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Welcome to The Power of Macroeconomics.
Lecture Five: Unemployment, Inflation, and Stagflation.

The purpose of this lesson is to examine much

more closely three of the most important problems in macroeconomics.

Unemployment and inflation, and the combination

of these two problems known as stagflation.

Unemployment and inflation, inflation and unemployment.

These are two of the most important problems in macroeconomics, and in most cases, macroeconomists can solve at least one of them.

But only by worsening the other.

For example, expansionary fiscal or monetary policy can

usually pull an economy out of a recession.

But such actions may cause inflation.

On the other hand, contractionary policies typically can

be used to fight inflation.

But often at the cost of more unemployment and recession.

But what happens when an economy faces both high unemployment and soaring inflation as many nations of the globe did during the turbulent 1970s?

Are traditional, Keynesian style monetary and fiscal

policies still effective in fighting such stagflation?

In order to answer

this important question, we've got to learn a lot

more about what makes both unemployment and inflation tick.

In doing so, we're going to learn about one of the great debates in macroeconomic theory.

Namely, is there a clear trade off between unemployment and

inflation as advocates of the so called Phillips Curve suggest?

Or is the Phillips Curve simply a dinosaur concept of a failed Keynesianism?

In this lesson we're also going to compare and contrast the Keynesian and monetarist views of stagflation.

And then illustrate why the doctrine of supply side economics emerged in the 1980s as a viable political alternative to these two competing economic camps.

To begin, let's review some basic concepts about unemployment.

In thinking about the unemployment problem, economists identify three different kinds.

Frictional, structural, and cyclical.

Frictional unemployment is the least of

the economist's worries.

It arises because of the incessant movement of people between regions and jobs or through different stages of their life cycle.

For example, even when an economy is at full employment there is still some turnover as

students search for jobs when they graduate from school

and when women reenter the labor force after having children.

Cyclical unemployment is a much more serious problem.

It occurs when the economy dips into a recession, and it is this type of unemployment that macroeconomists have historically spent

most of their time trying to solve.

In an increasingly technological age, the third type

of unemployment, structural unemployment, has begun receiving more attention.

Structural unemployment occurs when there is a mismatch between the available jobs and the skills workers have to perform them.

It often results when technological change makes someone's job obsolete.

The highly skilled glassblower thrown out of work

by the invention of bottle making machines or the

specialized autoworker replaced by a robot.

A second source of structural unemployment results from a mismatch

between the location of workers and the location of job openings.

For example, in the 1980s when the price of oil plunged.

Many oil field workers in the oil

producing
states found themselves structurally
unemployed when widespread layoffs
occurred.
Even though unemployment was low in other
parts of the country.
This distinction between cyclical,
frictional,
and structural unemployment is important.
Because it helps economists diagnose the
general health
of the labor market and craft appropriate
policy responses.
For example, in the presence of cyclical
unemployment due to
recession, expansionary fiscal or monetary
policies may be quite appropriate.
However, structural unemployment often
requires more
targeted policies, such as job retraining.

[MUSIC]

So what technically is this unemployment rate?

And how is it measured?

Statistics on unemployment and the labor force are among the most carefully designed and comprehensive economic data the United States collects. The data are gathered monthly in a procedure known as random sampling of the population.

Each month, about 60,000 households are interviewed about their recent work history.

The survey divides the population 16 years and older into the following groups.

People without jobs, who are not looking for work are categorized as not in the labor force.

This includes homemakers, students, retirees, voluntarily idle and the non-working disabled.

This category also includes all persons incapable of working, such as inmates in institutions and people under 16 years of age.

People with jobs are categorized as employed.

People without jobs who are looking for work are said to be unemployed.

And the labor force is simply equal to people

who are employed plus people who are not employed.

The unemployment rate then is simply the number of unemployed divided by the labor force times 100.

For example, if the total unemployed is 8 million and the labor force stands at 130 million.

What's the unemployment rate?

The answer of course is 6.2%.

This is simply 8 million

divided by 130 million which equals 0.062

and this times 100 equals 6.2%.

This figure shows the unemployment rate by race,

gender, and age, as well as by education.

