Six Lectures on Depression Economics

Notes for the Fall 2010 Instantiation of Economics 1 at U.C. Berkeley

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MW 12-1, + 2 hours section/week

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Keynesians

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But This Time Is Different
The Third Type of Downturn: Minskyite

An Excess Demand for Safe Financial Assets

Panic and Flight to High-Quality Assets

The Minskyite Cure

A Shortage of Safe High-Quality Assets

The Process of Recognition

The Cure to the Downturn: “Lend Freely...”

Risks of Aggressive Policy Activism

The Minskyite Cure: “At a Penalty Rate...”

How Has This Advice Been Implemented?

How are we doing? How has the U.S. government, and other governments, done at carrying out the proper policies for dealing with a Minskyite downturn?

What If the Government Had Let the Economy Alone?

The Failure to Lend at a Penalty Rate

Summary

Test Your Knowledge
Lecture 1

1. The Place of Depression Economics

A Roadmap

What You Will Learn

After finishing this lecture, you should be able to:

1. Explain how large fluctuations in the unemployment rate are the result of large changes in the flow of total economy-wide spending—what economists call aggregate demand—relative to the productive capacity of the economy—what economists call potential output.

2. Evaluate whether an economic issue is a “microeconomic” or a “macroeconomic” one.

What Is Macroeconomics?

Half of the first-year economics college curriculum is microeconomics: the study of individual workers, investors, firms, markets, and industries in our economy. Half of the first-year economics curriculum is macroeconomics: the study of issues that cannot be analyzed properly without considering the economy as a whole. This chapter starts the macro half. This half should, given the big recession outside and the high level of unemployment in this country and the world starting in 2009, grab and keep your attention.

While studying macroeconomics, watch out for one thing. Some principles, lessons, and techniques from studying microeconomics carry over to macro. But some do not. And the underpinnings of macro are sketchier. There is, with macroeconomics, a certain amount of the construction of an intellectual edifice in midair on shaky foundations. (Economists work diligently to shore up these “microfoundations.” But so far there work has not been terribly successful.)

How is macro most different from micro? Microeconomics, most of the time, presumes that the market system as a whole is functioning reasonably well. In its background it presumes that almost all sellers find willing buyers and almost all buyers find willing sellers at prices more-or-less like those they expect. It presumes that, as a rule, contracts made will be fulfilled. It presumes that, as a rule, promises—whether made by governments, financiers, employers, workers, buyers, or sellers—will be kept.

But what if this overriding assumption is wrong? What if the web of connected markets does not work smoothly? And when does the web of connected markets not work smoothly? And why might the web of connected markets not work smoothly? That is what macroeconomics is for.

The Parts of Macroeconomics

The domain of macroeconomics itself has four parts. Each of them deals with one of four major ways in which the web of markets can fail.
**Depression Economics:** The first is, in Paul Krugman’s phrase, “depression economics.” It examines what happens when sellers cannot, generally and on average, find willing buyers at more-or-less the normal prices. The answer is not pretty. It is called recession or depression. This topic should grab you. We entered the deepest economic recession since the Great Depression back in 2007.

In December 2006 63.4% of American adults of working age had jobs. By December 2009 only 58.2% had jobs. Over those three years the unemployment rate jumped from 4.4% to 10.0%. Total production in the economy had stood at a level of $13.06 trillion per year at the end of 2006 (measured in the prices as they stood in 2005). It had then been growing at an average rate of a hair above 3% per year. Thus total production should have stood at $14.3 trillion per year at the end of 2009. It did not: it was $13.1 trillion per year instead—fully 8.5% lower than what three years before we had all expected the level of production to be.

More than 8% of the useful goods and services that we ought to have been making at the end of 2009 were simply not there. They had vanished completely.

This is what happens when the expectation of sellers that they can, generally and on average, find willing buyers at more-or-less the prices that they had expected, goes wrong. It is what happens when, in general and economy-wide, there is excess supply. And it is what happens when—as invariably happens in conditions of macroeconomic excess supply—the assumption that private financiers and entrepreneurs will generally fulfill their contracts and keep their promises goes wrong as well.

There are three other parts to macroeconomics: they are worth mentioning here, but we will not go into them until later on in the course.

**Inflation economics:** The second part is “inflation economics”: what happens when buyers cannot find willing sellers at the prices they expected. The answer is that you get situations of moderate inflation. The economy sees full or near-full employment as firms find that they can sell as much as they can produce at prices higher than they expect. But it also sees unsettling and dis-
turbing upward wage-price spirals as workers and managers and consumers change their expectations in order to expect faster general price rises—more inflation—than they had expected before. And then they find that prices are rising even faster than their new expectations had led them to believe.

If the only consequence of a situation of inflation economics were that, year after year, purchasers going to market found that prices were two, three, four, or five percent or so higher than they had been last year, few would complain. An economy in which it is easy for workers to find or change jobs and it is easy for managers to sell what their factories have produced is a comfortable place to be.

The problem arises when managers, workers, and consumers begin to reflect on the process of moderate inflation. If prices have been rising at five percent per year for several years, shouldn’t you expect that to continue, and build that into your expectations? And so buyers pay even more, and prices rise by more than they had been expecting them to. And the entire mechanism breaks down, as prices rise more than people had been expecting even though people had been expecting them to rise. The situation can end in a reversal of course as the situation is brought to a close via a dose of depression economics. Or the situation can end in a breakdown of trust in the government and the monetary system.

**Government budget economics:** The consequences of such breakdowns are the third part of the domain of macroeconomics, which deals with the case in which the macroeconomic market failure is one of promise-keeping on the part of the government. As the late Milton Friedman put it, for the government to spend is for the government to tax. Whenever the government spends, it is also promising explicitly or implicitly to tax somebody, either in the present or the future, either directly or indirectly, to pay for that purchase. The government can tax now to pay for spending later—and so run a budget surplus. The government can spend now and promise to tax later—and so run a budget deficit and increase the national debt.

But what happens when the government runs up too great a debt and the political system tries to get the government to break its promise to tax? How to guard against such attempted promise-breaking by the government, and what happens when the government attempts such promise-breaking occurs is deficit economics. And once again it is not pretty: capital flight, disinvestment, stagflation, currency collapse, and hyperinflation.

**Growth economics:** The fourth part does not fit quite as easily as the other three. It is growth economics, the study of how economies grow—or don't grow—in the longer run: how material living standards and labor productivity levels advance, or fail to do so.

Growth economics fits uneasily with the other components of macroeconomics for three reasons.

1. Growth economics is concerned with long-run trends across decades or generations while they are short run, concerned with whether the government is paying its debts or (implicitly or explicitly) defaulting on them, whether workers expecting to find jobs can do so or are disappointed, whether purchasers expecting to buy goods at yesterday's prices can do so or are disappointed, and whether any or all of these are happening right now.
2. Growth economics is concerned with situations in which expectations are generally satisfied while the others are concerned with situations in which expectations are disappointed.

3. Growth economics is concerned with situations in which the economy has recently (where “recently” means something like “the past 200 years”) done relatively well, while the other three are concerned with situations in which things are or are near the point of going badly.

Nevertheless, growth economics is similar to the other three. It, too, looks not at an individual market or firm or household or industry but rather at the economy as a whole. It, too, looks at a situation in which market failures are everywhere and of great importance. For this reason Greg Mankiw added it to the “macroeconomics” half of the syllabus in the late 1980s, and it has stuck here ever since.

**Shifting the Focus to the Economy as a Whole**

Microeconomics analyzes what goes right and wrong at the level of the individual firm, the individual household, the individual industry, or the individual market. Macroeconomics shifts the focus to the economy as a whole and analyzes what goes right and wrong in the aggregate. It looks at things from a macro perspective, one might say. Hence its name.

The shift in perspective from micro to macro has four sets of consequences that you should note. First, it has consequences for what things are held constant in the analysis. Second, it has consequences for how shifts in the economy can feedback upon and amplify each other. Third, it is far, far easier in macro to wind up in situations in which there are a number of possible ways in which supply could equal demand—and in which the principle that the economy comes to rest where supply equals demand is not of much help. Fourth and last, the expectations of the people living in the economy are much more important pieces of analysis in macro than in micro.

**The Importance of Expectations in Macroeconomics**

The last of these is worth a little more explanation here. In the microeconomic portions of this book each little market equilibrium was self-contained: there were suppliers and demanders, they had goods to sell and needs to buy, and so all the relevant information for what would happen in the market was right there in front of us. In macroeconomics people are making decisions and plans which depend on what the future is going to be like—and what the future will be like depends on what decisions and plans are made today, and what their consequences are. Thus the questions of how people form their expectations of the future, and how changes in what happens today affect expectations of the future, are absolutely crucial: different ways of forming expectations lead to very different market outcomes, as we will see.

**Depression Economics Proper**

In December 2006 63.4% of American adults of working age had jobs. By December 2009 only 58.2% had jobs. Over those same three years the unemployment rate—which looks at a narrower
group, not all American adults but only those who say that they are actively looking for work and would take a job if offered one—jumped from 4.4% to 10.0%. Total production in the economy which had stood at a level of $13.06 trillion for each year at the end of 2006 (measured in the prices as they stood in 2005) and which had been growing at an average rate of a hair above 3% per year stood not at $14.3 trillion per year but at $13.1 trillion per year as of the end of 2009—fully 8.5% lower than what three years before we had all expected the level of production to be. More than 8% of the flow of production of useful goods and services that we ought to have been producing and could have been producing at the end of 2009 was gone: vanished completely into thin air.

That fall in the flow of production was the cause of the collapse in the share of American adults who had jobs from 63.4% to 58.2%, and the rise in the unemployment rate—the ratio of those searching for jobs who had not yet found one they should take to the sum of (a) those who had jobs and (b) those who did not have jobs but were searching—to 10%. This “Great Recession” was only the latest, although by far the biggest, of eight similar collapses in employment in America since 1950.

Why this shift, this “Great Recession” in the pace of the flow of production and demand and and the level of employment?

It is not because of any large negative shock to our knowledge about technologies and organizations—not because we have forgotten how to make things or organize ourselves. It is not because of any sudden shortage or exhaustion of natural resources. It is not because of any sudden destruction of national capital stock—of the assembly of produced means of production, of machines and structures that assist and amplify our powers to make and do things. It is not because American workers have lost their taste for labor and prefer to take a great vacation right now: those who have lost their jobs and have not found new ones in this “Great Recession” are for the most part not happy people right now. And it is not because a sudden wave of government regulation or sudden increases in tax rates have disrupted the market economy’s productive division of labor—although you can find people who will claim each of these things with straight faces. All of these factors that might under some conditions explain some of a fall in the pace of production and sales, in the level of employment, and in the fraction of the productive capacity of factories that is being used. But not this time.

Instead, the “Great Recession” of the late 2000s was yet another occurrence of a disease that has periodically but irregularly struck industrial market economies since at least 1825: the demand-
driven industrial business cycle. Extraordinarily large numbers of people are unemployed in
2009-2010 because aggregate demand is low: there is no demand for the things they might or
that they used to make and do. The expectation of sellers that they can, generally and on aver-
age, find willing buyers at more-or-less the prices that they had expected, has gone wrong. And, in
general and economy-wide, there is excess supply. And because there is macroeconomic excess
supply the assumption that private financiers and entrepreneurs will generally fulfill their con-
tracts and keep their promises has gone wrong as well.

In a recession—we generally do not use the word “depression” for anything after World War II,
largely because the word sounds too scary—sellers all across the economy find that buyers do not
show up in the numbers they had been expecting and so inventories of unsold goods pile up on
the shelves. This wave of extra unexpected inventories works its way back through the production
chain and producers respond as they usually do to deficient demand: they lay off workers, cut
back production, and cut prices. Normally when there is deficient demand for some commodity
and hence a glut of it on the market there is excess demand for and hence a shortage of another
one—thus one firm or industry will be hiring workers, increasing production, and raising prices
when another is firing, cutting, and lowering. A recession is a general glut: a shortage of aggregate
demand and not of demand for only one or only a few commodities. And in a recession the
things that producers do to handle a single-commodity glut—firing, cutting back, and lower-
ing—do not help repair the situation but instead work to make matters worse.

One (partial) reason there is low aggregate demand is that so many people are unemployed—and
so have reduced incomes, and so can spend less. The feedback loop from lessened aggregate de-
mand to reduced employment to reduced incomes to even further reduced aggregate demand is a
vicious circle that makes recessions and depressions worse than they would otherwise be.

But where does the initial deficiency of aggregate demand—the one that caused the first piling-
up of inventories unsold on store shelves—come from? You cannot have a downward vicious spi-
ral without an initial push. The answer is that the initial push can come from a number of places,
and take a number of forms, but that once the recession begins the process by which deficient
aggregate demand is generated and propagates itself is very similar. Investigating that process or
propagation and classifying the shocks that produce economic downturns is the subject matter of
depression economics.

**Depression Economics as the Most Important Part of Economics Now**

At the moment of this writing the U.S. unemployment rate at 9.6%. Everybody’s focus is on de-
pression economics. The other three parts of macroeconomics—inflation economics,

government-debt economics, and long-term growth economics—are definitely in the back of
people’s minds.

But this will not always be the case.
By the time you are reading this, things may be different. It may well be the case that one of the other three parts has come to the forefront of the news and of the policy debate. So, at least, the pattern has been for the entire past century.

The World War I era focused on inflation, the 1920s focused on growth, and the Great Depression of the 1930s saw the true birth of depression economics. But by the 1940s the pressures of World War II brought inflation to the forefront, followed by a concern about growth in the 1950s and 1960s, about inflation in the 1970s, and about depression economics again in the early 1980s. The late 1980s and early 1990s saw focus on government debt. They were followed by a late 1990s and early 2000s focused, again, more on economic growth than on any of the other three aspects. And then the financial crisis starting in 2007 has brought about the latest turn of the wheel.

The odds are that at some point in your life you will find each of the four parts of macroeconomics very important for the economy in which you will then be living.

But right now it is depression economics that should be at the forefront of your concerns.

**SUMMARY**

Macroeconomics is that half of the first-year economics college curriculum that deals with issues that require that the shape of the economy as a whole (rather than an individual industry, commodity, firm, producer, or consumer) be kept in the forefront. Some of the principles, lessons, and techniques from studying microeconomics carry over. Many do not. And the underpinnings, the “microfoundations,” of macroeconomics are sketchier and less well-developed than in the rest of economics. The most important feature of macroeconomics is that in it the background assumption that the market system as a whole is functioning relatively smoothly—with buyers finding sellers and sellers finding buyers and contracts being fulfilled, promises kept, and expectations satisfied—does not hold.

