economy that would solve unemployment through adjustments in wages and prices.

Keynes argued that patiently waiting for the eventual recovery was fruitless.

Because in the long run we're all dead.

And Keynes believed that under certain circumstances a recessionary economy would only not naturally rebound.

But even worse, fall into a deep spiral.

To Keynes, the only way to get the economy moving again was to prime the economic pump with massive government expenditures.

From an historical perspective, it is important to emphasize that, at the time Keynes' approach was economic heresy.

Indeed, the Keynesian prescription was initially rejected by the entire economics profession.

Far worse, Keynes and his followers were branded as socialists or even communists for advocating such an activist role for the central government.

To his credit, Keynes stuck to his guns and, as the Depression wore on, his teachings gained both adherents and disciples.

To understand why Keynesian economics triumph

it is important to understand how the two major pillars of classical economics crumble under the weight of Keynes's argument.

These two pillars are Say's law and the quantity theory of money.

Let's start with Say's Law.

It was formulated in the 1800s by French businessman

Jean Baptiste Say and popularized by British stockbroker David Ricardo.

Say's Law says, quite simply that, supply creates its own demand.

Well that sounds good, but what does it really mean?

Think about it this way, when people work to produce goods and services, they earn income for doing so.

Say's Law states that the total income generated by this work, must equal the value of the goods and services.

Thus if the workers spend this income it must be enough to pay for all the good and services they produce.

Therefore supply creates its own demand.

Or in the parlance of macroeconomics there must be enough aggregate demand for the available aggregate supply.

Now right off the bat, there's a problem with Say's Law.

Suppose that the income earners don't spend all their money, and instead save some of it.

That's exactly the problem that Thomas Malthus raised in this critique of Say's Law.

Malthus said that if people didn't spend all of their money, there would be a general glut of goods, and people would be out of work.

You probably heard of Malthus before because he's famous for The Malthusian doctrine that population will grow faster than the production of food, and that this will lead to mass starvation.

In fact, it was Malthus' dark vision that originally earned the economics profession its label as the dismal science.

Well, Jean-Baptiste Say and David Ricardo had an answer for Malthus, and it was simply this.

Doesn't matter if people save some of their money because all of these savings will in turn be invested in the economy.

Therefore, aggregate demand, which equals consumption plus investment, will always equal aggregate supply.

We can follow the logic of Say's Law, by looking at the circular flow diagram in this figure.

In the figure the employee compensation paid to workers, the rents paid to landowners, the interest paid to money lenders and the profit earned by business owners together represent the total income earned by all the people producing aggregate supply.

This flow of income moves from right to left at the top of the figure from business firms to house holds and it represents aggregate supply in Say's Law.

On the demand side, we see several arrows at the bottom of the figure.

One arrow moves from left to right, and represents consumer purchases of goods and services from businesses.

A second arrow shows consumer savings moving first into the banking and finance sector, and then emerging as investment by businesses.

Together, consumption plus investment equals aggregate demand in Say's Law.

Say's Law became a tenant of classical economics.

It didn't say unemployment couldn't exist but it did say if wages and prices and interest rates were allowed to adjust unemployment would go away on its own.

Classical economists buttress their Say's Law analysis with the quantity theory of money.

The quantity theory of money determines the price level while Say's Law analysis

determines real output.
The quantity theory of money is based on the so-called equation of exchange.
This equation may be written as $M \text{ times } V \text{ equals } P \text{ times } Q$.
 M , of course, equals the money supply.
 V is the velocity of money, or, the amount of income generated each year by a dollar of money.
 V is the general price level, as measured by an index, such as the consumer price index, and Q is the quantity of real output sold.
While $P \text{ times } Q$, on the right side of the equation, equals the nominal or inflation adjusted output of the economy, as measured by the gross domestic product.
In its simplest terms, the quantity theory of money says that, the price level varies in response to changes in the quantity of money.
Put another way, changes in the price level are caused simply by changes in money supply.
The money supply goes up 20%, prices go up 20%.
If the money supply goes down 5%, prices go down 5%.
To better understand this point, we have to understand two important classical assumptions about the quantity theory of money.
The first is that velocity is constant.
The second known as the veil of money assumption is that real output is not influenced by the money supply.
That is, it doesn't matter how much money the government prints, it will not increase the amount of goods and services that the economy can actually produce.
Now, looking at the $MV \text{ equals } PQ$ equation? Why must it be that, given these assumptions, increasing the money supply M , will only lead to inflation?
Clearly, if the velocity V is constant on the left side of the equation, and output Q on the right side of the equation, is unaffected by the money supply, the only thing that can change, if the money M changes, is the price level P .