You can see that the unemployment rate steadily falls as education

increases, high school

drop outs suffering the highest rate of unemployment.

You can also see that teenagers generally have the highest unemployment rate of

any demographic group while black

teenagers have

experienced unemployment rates between 30

and 50%.

Is this unemployment frictional,

structural or cyclical?

Recent evidence indicates that,

particularly for whites,

teenage unemployment has a large

frictional component.

Teenagers move in and out of the labor

force very frequently.

They get jobs quickly and change jobs

often.

Moreover, in most years half the

unemployed teenagers are

new entrants who have never had a paying

job before.

All these factors

suggest that teenage unemployment is

largely frictional.

That is, it represents the job search and

turnover necessary for young people

to discover their personal skills and to

learn what working is all about.

What about black teenagers?

As you can see from the table, this group

has by far the highest unemployment rate.

One possible reason is racial

discrimination.

Another theory holds that a high minimum

wage

tends to drive low-productivity black

teenagers into unemployment.

Still another theory advanced by some

conservative critics

of the modern welfare state, blame high

unemployment

of blacks on the culture of dependency

that

is nurtured by government welfare to the

poor.

Unfortunately, there is insufficient

empirical data

to resolve the issue, and the controversy

over black teen unemployment is ongoing.

[MUSIC]

Let's turn now to how economists measure the costs of unemployment.

This is a problem that results not only in a waste

of valuable labor resources, but also the loss of potential output.

This table provides a calculation of the opportunity cost of the major periods of high unemployment over the last century.

This cost is measured as the cumulative difference in potential versus actual output.

Not surprisingly, the largest economic loss occurred during the Great Depression, 4.4 trillion between 1930 and 1939.

However, the oil and inflation crises of the 1970s and 1980s also generated several trillion additional dollars of lost output.

In calculating the numbers, this table indirectly makes use of a very important concept in macroeconomics known as Okun's Law.

Okun's Law was first identified by economist Arthur Okun.

By studying macroeconomic data, he found an important relationship between output and unemployment, a co-movement, as it were.

We can see this relationship in this figure which plots changes in unemployment on the vertical axis and changes in output or GDP on the horizontal axis.

The graph shows that unemployment changes are

well predicted by the rate of GDP growth.

And, according to Okun's Law, for every 2% actual GDP falls relative to potential GDP the unemployment

rate rises by about one percentage point.

So here's a question.

If GDP begins at 100% of its potential and falls to 98% of potential, and if the unemployment rate is initially at 6%, how will that rate change?

That's right, according to Okun's Law, the unemployment rate will rise from 6% to 7%.

Now, let's try a more interesting example based on actual history.

1979 the employment rate was 5.8%.

But over the next three

years actual, real GDP didn't grow at all as the economy stagnated.

By contrast, potential GDP grew at 3% per year increasing

a total of 9% over the three year period.

Can you

use Okun's Law now to predict the unemployment rate in 1982?

Using Okun's Law, we can predict that a 9% shortfall

in GDP should have led to a rise of 4.5 percentage points

in the unemployment rate.

Therefore, starting with an unemployment rate of 5.8% in 1979, Okun's Law would predict a 10.3% unemployment rate by 1982.

In fact, the actual rate was very close, 9.7%.

One important consequence of Okun's Law is that actual

GDP must grow as rapidly as potential GDP just to keep the unemployment rate from rising.

In a sense, as our population grows and technology changes, GDP

has to keep growing just to keep unemployment in the same place.

Moreover, if you want to bring the

unemployment rate

down, actual GDP must be growing faster than potential GDP.

[MUSIC]

Now let's turn to the topics of inflation and stagflation.

Inflation has often been described as the cruelest tax because

it eats away at our savings and at our paychecks.

For example, if the rate of inflation exceeds

the rate of growth in our paycheck, that means our real income or purchasing power is

declining, even though our wages are going up.

But not everyone loses from inflation.

For example, as we learned in lecture one, inflation that

is unanticipated can benefit borrowers at the expense of lenders.

As a practical matter, there are two very different types of

inflation economists have to worry about, demand-pull inflation and cost-push inflation.