The domain of macroeconomics itself has four parts. Depression economics examines what happens when sellers cannot, generally and on average, find willing buyers at more-or-less the normal prices. It is the economics of downturns and high unemployment. Inflation economics examines what happens when buyers cannot find willing sellers at the prices they expected. It is the economics of unsettling and disturbing upward wage-price spirals that disrupt the normal functioning of the market price system. Budget economics deals with the spending and tax promises made by governments, and with what happens when they cannot or do not or it is feared that they will not keep their promises. Growth economics studies how we collectively invest in various ways to make the future richer than the present—and how the market system does not do a good job of appropriately rewarding those whose actions provide for our and our descendants’ common future.

At the moment of this writing, with the U.S. unemployment rate at 9.6%, everybody’s focus is on depression economics. The other three parts seem much less important. But this will not always be the case. But by the time you are reading this, things may well be different, and one of the
other three parts may have come to the forefront of the news and of the policy debate. Explain how large fluctuations in the unemployment rate are the result of large changes in the flow of total economy-wide spending—what economists call aggregate demand—relative to the productive capacity of the economy—what economists call potential output.

By now it should be clear to you whether an economic issue is a “microeconomic” or a “macroeconomic” one. Does it require that you keep your eye on the economy as a whole? Is the presumption that the market system as a whole is working reasonably well satisfied? If your answer to the first question is “yes” and to the second question “no,” it is a macroeconomic issue. And it should also be clear which part of macroeconomics is applicable. Is it a problem of the causes of high unemployment? Then it is depression economics. Is it a problem of instability in wage and price levels on the upward side? Then it is inflation economics. Is the government making promises about spending and taxes that people doubt it will be able to or with to keep? That is government budget economics? Does the problem concern whether people have adequate incentives to induce them to provide properly for our and our descendants’ common future? That is growth economics.

Look around you. Which of these sets of problems seems most pressing—unemployment, inflation, the government’s deficit and the financing of its debt, or economic growth? That tells you which part of macroeconomics you yourself should pay the most attention to.

**Test Your Knowledge**

1. What are the big differences between macroeconomics and microeconomics?
2. What are the four component parts of macroeconomics?
3. Why did the employment-to-population ratio fall by nearly five percentage points between 2007 and 2010?
4. Which is the most important part of macroeconomics now?
5. Which will be the most important part of macroeconomics in the future?
Lecture 2

2. Measuring the Macroeconomy

The National Income and Product Accounts

What You Will Learn

After finishing this lecture you should be able to:

1. Explain what the National Income and Product Accounts—NIPA—are and how economists use them to assess the pace of economic activity.
2. Explain why Gross Domestic Product—GDP—is the most commonly-used measure of the flow of economic activity.
3. Understand what price indexes are for, and distinguish between real and nominal economic quantities.
4. Classify different forms of expenditure, income, and production into their proper places in the NIPA framework.
5. Critique the NIPA as a flawed framework for assessing the pace of economic activity.
6. Use the circular flow principle to understand why, most of the time and in most places, the overall flow of economic activity is reasonably smooth: most buyers find willing sellers, and most sellers find willing buyers.

The Flow of Production and Sales

Production

The U.S. Department of Commerce’s Bureau of Economic Analysis has estimated that in the third quarter of 2007—that is, adding up the months of July, August, and September—the United States economy produced goods and services at a rate of $14,179.9 billion worth a year.

That doesn't mean that in July, August, and September we produced $14 trillion plus worth of stuff: we only produced a quarter of that: $3,545.0 billion. What the Bureau of Economic Analysis said was that, if we were to maintain that quarter of the year’s pace of production for an entire year, then in that year we would have made $14 trillion plus.

Confused? Don’t blame yourself. It is confusing.
The BEA's estimates of the current-dollar value of production—its estimates of nominal Gross Domestic Product—are a flow, not a stock. They are measured in terms of how many dollars worth of stuff are made in a given unit of time.

It is like an automobile's speed: if you drive 60 miles an hour for fifteen minutes—a quarter of an hour—you don't go 60 miles but instead 15. If you produce $3,545.0 billion worth of stuff in three months you are making things and providing services at a rate of $14,179.9 billion per year.

Sales
Not all but almost all of the value of the stuff made in the fourth quarter of 2007 was sold. Nominal gross final sales of domestic product in that quarter proceeded at a rate of $14,148.8 billion per year. The difference between $14,179.9 and $14,148.8—$31.0 billion—is inventory accumulation: the difference between production and sales piles up as “inventories” of goods that firms own but that they want to sell. The inventories of goods that had been produced but had not been sold were greater at the end of September than they had been at the start of July.

How much greater?
If you say $31.0 billion, you are wrong: inventories were growing—inventory investment was proceeding—in the third quarter at a rate of +$31.0 billion per year. It proceeded at this pace for three months: a quarter of a year. Increasing business inventories at a pace of +31.0 billion per year for a quarter of a year means that at the end of September the Bureau of Economic Analysis's estimate was that inventories were $31.0 billion per year x 1/4 year = $7.8 billion higher than they had been at the start of July.

How to Keep Track
Be careful. The smartest people in the world at this get confused—one example is Princeton Professor and former Federal Reserve Vice Chair Alan Blinder in the White House, back when he was a member of President Clinton's Council of Economic Advisers: he divided rather than multiplying by four in his head and thus got an answer that was off by a factor of 16, and none of the young hotshots sitting in the room felt sure enough to try to correct him on the spot.

Thus there are three pieces of advice to keep in mind:

1. Don't try to do this stuff in your head—it is just too hard.
2. Remember what your high-school physics teacher said: no naked numbers. Every number that you write down has to come with its units attached to it. If you keep units attached to numbers then it is harder to divide when you should multiply.
3. Do every problem twice, at least.

Remember: just as rate x time = distance, and just as distance/rate = time and distance/time = rate, so flow x time = change in stock and change in stock/time = flow.
**Imports and Exports**

One more wrinkle. Does the $14,148.8 billion per year of nominal gross final sales of domestic product in the third quarter of 2007 mean that Americans and others resident in the United States were then buying stuff at a rate of $14,148.8 billion a year? No.

Total nominal gross final sales to American residents were at a pace of $14,847.2 billion per year in that quarter.

Where does this difference come from? The difference is net imports: we bought more currently-produced goods and services from foreigners than we sold to them. That is our *trade deficit*. In the fourth quarter of 2007 American businesses sold good and services abroad at a pace of $1,685.2 billion per year, while American residents bought goods and services made outside the United States at a pace of $2,383.6 billion per year. Thus our *trade deficit* in that quarter was at a pace of $698.4 billion per year, our net exports were -$698.4 billion per year. How did we pay for this deficiency of exports relative to imports? Well, in net we sold some of our property and assets to foreigners, and we also borrowed from foreigners.

How much in assets did we sell or borrow?

$698.4 billion?

Again, no.

Our net exports in the third quarter of 2007 were -$698.4 billion *per year*, which means that net foreign investment in the United States was then growing at a pace of $698.4 billion *per year*, which means that over three months net foreign investment in the United States grew by $698.4 billion per year x 1/4 year = $174.6 billion.

**NIPA Summary**

To the left is a summary table of all the numbers we have talked about for the third quarter, July-September, of 2007.

The measure of the size of the American economy that nearly everybody focuses on and that is referred to the most is the Gross Domestic Product—GDP. The word “product” in this measure is important. It is a measure of how much America’s businesses make, not how much they sell—that would be Final Sales of Domestic Product. The difference between the two is, as noted above, the change in inventories: Did businesses as a whole add to or subtract from their stock of goods be-
ing made and finished products in transit and waiting on store shelves? Did businesses "invest" in inventories by adding to their stock, or disinvest by reducing it? If this “inventory investment” item is positive then GDP will be greater than final sales; if this item is negative then GDP will be less.

And GDP is not what Americans buy for their households to use, for their businesses to build up capacity, and for their government to use in its functioning. That would be final sales to domestic purchasers.

Why does everybody focus on GDP rather than on either of the two final sales measures? Mostly for historical reasons: the National Income and Product accounting system was set up before World War II to focus on the “product” measures, and nobody has felt it important to make that change.

**REAL AND NOMINAL MAGNITUDES**

The $14,179.9 billion per year number that we have been talking about is what economists call a nominal GDP number: a measure of the value in dollars of the production of marketed goods and services. That number was higher in the third quarter of 2007 than it had been a year or two earlier.

In the third quarter of 2006 the pace of nominal GDP had been $13,452.9 billion per year. In the third quarter of 2005 the pace of GDP had been $12,741.6 billion per year. Nominal GDP was thus 11.3% higher in the third quarter of 2007 than it had been two years earlier—a rate of growth in the pace at which America was producing marketed goods and services of 5.6% per year: an average over those two years waiting a year meant that the pace at which the American economy would have been producing sellable stuff—measured in dollars—would be 5.6% higher.

Why this “measured in dollars”? Because the BEA’s nominal GDP estimates do not just grow when we produce stuff at a faster rate. They also grow when prices on average go up. Prices are going up and down all the time: some prices rising, some prices falling. But on average, in normal years, more dollar prices are rising than falling. So the BEA’s estimates of nominal GDP would grow in an average year even if Americans were not producing any more goods and services.

That means that the answer to the question “is nominal GDP growing?” is not the same as the answer to the question “is America making more valuable goods and services?” We would like the answer to the second question, but the estimates of nominal GDP answer only the first.

And so the BEA has another measure: not nominal GDP measured in dollars but real GDP measured in “constant dollars”: real GDP is nominal GDP adjusted for changes over time in the average dollar price of goods and services produced and marketed in the United States.

Ask the BEA what the pace of growth in the rate at which America was producing real marketed goods and services was, and it will tell you that real GDP between the third quarter of 2005 and the third quarter of 2007 grew at a pace of 2.5% per year. The difference between the 2.5% per
year rate of growth of real GDP and the 5.6% rate of growth of nominal GDP over the period 2005:III to 2007:III is inflation: the fact that on average the dollar prices that goods and services sold for grew over that interval at a rate of 3.1% per year.

The BEA thus tells us that while nominal GDP was being produced at a pace of $12,741.6 billion per year in the third quarter of 2005, the value of that production at the average prices of 2005 was instead $12,683.6 billion per year—by July-September 2005 prices were a little bit higher than the average price in 2005. And by the third quarter of 2007 the BEA will tell you that while its estimate of nominal GDP is that $14,179.9 billion per year of marketed goods and services were being produced, its estimate of real GDP is that only $13,321.1 billion per year in chained 2005 dollars of marketed goods and services were being produced.

What is this “chained 2005 dollars”?

It is a way of telling us that the BEA is calculating the change in the average of all the prices in the economy in a particular and sophisticated way. It is attempting to separate out those changes in the flow of nominal GDP that are due to increases or decreased in the pace at which valuable goods and services are being produced and hitting the loading dock from those changes in the flow of nominal GDP that are due to increases or decreases in the average level of prices. This is not a straightforward task. If this was a full-year course, at this point it would be time digress into the index-number problem—into why this is not a straightforward task. But this is not a full year course.

THE CIRCULAR FLOW OF ECONOMIC ACTIVITY

Back at the start of the nineteenth century, a market economy where almost everybody specialized in one particular kind of job was a new thing. For most of human history most people had spent most of their time working to provide for their own households: growing their own food, weaving and sewing their own clothes, building their own houses, with purchases and sales in the market restricted to a relatively small part of total economic activity. But starting in the eighteenth century economic growth brought us to a place where, in northwestern Europe at least, for the first time most of what was produced was not consumed by the household that had made it, but was then sold in the marketplace and the money earned used to buy things that others had made.

This market economy disturbed a great many people. “What if it all went wrong?” they asked. “Could we wind up with a situation in which the yoga instructors were offering too many lessons on achieving inner peace that the weavers couldn’t buy, and the weavers had woven too much cloth that the farmers couldn’t buy, and that the farmers had grown too much food that the yoga instructors could not buy—so everyone was unable to satisfy their needs because they could not sell what they had produced, and because they could not sell what they had made they could not afford to buy what others had made?”
Say’s Law and the Circular Flow
It was French economist Jean-Baptiste Say who first proposed an answer back in 1803. He claimed that such a “general glut” was almost inconceivable, for every seller was also a purchaser. In a market economy, Say argued, every transaction has two sides, and nobody sells without intending to buy, and so purchasing power flows throughout the economy in a circle. Businesses produce and sell because they then intend to spend the money they earn hiring workers and rent capital: what they pay workers and capitalists in wages, salaries, rent, income, and dividends becomes their household incomes.
But workers and capitalists only sell and rent their hours and their resources to businesses because they then intend to spend the money they earn buying goods and services. And those goods and services that they buy—well, those are the goods and services that the businesses make. So businesses sell final products to households and buy factor services from households, and households buy final products from and sell factor services to businesses.

We are going to want to keep finer track of the flow of purchasing power through the economy than just to say that households buy things (goods and services) from businesses and businesses buy things (labor-time and capital services) from households. We are going to want to keep track of what happens with the government, with financial market intermediaries, and with the rest of the world as well.

The Components of GDP
So let us start with household spending. Households take their incomes and divide them up into three parts: some they spend buying goods and services from businesses, some they use to pay taxes, and some they save and deposit in financial intermediaries—banks, mutual funds, 401(k) account
holders, brokerages, et cetera. In the third quarter of 2007, households spent at a rate of $9,865.6 billion/year on consumption goods and services. Households also paid to governments at a rate of $2,467.8 billion/year in net taxes—the difference between tax checks written to governments and income support checks (like Social Security) written from governments to households. And total private savings were $1,851.9 billion/year: the sum of direct savings by households, and indirect savings on behalf of the households that owned them by businesses that took some of their profits and decided not to pay them out as dividends but to save them. That was how households disposed of the $14,185.3 billion/year in net incomes they received in the third quarter of 2007

The federal, state, and local governments, in that quarter, took their $2,467.8 billion/year in net taxes, added to it $238.4 billion/year in net government borrowing, and spent $2,700.9 billion/year buying goods and services for the government. “Wait a minute,” you say: “2467.8 + 238.4 = 2706.2, not 2700.9.” Yep. The difference between 2706.2 and 2700.9 is the “statistical discrepancy.” The Commerce Department’s Bureau of Economic Analysis does not track every single purchase and sale in the economy. Rather, it makes estimates. And these estimates are not quite consistent with each other. As long as the statistical discrepancy is small, we are not unhappy.

In the third quarter of 2007, financial intermediaries and businesses received $1,851.9 billion in private savings plus the $698.4 billion/year in net investment in the United States by foreigners. Of this $2,550.2 billion/year total, $238.4 billion/year was loaned to the government, and $2,311.9 billion/year was spent by businesses in gross private investment.