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While the Classical Economists made a powerful theoretical argument, as to why a recessionary economy should always adjust back to full employment.

The reality of the Great Depression in the 1930's resulted in a search by the world's political leaders for an alternative economic solution. That solution turned out to be the Keynesian economics.

To John Maynard Keynes, the problem with classical economics was not the price adjustment mechanism that it relied on per se.

Rather Keynes believed that before such a mechanism had time to work, it would be dwarfed by a much more powerful and deadly income adjustment mechanism.

To Keynes, when an economy sinks into recession, peoples' incomes fall.

This fall in income causes them to both spend less and save less, while businesses respond by investing and producing less. This reduction in consumption, savings, investment and output in turn drives the economy deeper into recession rather than back to full employment.

While eventually income will fall far enough so that savings and investment return to equilibrium.

The economy will be at a level well below full employment with no way to get out stuck in a rut with a glut of goods.

Just as Thomas Malthus predicted in his original critique of the Classical model.

Out of this classical Keynes debate have emerged

two important models that are frequently used in macro economic analysis.

One model, the aggregate supply aggregate demand framework, has its roots in classical economics.

It allows for price adjustments in its framework.

The second model, the Keynesian model, assumes that prices are fixed.

In the remainder of this lecture, we will develop the aggregate supply, aggregate demand model and then turn to the Keynesian model in the next lecture.

As we shall see both models are very helpful in understanding how modern economies function

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This figure illustrates the aggregate supply-aggregate demand model. The price level is represented on the vertical axis, while real domestic output or GDP is represented on the horizontal axis. Note that aggregate demand slopes downward while aggregate supply slopes upward. Note, also, that equilibrium in the model occurs at point E, where the AS and AD curves cross.

This is because, at this point, the price and output combination is compatible with the intentions of both buyers and sellers. Finally, note that equilibrium in this model does not necessarily have to occur at the full employment potential output GDP of $Q_{sub c}$. It can also be at a recessionary level such as $Q_{sub u}$, where actual GDP is below potential GDP.

Our task now is to discuss why this figure looks like it does and what can happen to make either of the curve shift and therefore change equilibrium in the model. Let's start with the downward sloping aggregate demand curve which is also known as the aggregate equilibrium demand curve. Technically, aggregate demand is a schedule, which is graphically represented as a curve, as illustrated in this figure.

It shows the various amounts of real output that domestic consumers, businesses, and government, along with foreign buyers, collectively desire to purchase as each possible price level. Holding other things constant. And please note this holding other things constant, or Ceteris Paribus assumption because as we shall discuss shortly.

It is crucial in understanding shifts in the aggregate demand curve. Now the downward slope of the aggregate demand curve means that, as the general price level falls, consumers and businesses will increase their demand for goods and services.

This will happen for three reasons. First there is a real balance or wealth effect. As the price level falls, the purchasing power of consumers increases and the demand for more goods and services. This is because the real value of money is measured by how many goods and services each dollar will buy.

Accordingly, a lower price level increases the real value, or purchasing power, of accumulated financial assets, such as savings accounts and bonds, that have fixed money values. For example, a household may not buy a new car or a sailboat if the purchasing power of its assets is only \$30,000.

However, if there is deflation, and the price level falls, the household's real purchasing power may increase to, say, \$50,000. So the new purchase is more likely to be made.

A second reason why the aggregate demand curve slopes downward is an interest rate effect.

As the price level falls, so too do interest rates.

Falling interest rates, in turn, increase investment spending by businesses, as well as certain kinds of consumer spending, on items such as automobiles and housing.

Third, there is a foreign purchases, foreign trade, or net export effect.

As the domestic price level falls, the relative price of foreign goods increases.

This reduces the demand for the now more expensive foreign imports.