The essence of demand-pull inflation is, too much money chasing too few goods.

And that's

exactly what happened when the US tried to finance both guns and butter.

Both the Vietnam War and the Great Society.

Do you remember from lecture one how to use the aggregate supply, aggregate demand framework to depict demand-pull inflation?

Take a few minutes to draw it.

Does your figure look like this?

Increased government expenditures on both guns and butter

drive aggregate demand from AD to AD prime.

And equilibrium output increases from E to E prime

as real GDP expands.

However, when real output

rises far above potential output the price level moves up sharply as well.

From P to P prime.

In 1972, President Richard Nixon imposed price and wage controls and

gained the nation a brief respite from the Johnson era inflation.

However, once the controls were lifted in 1973, inflation

jumped back up to double digits, helped in large

part by a different kind of inflation then emerging,

an inflation known as cost-push or supply side inflation.

Cost-push or supply side inflation occurs when external shocks such as rapid

increases in raw material prices or wage increases drive up production costs.

In the early 1970s, such supply shocks included crop failures, a

worldwide drought, and a quadrupling of the world price of crude oil.

Again, do you remember from lecture one how to use the aggregate

supply-aggregate demand framework to depict cost-push inflation?

The cost-push situation in the 1970s is illustrated in this figure.

Sharply higher oil, commodity, and labor costs increased the cost of doing business.

The higher costs shift the AS curve up from AS to

AS prime and the equilibrium shifts from E to E prime.

Output declines from Q to Q prime, while prices rise.

This leads to stagflation, the double whammy

of both lower output and higher prices.

Prior to the 1970s economists didn't believe you could even

have both high inflation and high unemployment at the same time.

If one went up, the other had to go down. But the 1970s proved economists wrong on

this point, and likewise exposed Keynesian economics as being incapable of solving the new stagflation problem.

The Keynesian Dilemma was simply this, using expansionary policies to reduce

unemployment simply created more inflation while using contractionary policies

to curb inflation only deepened the recession.

That meant that the traditional Keynesian tools could solve

only half of the stagflation problem at any one time.

And only by making the other half worse.

This dilemma was well illustrated by the ill fated initial Keynesian responses

to the emerging stagflation crisis.
During 1973 and 1974, inflation was labeled public enemy number one by policy makers even though there were clear signs of an accompanying recession.
During both of these years, the Federal Reserve under Chairman Arthur Burns ordered sharp increases in the discount rate as a form of contractionary monetary policy.
In addition, in 1974, President Gerald Ford responded to the crisis with a Whip Inflation Now campaign that included Keynesian calls for contractionary fiscal policy in the form of fiscal restraint and a tax surcharge.
The result of these discretionary policies was to drive the economy deeper into recession even as oil price shocks in particular helped drive the inflation rate ever higher.
Then, in 1975, alarmed by the deepening recession, the nation's policymakers switched their Keynesian strategy as they replaced inflation with recession as their number one policy worry.
As Congress passed a \$23 billion Keynesian tax cut to fight recession, the Federal Reserve switched to an expansionary Keynesian monetary policy. Result was a disaster.
It drives home the seemingly unreconcilable dilemma that stagflation poses for traditional Keynesianism.
High inflation remained, even as the economy failed to recover from recession.
It was this inability of the Keynesian economics to cope with stagflation that set the stage first for professor Milton Friedman's monetarist challenge to what had become the Keynesian orthodoxy and then later for the emergence of supply-side economics.
To better understand the failure of Keynesian activism in a world of stagflation, we have to delve more deeply now into modern inflation theory and the mysteries of the Phillips Curve.