Add up the $9,865.6 billion/year in consumption spending, the $2,700.9 billion/year in government purchases, and the $2,311.9 billion/year in business investment spending, and then subtract off the -$698.4 billion/year in net exports, and we are back to our total of $14,179.8 billion/year for GDP in the third quarter of 2007.

What did the foreigners do with the extra $698.4 billion/year more that they sold us in imports than they bought in exports? Dollar bills are not of much use outside the United States, after all. The answer is that they took them and invested them in the United States: that’s the $698.4 billion/year in loans from abroad and purchases of property and assets in the United States that we saw flowing into financial intermediaries above.

Thus we see the kernel of truth in Jean-Baptiste Say’s idea: every transaction does have two sides, for every buyer there is a seller, and purchasing power does proceed throughout the economy, greasing a flow of production, sales, income, and purchases that in the U.S. economy now amounts to more than $14 trillion worth of commodities every year. In 1803 Jean-Baptiste Say was confident that nothing would interrupt or disturb this flow. By 1829—after watching the depression of 1825-6 in England—he had a different view. But that is for the next chapter: our first chapter on depression economics proper.
The National Income and Product Accounts—NIPA—is the accounting system set up in the late 1930s that economists use to assess the pace of economic activity. It tracks the flow of the production of goods and services. It tracks expenditure by households, businesses, the government, and foreigners on what are called “final” goods and services—that is, products that are not themselves used immediately in further production. And it tracks incomes throughout the economy.

The most-often used piece of the NIPA is the measure of Gross Domestic Product—GDP—which is the most easily-calculated and the most commonly-used measure of the total overall flow of economic activity. It attempts, in an admittedly flawed way, to give a picture of the size of economic activity.

One important additional component of the NIPA is its distinction between “real” and “nominal” economic magnitudes. Nominal magnitudes are spending, production, and income flows as measured in dollars. Real magnitudes are what the same flows of spending, production, and income would be if the average level of prices had not changed between some reference “base year” and today.

The NIPA makes clear that there is a circular flow of economic activity. The sales of one entity are the purchases of another. The expenditures of one entity are the incomes of another. Nobody produces unless they intend to use or to sell, and nobody sells unless they intend to buy. Thus for the most part, most of the time, in most places the flow of production, income, and spending is a balanced and reasonably smooth circular flow: most buyers find willing sellers, and most sellers find willing buyers.

**Test Your Knowledge**

1. What is the NIPA?
2. What is GDP?
3. What is the difference between real and nominal GDP?
4. What is the difference between GDP in the fourth quarter of 2007 and the flow of GDP in the fourth quarter of 2007 at an annual rate?
5. What are the components of GDP?
6. What is the circular flow of economic activity?
7. Why should income, spending, and production side measures of GDP all be equal?
8. What is Say’s Law?
Lecture 3

3. The Circular Flow and Depression Economics

The Necessity for a Theory of Downturns

WHAT YOU WILL LEARN

When you finish this lecture, you will be able to:

1. Explain the relevance of the circular flow principle for the big issues in depression economics.
2. Explain why we need a theory of depression economics.
3. Explain “Say’s Law” of the circular flow of economic activity.
4. Explain how the interaction of financial markets with the rest of the economy can lead to the breaking of Say’s Law—and thus to economic downturns, recessions, depressions, and episodes of very high cyclical involuntary unemployment.
5. Use the income-expenditure framework to assess how large economic downturns are likely to be.
6. Explain the place of downward price stickiness in helping to generate economic downturns and high unemployment.
7. Evaluate critiques of the framework presented here—i.e., claims that there is really no such thing as involuntary unemployment at all.

THE CIRCULAR FLOW PRINCIPLE

If I had had more time last time, I would have talked about the circular flow of economic activity. I would have said that back at the start of the nineteenth century a market economy where almost everybody specialized in one particular kind of job was a new thing. For most of human history most people had spent most of their time working to provide for their own households: growing their own food, weaving and sewing their own clothes, building their own houses, with purchases and sales in the market restricted to a relatively small part of total economic activity. But starting in the eighteenth century economic growth brought us to a place where, in northwestern Europe at least, for the first time most of what was produced was not consumed by the household that had made it, but was then sold in the marketplace and the money earned used to buy things that others had made.

This market economy disturbed a great many people. “What if it all went wrong?” they asked. “Could we wind up with a situation in which the yoga instructors were offering too many lessons
on achieving inner peace that the weavers couldn’t buy, and the weavers had woven too much cloth that the farmers couldn’t buy, and that the farmers had grown too much food that the yoga instructors could not buy—so everyone was unable to satisfy their needs because they could not sell what they had produced, and because they could not sell what they had made they could not afford to buy what others had made.

Say’s Law and the Circular Flow
It was French economist Jean-Baptiste Say who first proposed an answer back in 1803. He claimed that such a “general glut” was almost inconceivable, for every seller was also a purchaser.

In a market economy, Say argued, every transaction has two sides, and nobody sells without intending to buy, and so purchasing power flows throughout the economy in a circle. Businesses produce and sell because they then intend to spend the money they earn hiring workers and rent capital: what they pay workers and capitalists in wages, salaries, rent, income, and dividends becomes their household incomes. But workers and capitalists only sell and rent their hours and their resources to businesses because they then intend to spend the money they earn buying goods and services. And those goods and services that they buy—well, those are the goods and services that the businesses make. So businesses sell final products to households and buy factor services from households, and households buy final products from and sell factor services to businesses.

Households take their incomes and divide them up into three parts: some they spend buying goods and services from businesses, some they use to pay taxes, and some they save and deposit in financial intermediaries—banks, mutual funds, 401(k) account holders, brokerages, et cetera. The federal, state, and local governments take their taxes, return some to households as transfer
payments, add to net taxes their government borrowing, and spend buying goods and services. Financial intermediaries received the private savings from households and the net investment by foreigners, and use that to fund investment to expand capacity by businesses.

Where do foreigners get the dollars that they use to invest in America? They get them by selling us more in imports than they buy in exports. Dollar bills are not of much use outside the United States—so they take them and invest them in the United States.

Thus Jean-Baptiste Say in 1803 was right. Every transaction does have two sides. For every buyer there is a seller. Everyone’s cost is somebody else’s income. And purchasing power does proceed throughout the economy, greasing a flow of production, sales, income, and purchases that in the U.S. economy now amounts to $14 trillion worth of commodities every year.

In 1803 Jean-Baptiste Say was confident that nothing would interrupt or disturb this flow. By 1829—after watching the depression of 1825-6 in England—he had a very different view.

**DISRUPTING THE CIRCULAR FLOW**

*The Coming of the Great Recession*

Total production in the economy had stood at a level of $13.06 trillion per each year at the end of 2006 (measured in the prices as they stood in 2005). It had then been growing at an average rate of a hair above 3% per year. People expected it to stand at $14.3 trillion per year as of the end of 2009. But it did not. The flow of production at the end of 2009 was a mere $13.1 trillion per year—fully 8.5% lower than what three years before we had all expected it to reach. More than 8% of the flow of production of useful goods and services that we ought to have been producing and could have been producing at the end of 2009 was not there. It had vanished completely—into thin air.
Economists and the Possibility of a “General Glut”

Normally, whenever there is deficient demand for some commodity—and hence a glut of it on the market—there is excess demand for and hence a shortage of another one. That was what Jean-Baptiste Say was the first to point out.

Say had been special assistant to Tom Paine’s friend and France’s Girondist Party Secretary of the Treasury Etienne Claviere. Secretary of the Treasury Claviere was then purged, arrested, and imprisoned by Maximilien Robespierre’s Mountain Party. He committed suicide in prison the night before his scheduled execution.

Somehow Say escaped the purge of the Girondists with his liberty and, more important, his life.

Say decided, perhaps wisely, to retire from politics and government. He became a theoretical economist. Ten years later he published his first economics book, his Treatise on Political Economy. And thereafter he churned out more and more volumes.

In his 1803 Treatise Say dealt with the possibility of a “general glut,” of deficient aggregate demand. He concluded that there could be no such thing. Aggregate demand had to match supply, he wrote, because the only thing that could generate demand was supply:

It is production which opens a demand for products.... Yonder farmer... can buy none at all [of your woollens] if his crops fail altogether. Neither can you buy his wool nor his [wheat] yourself, unless you contrive to [first sell] woollens or some other article.... The silver coin you will have received for the sale of your own products and then use to buy those of other people will in the next moment do the same thing for other contracting parties, and so from one to another to infinity.... You will have bought, and everybody will have bought, what you want or desire, each doing so with the value of his own respective products sold and transformed into money for that instant only. Otherwise, how could it be possible that there should now be bought and sold in France five or six times as many commodities as in the miserable reign of King Charles VI? Is it not obvious that five or six times as many commodities must be produced now [as then]. And that they must have served to purchase each other?

This is the circular flow principle of the previous lecture. Households earn money—and they then spend it: it doesn't do them any good if they don't spend it on anything, and "spending" includes buying a bond or putting it into a bank. Businesses receive what households spend, and they then use that money to (a) hire workers, (b) buy things, or (c) distribute to their shareholders as profits: it doesn't do them any good if they in turn do not spend or distribute it. But the spending of businesses hiring workers and the distribution of profits are the incomes of households.

Thus Say argued in 1803 that we didn’t have to worry about a lack of aggregate demand. Consider a simple toy model of a three-sector economy—agriculture, industry, and service sectors,
and since this is Berkeley let's talk about baristas, potters, and yoga instructors. We thus have baristas who make lattes, potters who make ceramics, and yoga instructors who teach lessons. Can there be a situation in which baristas have brewed more cups of coffee than potters wish to buy who have made more ceramics than yoga instructors want to buy who are offering more yoga lessons than baristas want to take? Say in 1803 said no. And others have picked up the argument ever since.

**Does Excess Supply Here Mean Excess Demand There?**

And Say’s argument does have at its core the truth that is the circular flow of economic activity. Everybody’s expenditure is somebody else’s income, and everybody’s income is somebody else’s expenditure. You cannot earn the money that you will yourself then spend unless you can sell what you are making. And they cannot buy what you have to sell unless you have bought what they are selling. That circular flow seems at first glance to rule out any possibility of a “general glut”—of a general economy-wide excess of supply. Say in 1803 certainly thought that it did so.

But by the end of his career, in his last book, his 1829 *Cours Complet d’Economie Politique Pratique*, Say was singing a very different tune. Describing the British economy’s crash and depression of 1825-6 he admitted not only the possibility but the reality of such a “general glut”:

As [the price of] every type of merchandise had sunk below its costs of production, a multitude of workers were without work. Many bankruptcies were declared among merchants and among bankers, who having placed more bills in circulation than their personal wealth could cover, could no longer find guarantees to cover their issues beyond the undertakings of individuals, many of whom had themselves become bankrupt...

And Say’s 1829 analysis of how the British economy had then gotten itself so wedged sounds remarkably modern:

The Bank [of England]... obliged to buy gold back... [t]o limit its losses... forced the return of its banknotes... ceased to put new notes into circulation... was then obliged to cease to discount commercial bills. Provincial banks were in consequence obliged to follow the same course, and commerce found itself deprived at a stroke of the advances... to create new businesses, or to give a lease of life to the old.... [B]usinessmen... obliged to meet [the bills they had issued]... each was forced to use up all the resources at his disposal. They sold goods for half what they had cost. Business assets could not be sold at any price...

But how can it be that the price of everything “had sunk below its cost of production” if everyone’s expenditure is somebody else’s income, and thus everybody’s cost is somebody else’s purchasing power? The circular flow principle seems to rule it out.

**Disrupting the Circular Flow**

It was an economist a generation younger than Jean-Baptiste Say who put his finger on the reason: moral philosopher, libertarian, colonial bureaucrat, feminist, public intellectual, and economist John Stuart Mill put his finger on the answer in a piece he wrote in 1829:
Those who have affirmed that there was an excess of all commodities, never pretended... money was one of these... persons... at that particular time... fearing being called upon to meet sudden demands [for payment], liked better to possess money than any other commodity. Money, consequently, was in request, and all other commodities were in comparative disrepute... the result is, that all other commodities fall in price, or become unsaleable...

We don’t just buy those goods and services that are then currently being produced. We don’t just sell the current flow of services from the labor, the machines and buildings, and the natural resources we own. We add to the current flow of our incomes by selling our assets. We spend our purchasing power not just on the goods and services currently being produced but on financial assets as well.

Thus it is perfectly possible for there to be an excess supply of goods and services—for the current flow of aggregate demand for goods and services to be less than the cost of the goods and services currently being produced—if there is an excess demand for assets. Depressions come, and we need depression economics to analyze, when there is an excess demand for one or more of three particular kinds of financial assets:

1. “Liquid” assets, assets that can be readily and easily used to pay for things, which assets we usually call “money”.

2. High-quality assets, assets that are generally regarded as safe ways to store up purchasing power so that it will still be there intact to be used later on—like U.S. Treasury bonds.

3. Long-duration assets, assets that allow us to take some of the money we are earning now and move it back in time away from us into the future.

Whenever there is full employment and yet the population as a whole wants to hold more of any of these types of assets than exist, people try to switch their spending away from spending on currently-produced goods and services and towards accumulating these assets. And that puts downward pressure on employment and production.

That is the important insight. Let us see if we can make it—the mechanism of how the economy falls into a depression—clearer:

Consider, first, a normal shift in demand: Berkeleyites decide that they want to spend somewhat less on lattes that make them jumpy, irritable, and stressed. Berkeleyites decide they want to spend somewhat more on yoga lessons in order to seek inner peace. Baristas find that they have brewed more lattes than they can sell. Some cut their prices and see their incomes fall, some cut back on
hours, some find themselves unable to buy the shade-grown beans for their next round of production and are unemployed.

Yoga instructors find demand booming.

They schedule extra classes.

They work late into the night chanting “om mani padme hum” to satisfy demand.

They raise their prices.

They take on extra apprentices to help them carry the load.

Prices fall in the coffee industry. Prices rise in the fitness industry. Excess supply of coffee and baristas comes with excess demand for yoga lessons and yoga instructors.

In a short time the economy adjusts.

Labor exits the coffee industry and enters the yoga industry. And in a short while the economy has rebalanced with fewer baristas and more yoga instructors, the structure of production has shifted to accommodate the shift in demand, and there is no more excess unemployment.

But now consider, instead, what Jean-Baptiste Say and John Stuart Mill were talking about in 1829.

Consumers decide that they want to spend somewhat less on lattes purchased from baristas and to hold more cash in their wallets instead. Instead of spending normally, everybody decides to keep at least one $20 in reserve at all times. Those with less than $20 simply stop spending on clothes—until somebody buys some of what they have made and they have more than $20 in their pockets.