Increases the demand for exports, and thereby also increases the aggregate quantity demanded.

Now that we understand why the aggregate demand curve slopes downward, let's now ask why and how the AD curve can shift.

Recall that we defined aggregate demand as the graph showing the various amounts of real output that would be purchased at each possible price level, holding other things constant.

But what are these other things we are talking about?

These other things are grouped by the four major categories of real GDP. Consumption, investment, government spending, and net exports.

And they are listed in this table.

These factors are referred to as the determinants of aggregate demand because they quite literally determine the location of the aggregate demand curve.

The broader point is that a change in one or more of these determinants will shift aggregate demand, as illustrated in this figure.

In the figure, an increase in aggregate demand is shown as a rightward or outward shift of the AD curve, from AD1 to AD2. Similarly, a decrease in aggregate demand is shown as a leftward or inward shift, from AD1 to AD3.

Now let's talk briefly about each of these determinants of aggregate demand.

For example, in the consumption category, an increase in consumer wealth or a rise in consumer confidence will shift the AD curve out.

However, consumers with a high level of debt may be forced to cut spending to pay off the debt, while an increase in taxes on consumers will likewise reduce expenditures and shift the AD curve inward.

Similarly, investment spending will rise with a fall in interest rates, an increase in profit expectations, or a reduction in business taxes, and the AD curve will shift out.

This will also be true if an improvement in technology stimulates investment spending.

For example, recent advances in biotechnology and electronics have spawned new labs and production facilities to exploit the new technologies.

However, a rise in excess capacity has the opposite effect, because when there is unused capital equipment, demand for new capital equipment falls, and so too does aggregate demand.

As for government spending, we shall soon see that expansionary fiscal or monetary policy can shift the AD curve out, while contractionary policy has the opposite effect.

Finally, rising national income in a foreign country can stimulate foreign demand for U.S. goods, and shift out the AD curve.

In contrast, if the dollar's exchange rate changes, so that the dollar is stronger relative to other currencies, domestic aggregate demand will fall. This is because foreigners will buy less of our exports, and American consumers will buy more foreign goods.

Now let's see if you can guess what will happen to the AD curve under some different circumstances.

Suppose, then, that the Dow Jones stock market average plunges 2000 points in a week.

Which item in the table will this affect and which way will the AD curve shift?

In such a case, consumer wealth will fall and the AD curve will shift in.

Now, how might news about a possible recession affect consumer and profit expectations in the AD curve?

Well, if consumers expect a recession, they may save more and consume less. This will shift the AD curve inward.

At the same time, lower profit expectations may cause businesses to invest less and likewise shift the AD curve in.

Ironically, these actions by business and consumers may well increase the likelihood of a recession.

Let's turn now to the upward sloping aggregate supply curve in the model.

This curve shows the level of real GDP, or

domestic output, that will be produced at each price level.

Again, holding other things constant. The curve slopes upward simply because higher price levels create an incentive for businesses to produce and sell additional output, while lower price levels reduce output.

As for the other things held constant and why the aggregate supply curve may shift, this table lists the major determinants of aggregate supply. These include changes in factor input prices like land, labor and capital which affect production costs, changes in technology, efficiency and productivity which affect the economy's potential output, and changes in the legal and institutional environment that businesses operate in.

Looking at the table, which way do you think the aggregate supply curve will shift, if, for example, the cost of an imported resource like oil rises.

As it did sharply during the oil embargo of 1973 and 74.

An increase in the cost of oil will shift the aggregate supply curve inward and to the left as illustrated in this figure.

Note that while equilibrium output falls, the price level goes up.

This is an example of cost push inflation.

Now, what about productivity?

Technically, productivity is defined as total output divided by total inputs.

An increase in productivity means the economy can obtain more real output from its limited resources, its inputs.

So which way do you think the AS curve will shift if productivity increases?

If productivity increases, the average production cost of a unit of output will fall, and this will cause the aggregate supply curve to shift outward.

Most broadly, this is because increases in productivity increase the potential output of an economy.

As for the legal and institutional environment that businesses operate in, what do you think will happen to the aggregate supply curve, if the sales tax, or the payroll tax, or excise taxes, are decreased?