[MUSIC]

In modern industrial nations like the United States, most economists believe that there is a core or inertial rate of inflation that tends to persist at the same rate until some kind of demand or supply side shock comes along to change things. At the heart of this idea of inertial or core inflation, is the concept of inflationary expectations, and a behavioral model known as adaptive expectations. Inflationary expectations are important because the expectation of inflation can significantly contribute to actual inflation. The reason is that inflationary expectations strongly influence the behavior of businesses, investors, workers, and consumers. When we assume adaptive expectations, we are assuming that people believe that next year's rate of inflation will be the same as the current or last year's rate. For example, during the 1990s prices in the US rose steadily at around 3% annually and most people came to expect that inflation rate. This expected rate of inflation was, in turn, built into a core rate of inflation for the economy through institutional arrangements such as negotiated labor contracts. To see how this might work, suppose that you are the Chief Negotiator for the United Auto Workers Union. Further suppose that you believe your workers will achieve a 1% increase in productivity annually. And because increases in real wages are tied to labor productivity, you also believe. That auto workers deserve at least the 1% increase in their real inflation adjusted wages. Assuming you have adaptive expectations, and last years inflation rate was 3%, what is the percentage increase in nominal wages that you will demand at the bargaining table? That's right. You will demand a minimum 4% increase in the nominal wage. 1% to get the real increase based on productivity gains and 3% to adjust for the expected or forecast inflation. But look what happens now when Ford, General Motors, and Chrysler all agree to this 4% wage demand. The increase in wages caused by your union's inflationary expectations will lead to an actual increase in the auto industry's labor costs. This in turn will put upward pressure on auto prices so that the expectation of inflation becomes a self-fulfilling prophecy and the inertial or core rate of inflation is maintained. This figure illustrates how adaptive expectations lead to an inertial inflation rate. In the figure, the price level is on the vertical axis, real output is on the horizontal axis, and we start off at point E where the aggregate supply and demand curves cross at potential output Q^P . At this point, the core rate of inflation is 3%. Now, because of their adaptive expectations, everyone expects average costs and prices to rise at 3% this year, cause that's what it did last year. So workers demand and receive higher nominal wages. This pushes up the aggregate supply curve even as their increased spending pushes up the aggregate demand curve. And over time, the aggregate supply and demand curves continue to rise by 3% a year as the macroeconomic equilibrium moves from E, E^P to E^{2P} . In this case, the core, or inertial rate of inflation, is maintained. Now our next questions are these.

What might cause the core or inertial rate to change and more importantly, how might inflation start to spiral out of control such as it did in the 1970s? To answer these questions, we have to introduce one of the most important concepts in macroeconomics. Namely the Phillips curve. The Phillips curve was developed by English economist A W Phillips after a couple study of more than a century's worth of data on unemployment and money wages in the United Kingdom. What Phillips found was that wages tended to rise when unemployment was low, but fall when unemployment was high. The reason? Workers press less strongly for wage hikes when fewer jobs are available, and businesses fight harder against wage demands when profits are low. To convey the idea of the Phillips curve, take a look at the aggregate supply, aggregate demand model in this figure. Holding the aggregate supply curve steady, we start at AD naught. But an increase in aggregate demand, shifts the AD curve upwards from AD one to AD two, and eventually to AD three. The result is that the price level rises from P naught to P three, while output increases from Q naught to Q three. What do you think happens to the unemployment rate as output rises? Unless robots are doing all the work, the increase in real output is almost certainly accompanied by a fall in the unemployment rate as the price level is rising. This is the essence of the Phillips Curve relationship and it is illustrated in this figure. The left hand figure shows the theoretical inverse relationship between inflation and unemployment. But what is most interesting is that the right hand figure appears to provide strong empirical evidence that the Phillips Curve actually exists. In this figure, co-movements of the inflation and unemployment rates between 1961 and 1969 are plotted on the graph, and the points do indeed suggest a nice downward sloping Phillips curve. On the basis of this and earlier historical evidence, most economists came to believe that a stable, predictable tradeoff exists between unemployment and inflation. And if this is so, the important policy implication is this. You can always use fiscal or monetary policy to expand the economy a bit more to reduce unemployment. The only price you will pay is a bit more inflation. Not a bad tradeoff to keep people employed. But wait a minute. Something very significant happened in the 1970s to shake economists' faith in the Phillips curve. To see this let's add the data points for the years 1971 to 1979 to our figure. Take a few minutes now to try and replicate this graph either on a piece of paper or in your mind's eye. Then, connect the dots. That is, draw lines connecting the data points starting in 1970 and ending in 1979. Does your figure look like this? Clearly, this is not the typical downward sloping Phillips Curve but rather a much more chaotic Phillips Curl. Our next task is to examine various explanations of the emergence of the Phillips Curl. In doing so, we are going to get our first glimpse of some of the strong theoretical differences That exist between the various schools of macro economics: Keynesians and Monetarists to supply-siders and new classical