What happens?

Well, what happens in the coffee industry is the same thing that happened when there was a shift in demand from caffeine to inner peace. Baristas find that they have brewed more lattes than they can sell. Some cut their prices and see their incomes fall, some cut back on hours, some find themselves unable to buy the beans for their next round of production and are unemployed. Inventories of unsold beans and cold coffee pile up. Entrepreneurs looking at their growing piles of unsold inventory cut back on hours and production even more.

But there is no countervailing increase in spending, employment, and hours for yoga instructors. Things then snowball. The unemployed baristas now have no incomes. They cannot afford to buy as many pots or as many yoga lessons or, indeed, as much of the coffee made by other baristas. Inventories of unsold goods keep rising, and so employers cut back production and employment even more. Thus there is a second-round fall in demand which renders even more people unemployed—and not just weavers this time. And then there is a third round. And so on...
Moreover, everybody sees rising unemployment and falling incomes around them. Can you imagine a better signal to make you decide to try to hold onto more cash? Instead of cutting back on spending on coffee when you have less than $20 in your pocket, people start cutting back on all spending when they have less than $40 in their pocket. And the more the prices at which you can sell your goods falls and the higher unemployment climbs, the more desperate people are to pile up more cash in their wallets.

In a normal market adjustment—a fall in the demand for lattes and a rise in the demand for inner peace—the workers fired from the coffee industry would rapidly be hired into the yoga instructor industry. But this is not a normal market adjustment: this is depression economics.

How far down does production and employment decline when the economy gets itself into a depression economics state? How high does unemployment rise? Well, employers keep cutting back employment—and thus keep cutting back their workers’ incomes—until they are no longer producing more than they can sell and inventories are stable rather than rising. And households keep trying to build up their cash balances until their incomes have fallen so low that they do not think that they dare economize any further to try to boost their cash.

How far is that? To determine how far that is, we need to build another, different economic model—a macroeconomic model.

A Caveat: Not a Consensus Framework

Before we build up our approach, however a digression and a warning: our framework is not a consensus framework. The total-spending-shortfall approach that is law within this course, and that has been the dominant thread in economists’ understanding of economic downturns since at least 1829, does not command the attention of all economists. I count at least three four other theories, all of which have at least some adherents to day. And the economists who hold to the total-spending-shortfall approach are themselves divided into what I think of as three sects, but each of those sects has sub-sects, some of whom think their small differences with their neighbors are of vital importance, and so on.

Why is this the case? Why aren’t economists able to reach even a rough consensus about their discipline. This is especially true in macroeconomics much more than in microeconomics. This has always been the case. As an economist we have seen before, John Stuart Mill, wrote early in the nineteenth century:

What was affirmed by Cicero of all things with which philosophy is conversant, may be asserted without scruple of the subject of currency—that there is no opinion so absurd as not to have been maintained by some person of reputation. There even appears to be on this subject a peculiar tenacity of error—a perpetual principle of resuscitation in slain absurdity.

The sects into which the overwhelming bulk of economists who believe in the total-spending-shortfall approach are three. One, monetarists, focus on excess demand for liquid cash money as
the principal cause of downturns. A second, Keynesians—although the Swedes say they should be called Wicksellians—focus on excess demand for bonds, excess savings, as the principal cause of downturns. The third who don’t have a generally-accepted shorthand name because until recently there were too few of them—we will call them Minskyites—focus on excess demand for safe assets as the principal cause of downturns. But let’s postpone that discussion until next time.

The sects that deny that total-spending-shortfalls are at the root of economic downturns are, by my count at least, five. Call them economists who believe that the root of downturn lies in a “great forgetting,” a “great vacation,” a “great rusting,” a “great confusion,” and a “great immobilization,” respectively.

“Great forgetting”: It is claimed sources of downturns lie in a reduction in productivity—businesses forget how to organize themselves productively, and workers forget how to use technology. Because workers and machines are less productive, it becomes impossible for entrepreneurs to higher them at prevailing wage and rental rates and make a profit. And when entrepreneurs offer lower wage rates, workers decline to work because they would rather have the time off. This theory runs aground on the lived experience of workers and entrepreneurs. Entrepreneurs in downturns do not say that they are cutting back on production because their operations are less efficient: they say that they are cutting back because there is less demand for what they make. Workers do not say that they are happy being unemployed because there is no job at which their skills would add enough value to make it worth their while to work: unemployed workers say that they are sure they could be more than useful to earn their keep at wages they would be more than happy to work at—if only they could find a job.

“Great vacation”: It is claimed that workers decide they no longer want to work as long, and wish instead to indulge in much more leisure. (A subcomponent of this is the belief that downturns are the result of unions or minimum wages: but unions today in America are less powerful than they have been in 70 years, and the minimum wage lower as a share of average labor productivity than it has been in half a century.) Again, this theory runs aground on lived experience: the workers without jobs today are overwhelmingly not people who welcome an extra vacation or an early start on retirement.

In a “great rusting” a large chunk of the economy’s capital stock suddenly becomes obsolete. A possible cause would be, say, a tripling of global energy prices. But nothing like that has happened.

In a “great confusion” workers think that the overall level of prices is higher than it is and so they think that businesses aren’t offering them high enough wages to induce them to work—but this is perhaps the least plausible explanation of all, because you know what prices you are paying for what you buy. The big advocate of this is the University of Chicago’s Robert Lucas, who has spent his career arguing that if only changes in the price level were anticipated there would be no downturns because there would be no downward surprises in wages, and changes in wages would be anticipated if the changes in the money stock that produce them are anticipated. The problem with this is that I have never met anybody who is confused about the relationship between the wages they receive and the prices they pay, and who has quit their job because they wrongly think that their wages are lower relative to the prices that they pay than they are.
Last, in a “great immobilization” somehow all the unemployed cannot figure out that they ought to be trying to find jobs in the expanding sectors until they have been unemployed for a very long time first. This comes in “Austrian” and “structural” flavors. It certainly can be true. But when it is you see evidence that labor finds it difficult to move from contracting to expanding sectors: you see employers in expanding sectors desperate to higher more workers, willing to pay through the nose to do so, and frantically raising wages in expanding sectors in order to attract more qualified applicants. We may see that in three years. We do not see that now.

So I believe that right now Americans’ knowledge of technology and organization is as great as it ever was—that there has been no “great forgetting”—that American workers are as eager to work as they ever were—that the unemployed are not taking a “great vacation”—that our capital stock is as useful as it ever was—that there is no “great rusting”—that people know full well what the prices are of the things they buy—and that there is no “great confusion.”

I also believe that claims that there is a “great immobilization”—the unemployed workers don’t have the skills to take the jobs available, and won’t acquire those skills unless forced to by the scourge of poverty and long-term unemployment—are vastly overblown. If there were jobs available that there were no qualified workers to take firms would be trying to fill those jobs. They would be offering to pay qualified workers more. We would see wage and price inflation in the expanding sectors. And we do not.

So now let us turn to a productive model of how economic downturns produced by a generalized shortage of aggregate demand come from: call it the NIPA-based income-expenditure framework.

**SUMMARY**

Ever since at least 1825 we have had macroeconomic downturns: relatively sudden and substantial falls in production and employment, the effects of which persist for years before production returns to trend and employment returns to normal levels. These downturns are not the result of any collective “forgetting” of technological or organizational knowledge. They are not the result of some sudden change in preferences to work less and enjoy leisure more. They are not the result of some sudden obsolescence of any significant part of the economy’s capital stock. They are not the result of the sudden emergence of a mismatch between the skills of the labor force and the requirements of producing the goods and services households and businesses demand—although they can themselves generate such long-run “structural” employment mismatches. And they are not—for the most part—the result of confusion between the value of wages workers can earn and what they think the value of their wages is.

Instead, such downturns are the result of a generalized deficiency of demand for goods and services. People collectively want to buy less of the goods and services currently being produced than they want to make.
This generalized deficiency, this “general glut” requires some explanation: As Jean-Baptiste Say put it back in 1803, nobody makes unless they intend to use or sell, and nobody sells unless they intend to buy. It is perfectly understandable how there can be excess supply of any particular good—how people can plan to buy more houses or washing machines or grapefruits than are currently being made. But excess supply of one good must be balanced by excess demand for another, right? And so labor and machines and buildings and organizations and finance will relatively quickly flow out of those industries where too much is being made and into those industries where too little is being made, right? This would seem to be guaranteed by the circular flow principle: the idea that everybody’s sales are somebody else’s purchases, that every dollar earned by businesses in sales is passed on to somebody as income, and that every dollar of income winds up as somebody’s purchases.

What Say’s 1803 argument missed was that people seek not just to buy currently-produced goods or services but also to build up or draw down their stocks of assets—in particular, their stocks of liquid money assets, their stocks of long-duration bond-like assets, and their stocks of safe high-quality assets. Whenever there is planned excess demand for money, for savings vehicles, or for safe assets, there will be a generalized excess supply of currently-produced goods and services—and a downturn in production and employment will follow, as businesses respond to the piling-up of unsold goods and services by firing workers and cutting back production.

**Test Your Knowledge**

1. Which early nineteenth-century classical economist—Malthus, Mill, or Say—changed his position on the possibility of “general gluts” over his life, and how did he change it?
2. Why did that classical economist change his mind?
3. What does break Say’s Law—why isn’t it the case that excess supply of some currently-produced goods and services always is offset by excess demand for some others?
4. What kinds of financial excess demand produce “general gluts”—produce economic downturns and high unemployment rates?
Lecture 4

4. The Income-Expenditure Framework

What You Will Learn

By the time you finish this lecture, you should be able to:

1. Explain the role of downward-sticky wages in turning declines in spending into declines in production and employment.
2. Explain the psychological and institutional sources of downward-sticky wages.
3. Divide total spending up into components due to households, businesses, government, and the international sector.
4. Calculate how household consumption spending depends on income.
5. Calculate how large a decline in production and income will be induced by a decline in one of the components of “other” spending.
6. Explain the connection between the income-expenditure framework and the braking of Say’s Law.

Understanding Downturns

Downward-Sticky Wages

To understand depressions, we need to build an economic model in which the market system does not work well. If the market economy was working well, we would not have a depression and mass unemployment. And so a model that premises that the market system works well cannot help us.

So let us start, instead, with the assumption that prices and wages are, at the level of the economy as a whole, “sticky” downwards. When total spending falls—as it did from 2007-2009—average wages and prices will not. Businesses respond to falls in demand first by firing workers and shutting down their production lines, and not by cutting wages. And if businesses do not cut wages on a large scale, they cannot afford to cut prices. Losing money on each item sold and trying to make it up on volume is not a profitable business strategy.

Why are wages sticky? Here are four possible reasons:

1. Managers and workers find that renegotiating wage levels downward is a costly and disruptive exercise as people make all kinds of threats about how they will behave if the other party doesn’t knuckle under that they do not mean but then feel forced to carry out. Hence cutting wage levels best delayed as long as it possibly can be, and then it is best delayed a little longer than that.

2. Managers and workers lack information and so confuse changes in total economy-wide spending with changes in demand for their specific products: if it is demand for your particular product that has fallen, you won’t be able to cut wages and still keep your same-quality workforce—better to get ahead of the game by shrinking your operations.
3. The level of wages is as much a sociological as well as an economic variable—determined as much by what values people think is "fair" as by the balance of supply and demand. Workers take a cut in their wages as an indication that their employer does not value them—hence managers avoid wage cuts because they fear the consequences for worker morale and worker effort.

4. Managers and workers suffer from simple "money illusion"; they overlook the effect of price-level changes when assessing the impact of changes in wages or prices on their real incomes or sales, and so don’t notice that other prices and wages are falling all around them when they consider whether to cut wages.

All of these reasons are operating.

People do wish to stabilize commercial relationships by long-term contracts. Customers do find frequent price changes annoying. When other firms are not changing their prices and wages, you attract attention you may not want when you change yours. Hence managers and workers do prefer to keep their prices and wages stable as long as the shocks that affect the economy are relatively small—or as long as they think that they will quickly pass. People do lack full information, and so they are unsure whether a change in the flow of spending on their products reflects a change in overall demand or a change in demand for their product in particular. Managers who are uncertain which the change is will split the difference. Workers and managers are really not the flinty-eyed rational maximizers of economic theories. Work effort depends mightily on whether workers believe they are being treated fairly, and cutting your wages is almost universally perceived as unfair.

Which of these is the most important factor?

The best thing to say is that economists do not really know. But we do know that total spending in the American economy in mid-2010 was 10% below what the pre-2008 trend had led everybody to expect it to be, and that this fall in spending was unaccompanied by any noticeable decline relative to trend in either wages or prices. All of the decline in spending was, instead, a decline in production and employment.

**Consequences of Downward-Sticky Wages**

Thus any economist who wants to describe the real world will note that price and wage levels—not individual prices and wages, but economy-wide average levels—are sticky downward. Prices and wages remain fixed at predetermined levels as businesses expand or contract production and employment in response to changes in demand and costs.

If wages and prices are sticky downward, then the consequences of a sudden rise in household or business desire to hold cash are clear: as businesses see spending on their products begin to fall and inventories, they will cut production and employment. They want to avoid accumulating unsold and unsellable inventory, so they will cut production and employment until their level of production is no greater than total economy-wide spending, and so inventories are no longer growing. And by the circular flow principle, as they cut production total economy-wide incomes
will fall as well, for the flow of production is nothing other than the flow of incomes. Thus to determine how much they will cut production, we need to figure out what total economy-wide expenditure will be.

**Suppose Wages Were Not Sticky?**

How would it change things if wages were not sticky downward? Would we avoid downturns in production and employment largely if not completely? Spending would drop, but wages and prices would drop too, so the lower flow of nominal spending would still be enough to buy the same stuff and employ the same people.

Perhaps it would work out that way.

Perhaps it would not.

Prices and wages would drop along with spending, but how about debts? And how about interest payments on debts? Businesses that had borrowed money to establish themselves or to expand would find that their nominal cash flow had fallen while their fixed debt repayments had not. They would be forced to declare bankruptcy. The debts that they owed would no longer be safe or liquid assets to hold or suitable vehicles for transporting purchasing power into the future via saving. The bankruptcies would generate an excess demand in financial assets and deficient demand for currently-produced goods and services.

Milton Friedman’s teachers Irving Fisher and Jacob Viner back in the 1930s thought that the downward flexibility of wages and prices made downturns worse, not better.