A tax decrease will decrease production costs and thereby increase aggregate supply.

Therefore, the AS curve will shift out.

Now, what about any increase in government regulation on businesses, such as tougher clean air or clean water requirements?

What would be the impact on the AS curve?

In this case, the cost of production would rise and the AS curve would shift in.

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While we now know why the aggregate supply curves

may shift, we're not quite finished with this important curve.

This is because in thinking about the aggregate supply curve, it is useful to identify three distinct ranges in the curve, as illustrated in this figure.

The horizontal, or Keynesian range, represents

a range where increasing output will not lead to any inflation.

In this range, the economy is likely to be either in a severe recession or a full-blown depression.

Thus, large amounts of unused machinery and equipment, and unemployed workers are available for production.

In such a case, putting these idle resources back to work, can be done with little or no upward pressure on the price level.

It follows that in this Keynesian range, Prices are for all practical purposes, fixed.

Hence the flat portion of the curve, and fiscal policies such as increased government expenditures, can be used to stimulate

the economy without any fear of inflation. this is illustrated in this figure here in

increase in aggregate demand caused for example, by expansionary government policies shifts output from Q1 to Q2 but the price level remains the same.

In contrast, in the vertical or classical range

the economy has reached its absolute full capacity level of real output at Q sub C.

In this range any attempt to increase production further will not increase real output, but only cause a rise in the price level.

Just as the classical economists quantity theory of money predicting.

In this classical range expansionary fiscal and monetary policies will clearly not be effective.

The ineffectiveness of expansionary policies in the classical range is illustrated in this figure.

Here, an increase in aggregate demand, from AD5 to AD6 does not increase

Q sub c, but only the price level from P5 to P6.

As we discussed in lecture one, this is demand pull inflation, because shifts in aggregate demand are pulling up the price level.

Finally, there is an intermediate range between Q sub U and Q sub C, where any expansion of real output is accompanied by a rising price level.

Here, the problem is that the economy is comprised of enumerable product and resource markets, and as it moves to full employment, movements

in all these markets may not occur simultaneously.

For example, as the economy expands in the intermediate range, auto and steel workers may

still be unemployed, but the high-tech computer industry may begin to experience shortages in skilled workers.

At the same time, raw material shortages, or bottlenecks in production, may begin to appear in other industries.

This situation is illustrated in this portion of our figure.

Here, real GDP begins at Q sub 3, but it is below the full employment output Q of sub 4.

In this case, stimulating aggregate demand through expansionary fiscal policies, will move the economy to Q sub 4.

However, it will also result in demand-pull inflation, as the price level rises, from P3 to P4.

Now, let's conclude this lecture by using the aggregate supply aggregate demand framework to illustrate how an economy is supposed to recover from a recession under classical assumptions.

To do so, let's take a look at this

figure.
Step one the economy is at full employment,
Q1 where a s 1 intersects a D1 at a price of P1.
In step 2 the economy suffers a demand shock, shifting the aggregate demand back to a D2.
for example as we discussed earlier threat of war in the Middle East, may cost consumers to reduce there spending and businesses to reduce there investment.
The new equilibrium is a recessionary output of Q2 at a price of P1.
And the result is a recessionary gap equal to Q1 minus Q2.
Now, in step three, wages, prices and interest rates fall, as a result of the recession.
This causes aggregate demand to move downward, along the aggregate demand curve, through the wealth, interest rate and net export effects.
At the same time, the supply curve shifts out to AS2, as firms hire more workers, and expand output.
Together, these price and wage adjustments drive the economy back to full employment at Q1. And close the recessionary gap.
But at a new and lower price, of P2.
Course we now know that for whatever reasons, this classical price adjustment mechanism didn't work to lift the economy out of the great depression.
To John Maynard Keynes the problem was that the price adjustments necessarily to bring about this recovery would be overwhelmed by a much more powerful and deadly income adjustment mechanism.
In the next lecture we will introduce the Keynesian multiplier model, and show how it can be used to illustrate a recovery from a recession or depression.
In the meantime, please remember that economics is not something to be memorized, but rather something to conceptualize.
So as you study it, think about it too.
Your job, and your business, might just depend on it.
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