economists.
Let's start then with the standard explanation of the breakdown of the Phillips curve as illustrated in this figure.
The series of supply shocks in the 1970s shifted the short run aggregate supply curve leftward.
This moved the Phillips curve rightward, and upward
from the green curve to the blue curve.
But, what about the red curve?
Well, it's just a supply shock process in reverse.
As oil prices fell back down in the 1980s,
this and other positive supply side effects.
Shifted the Phillips curve back towards the red line.
From a macro policy perspective, the virtue of this standard explanation is, of course, that it preserves the Phillips curve relationship.
This means that in stable times, and absent supply-side shocks, policy makers can still engage in discretionary fiscal and monetary policies.
To expand or contract the economy as they see fit, the only price paid is a little more inflation for a little more employment.
This may be all well and good from a Keynesian perspective, but the Monetarists have a very different explanation of stagflation and the events of the 1970s.
And it is an explanation that calls into question the very existence of the Phillips curve.
According to the monetarists, this disappearance of the Phillips Curve in the 1970's may best be explained through the concept of the natural rate of unemployment.
And by distinguishing between a short run and short run Phillips Curve.

[MUSIC]

The Modified Phillips Curve theory of the monetarists, grew out of the work of Edmund Phelps and Milton Friedman.

And the theory asserts that there is a minimum unemployment rate, that is consistent with steady inflation.

This rate, is what classical Economists and Monetarists, typically refer to as the natural rate of unemployment.

While in some textbooks, it is also referred

to as the lowest sustainable rate of unemployment.

In this lesson we'll use the terms interchangeably.

And now, here's the Monetarists' major point.

It is simply impossible, to drive unemployment below the natural or lowest sustainable rate in the long run.

And this assertion clearly implies, that the long run Phillips Curve is vertical rather than downward sloping.

Why is this important?

Because the policy implications of the Monetarist's Natural Rate Theory, strike to the very heart of Keynesian activism.

Indeed, while the theory allows that a nation can use expansionary fiscal or monetary policy to drive unemployment below the natural rate temporarily, such a Keynesian joyride along the short run

Phillips Curve, must inevitably come at the price of rising inflation.

Even more to the point, if a nation repeatedly

uses Keynesian policies to try and keep unemployment below the

natural rate, the only result over the longer run,

will be a deadly upwards spiral of wages and prices.

Precisely like the one we witnessed in the 1970s.

How exactly might this happen?

In order to best understand this, we first have to understand one important point about the natural rate of unemployment.

It is not a constant rate, but rather it can change as the structure of an economy changes.

For example, in the prosperous decade of the 1960s, the natural rate of unemployment was somewhere in the 4 to 5% range.

However, in the 1970s the natural rate of unemployment actually climbed into the 5 to 6% range.

This increase in the natural rate, came about because the supply side shocks of the

1970s, particularly the energy price shocks, raised the real costs of production in the economy.

These higher costs in turn, lowered the economy's

potential output, relative to what it would have been.

Now, let's use this Monetarist perspective

on the Phillips Curve,

to illustrate how inflation can begin to spiral out of control, if macroeconomic

policy makers attempt to expand the economy below its natural rate of

unemployment.

This figure illustrates this process, and it brings together many of

the elements of modern inflation theory, that we have been discussing.

In the figure, we start at point a1, where the core rate of inflation

is 3% and the natural rate of unemployment is 6% as indicated by the vertical curve.

Note, however, that from a political perspective, this 6% rate

of unemployment is seen as unacceptably too high by a

Congress and Keynesian president, who, in, in an earlier decade,

may have become accustomed to a 4% unemployment rate without inflation.

So, what do you think these policy makers are going to do?

That's right.

With voters growing restive over an apparent recession, they are going to engage in expansionary fiscal policy to reduce the unemployment rate to 4%.