If the falls in wages and prices are accompanied by equal relative falls in debt, then downward wage and price flexibility probably is an effective way of keeping downturns in spending from causing large depressions. You can view a country’s decision to depreciate or devalue its currency in that light—and, in a small country that trades a lot with the outside world, depreciation and devaluation are among the most effective depression-fighting policies that exist. But in the 1990s we saw that that was not true when a country’s businesses owe a lot of money to foreigners that is denominated not in the home but in foreign currency. Then depreciation writes down the value of wages and prices in the foreign currency while leaving the values of debts unchanged—and in both Mexico in 1994-5 and East Asia in 1997-8 currency depreciations triggered very large economic downturns indeed.

**ANALYZING THE COMPONENTS OF NATIONAL INCOME AND PRODUCT**

**Components of Spending**

Above we saw that total spending was divided into four components:

1. Consumption spending (C),
2. Investment spending (I),
3. Government purchases (G), and
4. Net exports, the balancing item—which in the United States, for my lifetime, have almost always been negative.

Add up these four components and call their sum $E$, for total expenditure.

$$C + I + G + NX = E$$

Now this equation is needlessly complicated for this part of the chapter. Let us add up $I$, $G$, and $NX$ and call their sum “O” for "other," non-consumption spending

$$I + G + NX = O$$

And write total spending $E$ as:

$$O + C = E$$

**Consumption Spending**

Now look at consumption spending. It will be higher the higher are households’ incomes. And it will depend on the confidence that households have in the economy—which itself depends on how much of their incomes they expect to be taxed away by the government (with higher expected taxes leading them to curb spending), on whether they think that they need to boost their cash balances or not due to uncertainty about the future, on whether they have confidence that they will be able to borrow money if they need to or can afford to pay off the debts they currently owe, and other factors. So to start thinking about this, let us write down a very simple arithmetic rule for consumption spending:

$$C = c_0 + c_y \times Y$$

Consumption spending is going to be some number $c_0$ times some other number $c_y$ times the level of total economy-wide incomes $Y$. The “$c_y \times Y$” captures the dependence of consumption spending on current incomes, and the “$c_0$” captures all the confidence, tax, desire to boost cash-on-hand, and other factors. In the United States in 2010, the proper value to pick for $c_y$ is roughly $0.5$: as a rule, if total economy-wide incomes fall by one dollar, consumption spending is likely to fall by fifty cents; and in the United States in 2010, the proper value to pick for $c_0$ is roughly $3.5$ trillion/year. Were economy-wide incomes to be $15.5$ trillion/year, consumption spending would be $11.25$ trillion/year.

So if we take our equation:

$$C = c_0 + c_y \times Y$$

Substitute in $3.5$ trillion/year and $0.5$ for $c_0$ and $c_y \times Y$:

$$C = 3.5 T/y + 0.5 \times Y$$
And then substitute in $15 trillion/year for Y, we see that we get:

$$3.5T/y + 0.5 \times 15T/y = 3.5T/y + 7.75T/y = 11.25T/y = C$$

So why do we write these symbols “c₀ and cₙ”? Why not simply write “$3.5T/y” and “0.5”? Because as the economy changes over time those values will change. And those values do not apply to other countries. And those values can shift—especially c₀, when consumer confidence collapses or recovers.

Notice that in writing this particular equation—this particular consumption function—we have once again followed economists’ principle (or vice) of ruthless simplification.

In this complicated world, consumption spending does not depend on disposable income and confidence alone. It depends on a host of other factors—including the interest rates at which households can borrow, the values of people’s houses, the values of their 401(k) retirement accounts, the distribution of income across the economy, expected future income growth, risk tolerance, and a host of other factors. We hope that confidence and income are the most important one—but if we come across a situation in which other factors are the most important, there is no reason not to ditch this equation for another one that more accurately models reality.

CALCULATING THE SIZE OF DOWNTURNS

Expenditure, Output, and Income

Recall our equation for total spending E (E for Expenditure):

$$E = O + C$$

We can replace the “C” with our consumption function:

$$C = c₀ + cₙ \times Y$$

To get:

$$E = O + c₀ + cₙ \times Y$$

What happens in this model of the economy if expenditure E is greater than income Y? Well, by the circular flow principle income is the same as production, so if E is greater than Y then spending is greater than production—and inventories are falling. If inventories are falling, then businesses are hiring workers and expanding production, so Y is rising. What happens if expenditure E is less than income Y? Well, if E is less than Y then spending is less than production—and inventories are rising. If inventories are rising then businesses are firing workers and cutting back on produc-
tion, so $Y$ is falling. The only situation in which things are in balance and $Y$ is not quickly changing is if:

$$E = Y$$

Then inventories will be balanced, and firms will be neither hiring and expanding nor firing and contracting. Thus the economy will very quickly spiral down in production and employment until it reaches a state where $E=Y$.

Where the Economy Settles: Equilibrium

Where will that be? We can see where the economy will settle, where its stable level of production and income will be, by doing some algebra. If we substitute $Y$ in for $E$:

$$E = O + c_0 + c_y X Y$$

Since we would like to figure out what $Y$ is, we should subtract $c_y X Y$ from both sides to get it all by itself on the left:

$$Y - c_y X Y = O + c_0 + c_y X Y - c_y X Y$$

We can cancel terms on the right:

$$Y - c_y X Y = O + c_0 + c_y X Y - c_y X Y$$

We can gather terms on the left:

$$Y \times (1 - c_y) = O + c_0$$

We can then divide both sides by $(1 - c_y)$:

$$Y \times (1 - c_y)/(1 - c_y) = (O + c_0)/(1 - c_y)$$

We can cancel terms on the left:

$$Y \times (1 - c_y)/(1 - c_y) = (O + c_0)/(1 - c_y)$$

And so arrive at our destination: our formula for what the economywide level of production and spending will be:

$$Y = (O + c_0)/(1 - c_y)$$

Thus to determine the level of economy-wide production (and income, and economy-wide spending) under conditions of depression economics, you follow a three-step plan:
Add up “other” spending $O$—the sum of net exports, investment spending, and government purchases—and the “confidence” component $C_0$ of consumer spending.

Divide that sum by one minus the marginal propensity to consume—the number $C_y$ that tells you how much consumption spending typically changes when economy-wide incomes change.

You are done: PROFIT!!

This is probably a good place to make a point about what we have been doing here. We were talking about people who were buying and selling and spending and saving, and then all of a sudden we were doing... algebra. It was simple algebra, but still: why algebra? Where does this math come from?

The math is an attempt to summarize and aggregate what people are doing in a very compact format. The equations we had all fell into one of three types:

1. Accounting identities—like $C + O = E$: in this case, consumption spending $C$ plus other final demand spending $O$ equals total spending $E$.
2. Behavioral relationships—like $C = c_0 + c_y \times Y$: in this case, consumption spending $C$ equals some amount $c_0$ that depends on household confidence and expectations plus a fraction $c_y$ of households' current incomes $Y$.
3. Equilibrium conditions—like $Y = E$: in this case, production (and thus total income) $Y$ equals total spending, aggregate demand for currently-produced goods and services $E$.

Accounting identities are simply that: part of how we set up the framework for analysis in a consistent way. Behavioral relationships are shorthand descriptions of what people do: what economic decisions people make in response to their existing and to changes in the economic environment. They are another, alternative representation of what we were talking about before: people who are buying and selling and spending and saving.

Equilibrium conditions are a bit more complex. An equilibrium condition is something that must be true if the economy is to be in balance. If an equilibrium condition is not satisfied, then the state of the economy will be changing rapidly. It will be moving toward a state of affairs in which the equilibrium condition does hold.

Here the equilibrium condition is that production $Y$ must equal aggregate demand $E$. If it doesn't, things are changing. If production is greater than aggregate demand, inventories are piling up and the rate of production and income $Y$ is falling businesses are cutting back on hours, firing workers, and cutting prices. If production is less than aggregate demand, inventories are being exhausted—and the rate of production and income is rising as businesses are adding hours, hiring workers, and raising prices.

The state of affairs in which all three of these equations are satisfied is one in which (a) things add up, (b) people are behaving according to the patterns we set out, and (c) the economy is at a point of rest at which production, incomes, and aggregate demand and expenditure are stable.
That is why we do the algebra: it is a shorthand, compressed, and more rapid way of doing the whole argument. But it is only worth doing if it is not a strange series of rote incantations but a shorthand that you can expand into the longer argument should you need to.

Every new subject requires new patterns of thought; every intellectual discipline calls for new ways of thinking about the world. After all, that is what makes it a discipline that allows people to think about some subject in some particular way. Economics is no exception.

In a way, learning an intellectual discipline like economics is similar to learning a new language or being initiated into a club. Economists’ way of thinking allows us to see the economy more sharply and clearly than before. (Of course, it can also cause us to miss certain relationships that are hard to quantify or hard to think of as purchases and sales; that is why economics is not the only social science, and we need sociologists, political scientists, historians, psychologists, and anthropologists as well.)

**How Well Does This Work?**

How well does this work?

Quite well, actually—impressively well for such a simple and crude model. At the depeest part of the recession—the third quarter of 2009—total other spending $O—NX + I + G$—was $487 billion/year less than its pre-2008 trend pace, and total spending $E$ was $1,015 billion/year less than its pre-2008 trend pace.

Let us adopt another notation convention: let us use the symbol "$\Delta$"—capital Greek delta—for "difference."

Take our equation:

$$Y = (O + c_0)/(1 – c_y)$$

Then if we set:

- $c_y = 0.5$, and
- $\Delta O = -$500 billion/year — the change in $O$ is -$500 billion/year

We get:

$$\Delta Y = (\Delta O + \Delta c_0)/(1 – c_y)$$

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\[ \Delta Y = (-500 \text{ billion/year})/(1 \cdot 0.5) \]
\[ \Delta Y = -1,000 \text{ billion/year} \]

This predicted difference in national income \( Y \) relative to its pre-recession trend is remarkably close to the reality of what happened in the recession. The fall in consumption spending \( C \) set in train by the fact that households with unemployed workers and lowered incomes spend less doubled the magnitude of the spending shortfall. This multiplier process had doubled the size of the recession over what it might have been otherwise.

There are trained professionals who do this for a living. Some of them have high-paying jobs doing exactly this at a much more complex and sophisticated level. But the skeleton of the argument is the same as laid out here: something happens to reduce the other components of spending, people lose their jobs, households lose their incomes, and that loss induces a cutback in consumption spending that amplifies the size of the economic downturn.

What induces the reduction in other components of spending? That topic has to wait for next time.

**SUMMARY**

We can use the accounting framework of the NIPA to analyze how large a downturn will be generated by a planned excess demand for money, for savings vehicles, or for safe assets. The total flow of production and incomes \( Y \) can be divided into five parts: investment spending \( I \), government purchases \( G \), net exports \( NX \), that part of household consumption spending that depends on income \( c_Y \cdot Y \), and that part of household consumption spending that depends on household confidence and other factors \( c_0 \). Track the fall in the components of production and income \( Y \), and you track the size of the economic downturn.

**TEST YOUR KNOWLEDGE**

1. Why is it allowable for us to conclude that \( E \), total expenditure, total economy-wide spending, is equal to \( Y \), income and output?
2. What is our equation for figuring out how much production and incomes \( Y \) will fall if there is a fall in either \( I \), \( G \), \( NX \), or the “confidence” component of consumption spending \( c_0 \)?
Lecture 5

5. Economic Downturns

Keynesians, Monetarists, and Minskyites

**What You Will Learn**

This is the chapter on the relationship between economic downturns and financial markets. The problem in economic downturns is that a lot of people who could work productively at wages that would make them and their employers happy are not. Yet when you talk to economists about how to cure such downturns they almost always come up with some theory or policy affecting finance. Why?

The reason is, once again, the circular flow principle: Say’s original insight of 1803 that everybody’s purchases are somebody else’s income, so there cannot be any shortage of income as a whole in the economy to buy the goods and services that are currently being produced. What can happen is that the circular flow can be broken—as Thomas Robert Malthus feared, and as Say came to recognize, and as John Stuart Mill put his finger on it, if people as a whole want to build up their holdings of financial assets there can be too little demand for goods and services even though there was plenty of income.

This provides a way of avoiding downturns. The government does not have to hire the unemployed, or draft the unemployed, or decree that businesses have to hire the unemployed: the government can conduct strategic interventions in financial markets that satisfy what was the excess demand for financial assets, and that will automatically relieve the deficient demand for goods and services as a whole.

In this lecture we are going to consider the doctrines of two sects of economists: “Keynesians,” who believe that downturns are principally caused by an excess demand to hold bonds, savings vehicles to transport your purchasing power from today into the future; and “monetarists,” who believe that downturns are principally caused by an excess demand for liquid cash money that you use to grease your economic transactions. And we are going to point to the existence of a third sect, “Minskyites,” who believe that big downturns are the result of an excess demand for safe AAA high-quality assets—but we are going to defer most of the discussion of this third position to next time because it is the sect most relevant to our current problems and thus deserves a lecture on its own.

Which view is more correct and more helpful in any particular case is, of course, an empirical issue. But few of them see it that way: for them, it is overwhelmingly an issue of ideological allegiance that reaches a religious intensity.

By the end of this lecture you will have learned the theories and approaches of Keynesians and monetarists, and be smarter than either group because you will understand the relevance and limits of application of their theories.
RECAPITULATION

Our Framework for Depression Economics

Last time we saw how recessions and depressions could come to be—how you can have collapses in the circular flow of economic activity and of total economy-wide spending like this one we are in now.

We started with a puzzle. Jean-Baptiste Say set forth the circular flow principle in 1803—the idea that because everybody's spending is somebody else's income there can be no depressions, no recessions, no “general gluts” but only sectoral shifts and readjustments. Nobody makes except to use themselves or to sell. Nobody sells unless to buy. Therefore supply creates its own demand: why have to worry about sectoral maladjustment in which their is too much demand for one commodity and too little for another, but we don't have to worry about excess supply, deficient aggregate demand in general. That's what Say said in 1803. Malthus pointed out that that sounded good in theory but did not seem to work in practice. And by 1829 Say and John Stuart Mill agreed with Malthus.

We started with this circular flow principles, with “Say’s Law,” and we broke it. We broke it by pointing out that the normal process of adjustment, by which workers smoothly move from industries and occupations where there is excess supply to industries and occupations where there is excess demand, simply does not work when the excess supply is of goods and services and the excess demand is for money—or some other kind of financial asset. Then people working in industries where there is excess supply lose their jobs. But there is no countervailing source of extra hiring in the economy to give them someplace to go.

And last time we saw how these recessions and depressions could come to be big. Workers who lose their jobs are in households that thus lose their incomes, and they cut back on their spending. This second round of falling spending on currently-produced goods and services amplifies the shortage of aggregate demand for goods and services, and multiplies the effect of whatever the initial problem was. Then there is a third round, a fourth, and a fifth, until the economy settles down in some high-unemployment depressed state.

What is the level of production at that depressed state? We presented a way to calculate it: our multiplier equation. We argued that the economy will tend to rapidly head for and then remain at a state in which total production and incomes $Y$ are equal to aggregate demand, total spending on goods and services, or total expenditure $E$:

\[ E = Y \]

that total expenditure $E$ will be the sum of spending on consumption goods $C$ and on other components of final demand $O$:

\[ E = C + O \]

And that consumption spending will have a component $C_0$ that depends on confidence and other factors and a component $c_y \times Y$ that depends on households incomes:
\[ C = c_0 + c_y \times Y \]

Those three relationships will all be in balance if and only if:

\[ Y = \frac{(c_0 + O)/(1 - c_y)} \]

If aggregate demand, expenditure \( E \) is greater than production and incomes \( Y \), then inventories are falling and firms are busily hiring workers and expanding production. If \( E \) is less than production and incomes \( Y \), then inventories are rising and firms are firing workers, cutting back on production, failing and closing down. Only if aggregate demand and expenditure on the one hand are equal to production and incomes \( Y \) is the economy in balance, in equilibrium.

We presented this aggregate expenditure framework, and we argued that it did a good job at getting at the essence of what is going on in recessions and depressions.

But we left one big question unanswered: What are the sources of the declines in \( c_0 \) and \( O \) that set in motion the decline in aggregate demand, in total expenditure on goods and services? What financial assets are businesses and households trying to buy that produces the excess demand in finance and the deficiency of demand for goods and services?

**Macroeconomics and Financial Markets**

Economists have argued for more than a century about just what is the financial market excess demand that produces the shortfall in aggregate demand for goods and services. As best as we can see, all these debates have been fruitless and counterproductive. It is like the parable of the blind philosophers and the elephant: each is touching a different piece of the elephant, and each is correctly reporting what he or she feels, but all are wrong in being vociferously sure that the piece of the animal that they have hold of is the entire beast.

Briefly, economists looking for the origins of recessions and depressions who admit that the circular flow principle is not perfect, that Say’s Law can break, have broken up into three schools or sects, one for each type of excess demand for financial assets in downturns that we know of. One sect, call them "Keynesians," after the late English economist John Maynard Keynes of Cambridge University, sees the financial excess demand as an excess demand for bonds. A second sect, named "monetarists" by their intellectual leaders the late Irving Fisher of Yale and the late

**Excess Demands That Can Disrupt the Circular Flow**

- **Three kinds:**
  - Excess demand for liquid cash, money demand ahead of money supply
  - Excess demand for bonds—i.e., for places to store your wealth because you don’t want to spend it now, you want to save it and spend it in the future—savings ahead of investment
  - Excess demand for high-quality assets—i.e., places where you can be sure that your money won’t melt away—panicked flight to quality
- **We had the first in 1982, the second in 2001, and we have the third type today**
Milton Friedman of Chicago and Stanford, sees the financial excess demand as an excess demand for cash. And there is a third small sect which does not have a common agreed-upon name—call them Minskyites after the late Hyman Minsky, an economist at Washington University at St. Louis—sees the financial excess demand as an excess demand for safety, for high-quality places where you can put your wealth and be confident that it will not melt away and disappear.

**Keynesians**

One of the oldest sects, tracing its ancestry back to Swedish economist Knut Wicksell in the late nineteenth century, a sect now called "Keynesians" (to the great annoyance of Swedish economists) sees the financial excess demand as an excess demand for bonds. Bonds—and stocks, and loans, and other such assets—pay interest, dividends, return to you their principal or par value in the future, perhaps pay capital gains. They are all vehicles which you can use to move purchasing power from the present to the future: vehicles that people use to save. Bonds are created when businesses borrow and issue them to finance their investment spending and when the government borrows in order to finance its deficit spending.

To Keynesians—or perhaps more properly Wicksellians—downturns begin when households want to buy more bonds (and stocks, and pieces of real estate) to add to their financial wealth than businesses and the government together want to issue: when savings is greater than investment (plus the government deficit). The attempt by households to redirect their wealth from buying currently-made goods and services to buying bonds—to saving—is what produces the initial deficiency in aggregate demand that sets the downturn in motion.

Thus we reach the recommended economic policy of the Keynesians. If a downturn is the result of an excess of savings over investment plus the government deficit, take policy steps to:

3. increase household confidence so that they are willing to spend more and save less.
4. by reducing interest rates or otherwise improving the investment climate, induce businesses to spend more money investing to add to their capacity and so issue more bonds.
5. expand the government deficit so that the government will issue more bonds that households can then hold.

All three sets of policies eliminate the excess demand for bonds, and so also remove the deficient aggregate demand for currently-produced goods and services that sets the downturn in motion.

**Monetarists**

The second sect, Irving Fisher's and Milton Friedman's monetarists, starts with the observation that cash is a very special asset in any market economy. It is what you use to buy things—you show up at the store with cash (or with your credit card which is a promise that VISA will pay them in cash, or with your checkbook with a live and valid balance which is a promise that your bank will pay them in cash), and the storekeeper will accept your cash as payment and let you buy your stuff. Economists call this asset "money." (Note that in so doing they deviate from nor-
mal English usage, in which "money" can mean "wealth" as well as "cash": when we say that somebody "has a lot of money" we don't mean that they have $10,000 in their pocket.) The monetarists there that downturns in production and employment are always due to an excess demand for cash money. When something has disturbed the supply or demand for liquid cash money so that households and businesses have less of it than they wish, they slow down their spending in an attempt to build their cash balances up, and it is this slowdown in spending that launches the downturn.

A number of things can trigger such an excess demand for liquid cash money:

1. Under a gold standard, the shipment of gold bars abroad to pay for imports reduces the money supply, and so creates an excess demand for money—and thus to deficient demand for goods and services.

2. Open-market sales of government bonds by a central bank like the Federal Reserve by which the central bank trades government bonds for cash diminishes the supply of and so creates an excess demand for money—and thus to deficient demand for goods and services.

3. A loss of confidence by households in the banking system or in finance leads them to trade interest-earning assets for cash and then to stuff that cash under their mattresses increases their demand for cash money, and so leads to an excess demand for money—and thus to deficient demand for goods and services.

4. A failure of or runs on important banks that eliminate or freeze the checking-account deposits of households leads them to try to get more cash in their pockets and leads to an excess demand for money—and thus to deficient demand for goods and services.

5. A loss of confidence and a failure of nerve on the part of businesses that leads them to think that they need to have larger cash balances to deal with economic uncertainty creates an excess demand for money—and thus to deficient demand for goods and services.

Everybody needs cash—and/or a checking account at a reliable bank with cash, and/or an unspent balance on a credit card—in order to carry out their normal day-to-day transactions. What happens when people find that they have less cash than they wish? They cut back on their spending and divert some of their income to trying to build up their cash balances. That cut back on

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Monetarists, Money Demand, and Money Supply

- No significant multiplier
  - So income-expenditure framework uninformative
- \( E = (M/P) \times V \)
- \( Y = E \)
- \( Y = (M/P) \times V \)
- According to monetarists, the Keynesians were looking at the tail and thinking it was wagging the dog
  - It’s not an excess demand for bonds, rather what is going on in the bond market generates interest rates so low that there is an excess demand for money...
their spending is, monetarists say, the thing that produces the initial fall in aggregate demand that sets the downturn in motion.

Thus we reach the recommended economic policy of the Monetarists: have a central bank that uses open-market operations to keep the supply of cash money in balance with demand, they say. Without any excess demand for cash, there will be no deficient aggregate demand for goods and services. And so there will be no downturns: no depressions, no recessions, no "general gluts."

**Minskyites**

There is a third sect, until recently too small and too disorganized to have a name. We call them Minskyites. This sect says that, for big downturns at least, the key is not that the economy has too little cash money or too few bonds, but instead that it has too few high-quality safe assets. It is not that people are cutting back on spending on currently-produced goods and services because they want to have more cash in their pockets or more bonds in their portfolio than exist. Instead, people are fearful that their wealth is unsafe: that they need to sell their risky assets and buy safe ones or else their wealth might simply melt away overnight as whatever partnerships, companies, banks, or governments they have invested in shut their doors, fail, and default on their debts. Thus the policy recommendation of the Minskyites: bailout. The problem is that the economy does not have enough safe high-quality assets, and the private sector cannot create more because nobody trusts any partnership, company, or bank to be good for its current debts let alone for any new ones it might create. The solution is for the government to step in: to support shaky banks so that they can meet their obligations, to take over shaky companies and recapitalize them, to issue its own safe high-quality bonds and use the proceeds to buy up risky private assets, to generally calm the panic.

There are many problems with bailout as a policy. It is unfair, and it sets the stage for more trouble down the road. It is unfair in that it enriches those very financiers and investors whose reckless, speculative, and heedless portfolio strategies that triggered the panic and the general rush by everybody to move a greater proportion of their portfolio into safe, secure, high-quality assets. Those whose actions set the stage for the downturn should not profit. It sets the stage for more trouble down the road because every time Minskyite policies of bailout are adopted risk-loving financiers become more confident that the government will bail them out the next time as well, and so see even more of an incentive to engage in reckless, speculative, and heedless portfolio strategies.

As the late MIT economist Charles Kindleberger put it, writing of the need for a "lender of last resort" to perform the bailouts, but:

> if the market is sure that a lender of last resort exists, its self-reliance is weakened... The lender of last resort... should exist... but his presence should be doubted.... This is a neat trick: always come to the rescue in order to prevent needless deflation, but always leave it uncertain whether rescue will arrive in time or at all, so as to instill caution in other speculators, banks, cities, or countries.... some sleight of hand, some trick with mirrors... [because] fundamentalism has such unhappy consequences for the economic system...
Or as former Federal Reserve Vice Chair Don Kohn put it, the lender of last resort should act because teaching a few thousand investment bankers a lesson that they deserve is not worth doing if the cost is the jobs of millions.

Back in the nineteenth century, London Economist editor Walter Bagehot had a plan for how to deal with such panics and crises. The central bank and the government should, he argued, support the market by buying up risky assets and issuing safe ones and so satisfying the market demand for extra safe-high quality assets. But it made sure that those whose excessive speculation had caused the problem did not profit. "Lend freely" to banks and other financial institutions that needed safe assets in order to avoid bankruptcy themselves, "but at a penalty rate"—at a high rate of interest which would make them poor in the long run as they were forced to hand over their cash or ownership stakes in their firms to the government, and would make them wish that they had not been so reckless in the first place.

In the late financial crisis central banks and governments have followed the first half of Walter Bagehot's plan. They have indeed "lent freely" in order to increase the supply of safe, high-quality financial assets. But they have been unable or unwilling to implement their policies in such a way that their support for financiers is "at a penalty rate," and leaves financiers poor and wishing they had been more prudent before the crisis.

**Who Is Right?**

Which of these three sects is right?

All of them—sometimes. Each has been right at at least one moment in the past generations.

We can see when there is an excess demand for liquid cash money that you can use to purchase things in the economy. When there is an excess demand for liquid cash money, savers and investors are trying to sell all their other financial assets at whatever prices they can in order to get their hands on cash. Thus the prices of stocks, real estate, and bonds are low—which means that the interest rates on all kinds of bonds are very high, for when the price of a bond is low the interest coupon it pays every six months is a large proportion of its value. In 1982 there was such a liquidity squeeze in the U.S. economy: pretty much everybody was attempting to build up their cash balances and trying to sell other financial assets to do so, and interest rates reached their highest levels of the post-World War II period.

**Which You Prefer Is (or Ought to Be) an Empirical Question**

- Do most downturns come about because something has happened to change the quantity of money?
  - If so, we should be monetarists first
  - Focus on keeping the money stock growing along a stable, predictable path
  - That's the best way to avoid depressions
  - That is a strategic intervention to keep the economy on an even keel
- Do most downturns come about because people cutback on spending in order to try to build up their holdings of bonds?
  - Then monetarism is a sideshow
  - And we ought to be pursuing other strategic interventions to keep employment on a stable path
  - Strategic interventions that affect the balance of supply and demand for bonds, for saving and investment
Where did this liquidity squeeze—this excess demand for liquid cash money—come from in 1982? It had been deliberately created by the Federal Reserve, which believed that it had to break the cycle by which Americans had come to expect that each year would see 10% inflation. The only way to do that, then Federal Reserve Chair Paul Volcker and his colleagues concluded, was to create a situation of high unemployment, slack capacity, low production, and depression economics so that neither firms nor workers would dare to ask for the price and wage increases that they had planned. It worked: the 1970s had been a decade of accelerating and the 1980s were a decade of low inflation. It came at a high cost: the unemployment rate peaked at 10.8% at the end of 1982.

We can see when there is an excess demand for bonds—for vehicles to carry purchasing power forward from the present into the future, when there is a savings glut. When there is an excess demand for bonds, savers are willing to pay almost any price for bonds and as a result the interest rates on pretty much all kinds of bonds are very low, for when the price of a bond is high the interest coupon it pays every six months is a low proportion of its value. In 2003 there was such a savings glut in the U.S. economy and indeed worldwide: pretty much everybody was attempting to buy up bonds to hold so that they could shift spending on goods and services from the present into the future, and interest rates as a group reached their lowest levels of the post-World War II period.

And over the past three years we have seen an excess demand for safe, high-quality assets. That has been the excess demand that has triggered pretty much everybody to cut back on spending on current goods and services as they try to build up more wealth in vehicles in which they can be confident it will not melt away. When there is an excess demand for high-quality assets, then the prices of risky assets—stocks, real estate, and corporate and other bonds seen as possible candidates for default—will be low, which means that the interest rates on risky bonds will be high, for when the price of a bond is low the interest coupon it pays every six months is a large proportion of its value. By contrast when there is an excess demand for high-quality assets, then the prices of safe assets—bonds issued by governments regarded as credit worthy, and private loans guaranteed or backed in some way by governments or by ample collateral—will be high because savers are willing to pay almost any price for high-quality bonds, and as a result the interest rates on high-quality bonds will be low, for when the price of a bond is high the interest coupon it pays every six months is a low proportion of its value. Credit spreads—the difference between the interest rates on high-quality bonds and risky bonds—will be extraordinarily high. And whenever a set of bonds shifts in investors’ expectations from being high-quality to low-quality—as the bonds of the government of Greece did—the interest rate on those bonds will jump massively. That is what we have seen over the past three years.