And this is where the idea of adaptive

expectations comes back in.
In particular, because people are assuming inflation will remain at 3%, they do not immediately demand higher wages, even as inflation rises above the core rate to 6%.
This lag in wage demands, allows the economy to move up the short run Phillips Curve to point b1, and the unemployment rate does indeed fall to 4%.
Known however, that once people finally figure out that inflation has risen, and successfully demand higher wages to offset this rise in inflation, the short-run is over.
At this time the rise in nominal wages, brought about by successful wage demands, shifts the short run Phillips Curve, PC1, out to PC2.
And we are back to where we started, at an unemployment rate of 6%.
But of course, now, we have a higher inflation rate.
Now, frustrated again by the apparent recession, the politicians once again try to drive the unemployment rate back down to 4%, well below the natural rate.
This works again in the short run, as the economy moves back to point b2, but the Keynesian joy ride again doesn't last.
With inflation now at 9%, people's adapted expectations eventually change, and we get another shift in the short-run Phillips Curve, to PC 3.
So we are back to the natural unemployment rate of 6% with even more inflation, caught in a vicious inflationary spiral.

[MUSIC]

Now besides demonstrating how politics, coupled with Keynesian activism, can lead to such an inflationary spiral.

This Monetarist-inspired story I have told you also raises an obvious policy question.

Namely, how do you stop such an inflationary spiral?

To the monetarist, the solution is simple. Stop using expansionary Keynesian policies.

And allow the economy to return to the natural or lowest sustainable rate of unemployment.

But, of course, you see the problem.

Even if we stop the upward spiral of inflation, we still have significant inflation.

This is because a higher core rate of inflation has been built into the economy. Specifically, in this case, even if we stop

inflation's upward spiral, we may still find ourselves stuck at point A three in the figure, with a new and higher inertial rate of inflation of 9%.

Here's the worst part of this dilemma.

Neither the traditional Keynesian or monetarist approaches to wringing this inflation out of the economy has any political appeal.

The traditional Keynesian solution is a so-called incomes policy.

Impose wage and price controls until the inflation dissipates.

One problem with this approach, however, is that it may not work.

This is a lesson President Nixon learned when his administration imposed temporary wage and price controls in 1971.

And then watched helplessly as inflation jumped right back up into double digits, once the controls were lifted in 1973.

The other problem with an incomes policy, is that it runs contrary to the ideological

beliefs of the majority of Americans who see

this country as a bastion of free market capitalism.

But simply, businesses don't want the heavy handed government holding down their prices.

And workers don't want that same government holding down their wages.

Accordingly, there are very few advocates of wage and price controls today.

That leaves the Monetarists' solution, and from a political

point of view, it is equally unpalatable.

Specifically, Monetarists believe that the only way

to wring inflation and inflationary expectations out

of the economy, is to have the actual inflation rate below the expected inflation rate.

However to achieve this, the actual unemployment rate must be above the natural rate of unemployment.

That means only one thing.

Inducing a recession.

This is at least one interpretation of what the federal reserve did beginning in 1979 under the monetarist banner of setting monetary growth target.

In 1979 the Fed under chairman Paul Volcker adopted a sharply contractionary monetary policy and interest rates soared to over 20%.

The resulting

recession was the worst since the great depression.

And it probably cost President Jimmy Carter

the 1980 election and a second term. Nonetheless, the Fed's bitter medicine worked.

Between 1979 and 1984, inflation fell dramatically.

But at great human and economic cost.

This table estimates the economic cost of reducing the inertial rate of inflation in 1979 of 9%, to 4% by 1984.

Over this period, because of the recession induced by the Fed, the economy produced \$1.5 trillion dollars less than its potential GDP.

While this \$1.5 trillion dollars may have been

the economic price tag of the Fed's
monetarist experiment.
There was a perhaps even more profound
political result.
The hard economic times left a bitter
taste in the mouths of the American
people.
Now hungry for a sweeter macroeconomic
cure
than either the Keynesians or monetarists
could offer.
Enter stage right, supply side economics.
[MUSIC].