You should recognize that these three classifications are ideal types and not pure types. People can try to switch their spending between all four categories. Think of it this way: when the economy is in balance, people as a whole (a) plan to spend enough but no more on currently-produced goods and services to buy the full-employment rate of production, (b) plan to hold the existing but no more than the existing stock of liquid cash money, (c) plan to add enough but not too much to their holdings of savings vehicles—bonds—to buy up all the newly-issued bonds that businesses are printing to finance their expansions and the government is printing to finance its
deficit, and (d) plan to hold the existing but no more than the existing supply of safe AAA high-quality assets. It is extremely unlikely that two of these plans for categories will be precisely in balance and two will be out of balance—you are much more likely to find something like deficient demand for currently-produced goods and services accompanied by a small excess demand for liquid cash money, a small excess supply of savings vehicles, and a large excess demand for safe high-quality assets.

**Calculating Output Gaps**

**Savings-Investment Gaps**
The Keynesian framework focuses on excess quantity demanded for bonds as a source of pressure making for economic downturns. The quantity demanded of bonds is equal to whatever the current stock of bonds held by households is, plus the flow of savings into financial markets. What is the flow of savings? It has two components. First, there is planned domestic savings $S_d$: the difference between households' incomes $Y$ and the sum of what they plan to spend on consumption goods $C$ and what they pay in taxes $T$ to the government:

\[ Y - C - T = S_d \]

Second, there are foreigners' savings: whenever next exports are negative, foreigners are selling us more goods and earning more dollars via imports than they need to pay for what we export. They take the difference and invest it in the United States. This difference is net savings from abroad: it is equal to the negative of our net exports: $-NX$.

The quantity supplied of bonds is equal to whatever the current stock of bonds issued by businesses and the government is, plus the flow of new issues into the bond market. Businesses' issues of bonds are equal to the amount $I$ they spend on investment adding to their productive capacity. Governments' issues of bonds are equal to the difference between government purchases $G$ and taxes $T$.

Since the current stock of bonds held by households is equal to the current stock issued by businesses and the government, the flow-of-funds in financial markets will be in balance if the rate at which funds are flowing into financial markets from households and foreigners is equal to the rate at which funds are flowing out to businesses and the government, if:

\[ S_d - NX = I + (G-T) \]

If the quantity that people plan to buy of bonds is greater than the quantity that businesses plan to supply, if:

\[ S_d - NX > I + (G-T) \]

then households and firms will be to cutting back on their spending, and there will be downward pressure on output and incomes $Y$—and downward pressure on employment.
How far will output and incomes fall if there is a Keynesian gap, an excess of planned savings over planned investment? We can draw a graph with planned savings and planned investment plotted on the vertical axis and with the level of incomes $Y$ on the horizontal axis. We see that if incomes are lower, planned savings are lower as well—and eventually if incomes fall low enough planned savings fall low enough to be equal to investment. At that point there is no longer downward pressure on spending, output, and incomes, and the economy is in equilibrium balance.

How to calculate where that point is? The requirement that savings equals investment (plus the government deficit) is our equilibrium condition:

$$S^d - NX = I + (G-T)$$

Substitute our expression for the level of domestic savings into this equation:

$$Y - C - T - NX = I + (G-T)$$

Note that $-T$ appears on both sides, so we can cancel it:

$$Y - C - NX = I + G$$

Recall our consumption function:

$$C = c_0 + c_Y \times Y$$

And substitute it into our equation, thus breaking consumption spending down into its components $c_0 + c_Y \times Y$:

$$Y - (c_0 + c_Y \times Y) - NX = I + G$$

We want to determine the value of total output and incomes $Y$ at which this equilibrium condition is satisfied, so collect the terms in $Y$ on the left hand side

$$Y \times (1 - c_Y) - c_0 - NX = I + G$$

Move the other terms on the left over to the right:

$$Y \times (1 - c_Y) = c_0 + NX + I + G$$

and then solve for $Y$:

$$Y = \frac{(c_0 + NX + I + G)}{(1 - c_Y)}$$

That tells us the level of output and incomes $Y$ at which the excess demand for bonds, the excess of planned savings over planned investment, is eliminated. That tells us what the equilibrium level of $Y$ will be in this Keynesian framework.

If you cast your minds back to an earlier section, you remember an alternative expression for the equilibrium level of $Y$, calculated from the consumption function and the equilibrium condition that expenditure equalled output (and incomes):

$$Y = \frac{(c_0 + O)}{(1 - c_Y)}$$
and if you remember the definition of "other spending" $O$:

$$O = NX + I + G$$

you see that these two lines of argument are the same thing.

At this point you should ask how this can be. One of these lines of argument is a result of the equilibrium condition that firms be happy with their level of production—that expenditure equalled production so that inventories were neither rising nor falling. The other line of argument is a result of household savers being happy with their holdings of bonds—that plans between savers and investing businesses be consistent so that there be no excess demand for bonds, and thus that the flow-of-funds through financial markets be in balance.

How is it that these two lines of argument lead to exactly the same conclusions?

The answer is: it is because of the circular flow principle. Whenever expenditure = output = incomes, then the flow-of-funds through financial markets will be in balance and savings will be equal to investment (plus the government's budget deficit). Whenever the flow-of-funds through financial markets will be in balance and savings will be equal to investment (plus the government's budget deficit), then expenditure = output = incomes. That one is the same as the other is a requirement of the accounting identities we used to set up this system of national income, a requirement of, as John Stuart Mill put it, "the metaphysical necessity of the case."

Our depression-economics formula for the level of output $Y$ when the source of the downturn is a Keynesian excess demand for bonds:

$$Y = (c_0 + NX + I + G)/(1 - c_y)$$

suggests policies to get us out of recession or depression:

1. Have the central bank lower the interest rates at which businesses can borrow, and thus make businesses increase their investment spending $I$—when you can borrow money to expand capacity more cheaply you borrow more of it because the cost of expanding capacity is lower.
2. Provide businesses with other incentives, like special tax credits, to increase investment spending $I$
3. Increase government purchases $G$—expansionary fiscal policy.
4. Have the central bank lower the interest rates international currency speculators receive on their portfolio investments in the United States, thus making your currency worth less in terms of other currencies, thus making foreigners more eager to buy domestically-made products and increasing net exports $NX$
5. Encourage businesses to export more, thus raising net exports $NX$.
6. Encourage—via taxes, quotas, or other policies—wholesalers and retailers to import less, thus raising net exports $NX$. 

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7. Claim that prosperity is just around the corner, and thus make businesses more confident about the future and hence raising investment spending.

8. Claim that prosperity is just around the corner, and thus make households more confident about the future, hence raising the baseline consumption-spending confidence term $c_0$, and so cut saving.

9. Cut taxes, thus giving households more money in their pockets and hence raising the baseline consumption-spending confidence term $c_0$—but be careful, for if the tax cut convinces households that the government has no plan for financing itself in the long run, a tax cut will not improve but diminish confidence and will not raise but lower $c_0$: under those conditions it is actually a tax increase that is expansionary.

In normal times, when central banks have the freedom of action to raise and lower interest rates, most Keynesian economists would say that the best tool to try to use to fight recession and depression is option number (1). The first line of defense against downturns—and usually the only one that is needed—is for the central bank to respond by lowering interest rates and thus providing businesses with incentives to boost their investment spending. Such expansionary monetary policies are the easiest to put into action, likely to be among the most rapidly working, least likely to become footballs for destructive political games, and tend to have fewer adverse side effects than the other policies.

But when—as has been the case since 2008—the central bank has lowered the interest rates it controls as far as it possibly can, governments must either wash their hands of the situation or resort to one or more of the other policies for fighting a Keynesian downturn.

**Money Demand-Money Supply Gaps**

The monetarist framework focuses on excess quantity demanded for liquid cash money as a source of pressure making for economic downturns. Take the total liquid cash money supply in the economy—cash, reserve deposits at the twelve regional Federal Reserve banks, deposits in checking accounts, unspent VISA authorizations—and call it $M$, for money. Divide it by the average price level, which we will call $P$, in the economy. The quotient $M/P$ we call the real money stock.

The monetarist version of depression economics says that when $M/P$ goes up households and businesses try to get rid of their excess cash by spending more faster, and they do until the higher rate of their spending makes them think that they need all the liquid cash money they are holding. Conversely, when $M/P$ goes down households and businesses try to build up their cash balances by spending less slower and they do until the lower rate of their spending makes them think that they have enough liquid cash money and do not need to be holding any more. Monetarist founder Irving Fisher hypothesized that the relationship between total expenditure $E$ and the real money stock $M/P$ would be more-or-less a proportional one:

$$E = (M/P) \times V$$
and he named the factor of proportionality \( V \), calling it the “velocity” of money through the economy. Combine this behavioral relationship with our businesses—neither-expanding-nor-contracting-production equilibrium condition:

\[ Y = E \]

and you have the monetarist theory of downturns: the economy is in recession or depression because the real money stock \( M/P \) or \( V \) or both are too low.

Thus the monetarist way to cure a downturn is for the central bank to buy bonds for cash, thus raising the real money stock until spending, output, and incomes—and employment—are once again back at normal levels.

According to the monetarists the Keynesians were looking at the tail and thinking it was wagging the dog. The Keynesians talked about how Federal Reserve open-market purchases of bonds for cash in a downturn decreased the supply of bonds and so restored equilibrium to financial markets. They, the monetarists said, ought to have talked about how Federal Reserve open-market purchases of bonds for cash in downturns increased the supply of money and so restored equilibrium to financial markets. And, of course, the Keynesians said that any excess demand for money there was was simply a reflection of the fact that there weren’t enough bonds available for people to hold.

When I started in this business in 1978-1979, the monetarists had a good case. In the post-WWII United States, at least, the velocity of money looked amazingly stable: it looked like when the real money stock fell production fell, and when the real money stock rose production rose, and that little else had much if any effect on spending, production, incomes, and employment. As a result, at the end of the 1970s Federal Reserve Chair Paul Volcker announced that the Federal Reserve was going to pay more attention to the monetar-
ists—with their focus on the supply of money and on the money market—than it had on the past.

This may have been his biggest mistake. The close correlation between the real money stock on the one hand and production and income on the others almost immediately broke down. Before 1979 there were very few times when velocity was more than 4% away from its trend. After 1979 it has been that far away from trend more often than not. Thus it is difficult now to trust monetarist analyses of depression economics—and their claim that if only the Federal Reserve would engage in more open-market purchases of bonds for cash things would rapidly return to normal.

Since 1979 the velocity of M2 in the United States has usually been more than 5% away from its long-run trend. Thus the usefulness of the monetarist doctrine—that all you have to do is avoid an excess demand for money and the demand for money is stable enough that that is easy to do by keeping the growth rate of the money stock on a simple predictable path—has dropped enormously.

**Unstable Velocity of Money, 1978-**

### Panic and Flight to High-Quality Assets

If you are a monetarist or a Keynesian stating why the economy is in a downturn and recommending what should be done to fight depression is very easy and straightforward. In each case all you have to do is to remember and apply one equation. In the monetarist case you have to remember and apply:

\[ Y = \frac{M}{P} \times V \]

In the Keynesian case you have to remember and apply:

\[ Y = \frac{c_0 + NX + I + G}{1 - c_y} \]

But what do you do if you are a Minskyite, if you think that downturns—big downturns at least—are the result not of an excess demand for cash (which would produce high interest rates across the board) or of an excess demand for bonds (which would produce very low interest rates across the board) but of an excess demand for safe, high-quality assets which produces very low interest rates on low-risk securities like the debt of fiscally-sound governments and very high interest rates elsewhere in the economy?

Unfortunately for you, there is no single-equation Minskyite counterpart to the single-equation income-expenditure formulation of the Keynesian model or the single-equation quantity-theory-
of-money formulation of the monetarist model. The Minskyites have been a small sect rather than a large school, and so have not had the intellectual firepower to determine how to strip their theory down to its essentials so that it can be taught via a single equation to Econ 1 students.

Unfortunately for me, the past three years have been overwhelmingly a “Minskyite” downturn. There has been no general shortage of liquid cash money—interest rates on safe alternative assets like short-term U.S. Treasury bonds have remained low. If we were in a primarily "monetarist" downturn with a cash shortage those interest rates would have skyrocketed, as they did in the early 1980s. There has been no general shortage of bonds either—prices of corporate bonds have in fact fallen and interest rates risen. If we were in a primarily “Keynesian” downturn with a savings glut those interest rates would have plunged, as they did in the early 2000s. We are in a more complicated and confused situation, one that is hard to teach to Econ 1 students.

**SUMMARY**

In economic downturns, a lot of people, people who could work productively at wages that would make them and their employers happy, are not working. In order to improve this situation, the government can conduct strategic interventions in financial markets that satisfy what was the excess demand for financial assets, and that will automatically relieve the deficient demand for goods and services as a whole.

“Keynesians” believe that downturns are principally caused by an excess demand to hold bonds, savings vehicles to transport your purchasing power from today into the future. “Monetarists” believe that downturns are principally caused by an excess demand for liquid cash money that you use to grease your economic transactions. “Minskyites” believe that big downturns are the result of an excess demand for safe AAA high-quality assets—but we are going to defer most of the discussion of this third position to next time because it is the sect most relevant to our current problems and thus deserves a lecture on its own.

Which view is more correct and more helpful in any particular case is, of course, an empirical issue.

If the economy is caught in a Keynesian downturn, the best way to analyze it is to use the NIPA GDP equation: to look at the four component flows of final demand, consumption spending, investment spending, government purchases, and net exports, and track how excess demand for savings vehicles is pushing them down and causing a fall in production. If the economy is caught in a monetarist downturn, the best way to analyze it is to use the quantity theory of money equation to carry out a similar exercise.

**TEST YOUR KNOWLEDGE**

1. Why, empirically, did Jean-Baptiste Say come to the conclusion by 1829 that he was wrong in 1803 to claim that we did not have to worry about episodes like the one that we are in—episodes in which supply does not create its own demand, and there is economy-wide excess supply of currently-produced goods and services?
2. Why, theoretically, did John Stuart Mill claim back in 1829 that Jean-Baptiste Say should have realized that there was a hole in his argument?

3. Why is it allowable for us to assume that E, total expenditure, total economy-wide spending, is or soon will be equal to Y, income and output?

4. What kinds of financial excess demand produce “general gluts”—produce economic downturns and high unemployment rates?

5. What is our equation, if we are Keynesians, for figuring out how much production and incomes Y will fall if there is a fall in either I, G, NX, or the “confidence” component of consumption spending c0?

6. What is our equation, if we are monetarists, for figuring out what the level of production and incomes Y will be?

7. Why are neither Keynesian nor monetarist approaches terribly good fits to our current situation?
6. Dealing with the Great Recession

Government Policy and Excess Demand for Safe, High-Quality Assets and the Downturn

WHAT YOU WILL LEARN
1. The two parts of the cure for a Minskyite downturn—“lend freely” and “at a penalty rate.”
2. How the government has dealt with the downturn: it has been about \( \frac{2}{3} \) successful in carrying out the “lend freely” part of providing support to markets to rebalance demand and supply for high-quality assets.
3. How the government has not successfully carried out the “at a penalty rate” part of providing incentives to financiers to avoid irrational exuberance during the next financial boom.

RECAPITULATION
Last chapter we ran through the “monetarist” and “Keynesian” explanations of downturns.

The monetarist explanation—that downturns are the result of an excess demand for cash, of too little money chasing goods—is a good explanation for why the downturn of 1982 came about. The Keynesian explanation—that downturns are the result of an excess of (planned) saving over investment, an excess demand for bonds—is a good explanation for why the downturn of 2002 came about.

Keynesians
Last time we ran through two types of recessions, “Keynesian” type and “monetarist” type—the one we saw in 2002 and the other we saw in 1982.

In a “Keynesian” downturn the fundamental financial excess demand in the economy is an excess demand for bonds: an excess of (planned) savings over business investment. Households try to shift their spending from purchasing current goods and services to purchasing bonds and other investment vehicles to carry purchasing power forward into the future. The shift in spending away from currently-produced consumption goods and services puts downward pressure on employment and production in those industries. But where is the excess demand for labor to pull the newly-unemployed into new occupations?

Perhaps as bond prices rise and interest rates fall businesses become exuberant about expanding their productive capacity, boost business investment spending, and excess supply in consumption-goods industries is offset by excess demand in investment-goods industries and the economy
smoothly rebalances. But perhaps not—perhaps businesses don’t become exuberant, or perhaps (as happened in 2002) interest rates fall to their floor near zero, and there still is not enough incentive for businesses to invest enough to make them want to borrow enough to soak up the savings glut. Then the downward spiral of the multiplier kicks in: falling production and employment means falling incomes means further reductions in spending and further reductions in production, employment, and incomes.

The cures for a Keynesian downturn are for something to happen that brings the supply and demand for bonds back into balance. Interest rate reductions by the central bank might induce exuberant businesses to undertake investment spending to expand capacity. Thus they would print up more bonds too sell to finance their expansion. This would expand the supply of bonds, and so reduce the excess demand for bonds. Perhaps interest rate reductions would reduce the value of the dollar and so boost exports as U.S.-made goods look cheaper to foreigners. They would then pay for these greater purchases of our exports by selling their own dollar-denominated bondholdings into the market. This would reduce the demand for bonds, and so reduce the excess demand for bonds. Or the government could pull its spending forward into the present and push its taxes back into the past. In order to finance this shift, the government would sell more bonds. That would expand the supply of bonds. And that, too, would reduce the excess demand for bonds.

Standard monetarist cures—for the Federal Reserve to buy short-term government bonds for cash—are ineffective because an excess demand for liquid cash money is not the problem, except insofar as the Federal Reserve’s open-market purchases trigger enough of a reduction in interest rates to sufficiently boost either business investment spending (and bond issues) or net exports (and foreigners’ bond sales).

**Monetarists**

In a “monetarist” downturn the fundamental financial excess demand in the economy is an excess demand for liquid cash money: an excess of (desired) cash holdings over the economy’s money stock. Households try to shift their spending from purchasing current goods and services to building up their cash balances to achieve their desired liquidity. The shift in spending away from currently-produced consumption goods and services puts downward pressure on employment and production in those industries. But where is the excess demand for labor to pull the newly-unemployed into new occupations?

Perhaps as households dump bonds on the market to try to build up their cash holdings bond prices fall and interest rate rise enough that households notice the high opportunity cost of holding cash and reconfigure in order to be satisfied with much lower liquid cash money holdings. But perhaps not. Perhaps (as happened in 1982) interest rates rise but households and businesses still want to build up their cash holdings. And then the downward spiral of the multiplier kicks in: falling production and employment means falling incomes means further reductions in spending and further reductions in production, employment, and incomes.

The cures for a monetarist downturn are for something to happen that brings the supply and demand for liquid cash money back into balance. Interest rate increases could induce households
and businesses to reconfigure their operations, in order to get along with much smaller liquid cash money holdings. A general fall in the price level could reduce the flow of nominal spending needed to maintain the economy at full employment and normal capacity. The central bank could simply expand the money stock by buying bonds for cash. The banking system could reconfigure itself to accept more deposits for each dollar of its own reserves and thus run itself a little closer to the edge of vulnerability to a panic or a run.

Keynesian cures—for the government, say, to print up a bunch of bonds and engage in deficit spending—are ineffective because an excess demand for bonds is not the problem, except insofar as the government’s bond issues trigger enough of a rise in interest rates to induce a sufficient reconfiguration so that households and businesses can carry out their normal spending plans with less liquid cash money in their reserves.

**But This Time Is Different**

However, the current downturn that started in 2007 and is still going on is different. It requires a different explanation. There is, currently, no shortage of cash in the economy: the Federal Reserve has bought short-term government bonds with cash until the economy is positively awash with liquid cash money. But the result has not been a renewal of spending. Instead, the velocity of money—the expression $V$ in the quantity theory of money equation:

$$Y = (M/P) \cdot V$$

has fallen to previously unimaginable levels.

There is, currently, no obvious excess demand for bonds, for vehicles for saving to transfer purchasing power from the present to the future. You can get corporate bonds issued by corporations with good fundamental long-term economic prospects at extraordinarily low prices—and thus paying extraordinarily high yields—relative to normal times.

If the fundamental problem that was breaking Say’s Law was an excess demand for money, then interest rates would be high. If the fundamental problem that was breaking Say’s Law was an excess demand for bonds, an excess of (planned) expenditure over income, then bond prices would be high and interest rates generally low.

Instead, it is only interest rates on government bonds and other assets regarded as safe and of high quality (i.e., mortgages conforming to Fannie Mae guidelines) that are low—only the prices of those assets that are high.

Thus today we have a different type of economic downturn: it is neither a Keynesian downturn triggered by an excess of (planned) saving over investment, nor a monetarist downturn triggered by an excess of desired liquid cash money holdings over the available money stock.
The Third Type of Downturn: Minskyite

An Excess Demand for Safe Financial Assets

This current downturn is thus the result of an excess demand for safety, for high-quality assets, for vehicles in which one can place one’s wealth and be confident that it will not melt away.

This downturn is a Minskyite downturn.

Instead, it is a Minskyite downturn triggered by an excess demand for safe high-quality assets. On the one hand, a great deal of the asset pool that people had regarded as safe and high quality—as nearly as good as Treasuries—is gone, or at least definitely no longer regarded as a safe place to park your wealth so that it will still be there when you come back. On the other hand, the fact of panic and the lack of trust in governments’ abilities to stabilize the economy has greatly increased the share of portfolios that investors wish to hold in high-quality even if low-yielding vehicles.

If you are a monetarist or a Keynesian stating why the economy is in a downturn and recommending what should be done to fight depression is very easy and straightforward. In each case all you have to do is to remember and apply one equation. In the monetarist case you have to remember and apply:

\[ Y = \frac{M}{P} \times V \]

In the Keynesian case you have to remember and apply:

\[ Y = \frac{c_0 + NX + I + G}{1 - c_y} \]

But what do you do if you are a Minskyite, if you think that downturns—big downturns at least—are the result of an excess demand for cash (which would produce high interest rates across the board) or of an excess demand for bonds (which would produce very low interest rates across the board) but of an excess demand for safe, high-quality assets which produces very low interest rates on low-risk securities like the debt of fiscally-sound governments and very high interest rates elsewhere in the economy?

There have been lots of Keynesians and monetarists developing their approaches and fighting it out since, well, since the days of Irving Fisher and Knut Wicksell more than a century ago. That is the reason why their arguments go so smoothly. But there have been fewer Minskyites. And I
am not smart enough to make the argument as polished. So this lecture will be considerably rougher.

Thus unfortunately for you, there is no single-equation Minskyite counterpart to the single-equation income-expenditure formulation of the Keynesian model or the single-equation quantity-theory-of-money formulation of the monetarist model. The Minskyites have been a small sect rather than a large school, and so have not had the intellectual firepower to determine how to strip their theory down to its essentials so that it can be taught via a single equation to Econ 1 students.

And unfortunately for me, the past three years have been overwhelmingly a “Minskyite” downturn. There has been no general shortage of liquid cash money—interest rates on safe alternative assets like short-term U.S. Treasury bonds have remained low. If we were in a primarily “monetarist” downturn with a cash shortage those interest rates would have skyrocketed, as they did in the early 1980s. There has been no general shortage of bonds either—prices of corporate bonds have in fact fallen and interest rates risen. If we were in a primarily “Keynesian” downturn with a savings glut those interest rates would have plunged, as they did in the early 2000s. We are in a more complicated and confused situation, one that is hard to teach to Econ 1 students.

**Panic and Flight to High-Quality Assets**

The Minskyite story of a downturn follows, for a while, the same pattern as the monetarist and the Keynesian stories did. We break Say’s Law by noting that general excess supply in all the markets for currently-produced goods and services can be generated by excess demand for financial assets, and that general excess supply produces downward pressure on production and employment—with no countervailing upward pressure in any other market for any other currently-produced goods or services.

The logic is that people today are not spending at their normal pace because they want to divert their purchasing power to building up their holdings of high-quality safe assets: there is an excess demand for such “AAA” assets. Thus households and businesses have been trying to switch their spending from purchasing currently-produced goods and services to purchasing and building up their safe asset holdings.

Thus employment and production in currently-produced goods and services industries has fallen—with nothing (so far) to pick up the slack.

This is in some respects an old and well-known story. Many economists (if not as many as there are Keynesians and monetarists) have set forward versions of it. Representative members of this “Minskyite” school include: Walter Bagehot, John Maynard Keynes (in some of his moods), Hyman Minsky, Charles Kindleberger, Ben Bernanke, and Ricardo Caballero. And it does have a cure, outlined nearly one hundred and fifty years ago by economist Walter Bagehot in his book *Lombard Street: A Study of the Money Market*. Bagehot compressed his cure for dealing with such a downturn into six words: the government should “lend freely” at a “penalty rate.”
THE MINSKYITE CURE

A Shortage of Safe High-Quality Assets

In a monetarist downturn the problem is an excess demand for liquid cash money, a money supply that is too small. The solution is for the central bank to boost the supply of money via open-market operations that buy short-term government bonds for cash. In a Keynesian downturn the problem is an excess demand for bonds—an excess of (planned) savings over investment. The solution is to bring savings and investment back into balance either via inducing the public to save less, the government to spend more and issue more bonds, or private companies to invest more and issue more bonds.

In the Minskyite downturn the problem is an excess demand for safe, high-quality, “AAA” financial assets. The economy is short of places where investors can park their wealth where they regard it as safe—where they think that it will still be there when next they look. Such an excess demand is the result of justified fear:

- The economy is in a downturn
- A lot of investors have lost their money
- Many financial institutions are teetering on the edge of bankruptcy

Thus it is reasonable for the demand for safe assets to rise.

But such an excess downturn is also the result of previous misjudgment and surprise:

- During the boom preceding the crash financiers had created a lot of brand-new financial assets
- Many of those assets had been widely and generally regarded as safe
- Many people and institutions had accepted the general regard and had treated them as safe places to park their wealth
- They turned out to be wrong
- The newly-created assets turned out to be risky indeed
- And so all those who held the no-longer-AAA assets are eager to move their wealth out of them and into properly, truly safe assets

Thus the excess demand for safe assets has both a supply and a demand side to its creation.

The Process of Recognition

We can see the process of recognition that assets regarded by safe are not safe at all in the internal discussions and judgments at the then-largest bank in the world—Citigroup—as it tried to understand its holdings of Mortgage-Backed Securities in 2007. The SEC vs. Citigroup civil court case settled in 2010 gives us a window into this process of recognition: that assets widely regarded as safe were in fact not so.

Tracking the documents, it seems clear that in January 2007 the top management of Citi thought that it owned $26 billion of safe MBS. By April 2007, the top managers thought that Citi had reduced its asset holdings to about $20 billion of relatively-safe MBS, and recognized that there
was an additional $38 billion on its books—but was confident that that $38 billion were absolutely and totally safe so that there was next to no possibility of any loss. And by July 2007 Citi’s top managers thought that they had reduced their relatively-safe holdings to $13 billion and their absolutely safe exposure to an additional $33 billion.

Then in the late summer and fall they change their mind. In September 2007, Citi concludes that it has probably lost $100 million on its $13 billion of relatively-safe MBS. By October, Citi believes that it has lost $1.6 billion on its $13 billion of relatively-safe MBS—but that it has no losses on what is now seen as an additional $43 billion of exposure.

And then in November 2007 Citi concludes that it has lost $10 billion on its $55 billion of MBS—that they were not safe assets at all. Citi ultimately lost about ¾ of the $55 billion that at the start of 2007 it had thought were safe places to park its wealth.

The Cure to the Downturn: “Lend Freely…”

The cure to a Minskyite downturn is analogous to the cures for monetarist and Keynesian downturns. In a Minskyite downturn the central problem is an excess demand for safety, a shortage of safe high-quality assets. The cures are two.

First, reduce the demand for high-quality assets by easing the panic—restoring the confidence and the risk-bearing capacity of the market.

Second, increase the supply of safe assets by having the government guarantee risky assets, thus transforming them into safe ones, or simply issue more debt itself and use the proceeds to buy up risky assets. This will also help eliminate the excess demand for safe assets—as long as people trust the government’s promises, and don’t take the expansion of its debts as a sign that its liabilities, too, are risky ones to be shunned.

When the government undertakes a Minskyite cure to a downturn—undertakes to reassure markets and to transform risky assets that no investors want to hold at anywhere near their fundamental prices into safe assets—it must. Bagehot said, act aggressively. Investors must see that the government is acting to make the otherwise-risky securities close to riskless. Investors must be confident that the government will continue to do so. Otherwise, they will worry about the risk that the government will abandon its market-stabilization policies, and that will make perceived risk even higher.

Minskyite Cures

- “Lend freely on collateral good in normal times...”
  - Have the government buy up risky assets in exchange for its own safe promises
    - Fiscal policy
    - Banking policy
    - Non-standard monetary policy
      - Create expectations of a little inflation?
    - Nationalizations
    - But only as long as people trust the government: Austria 1931; Greece today

- “But at a penalty rate...”
  - Make those who caused the problem—who issued the assets formerly regarded as safe and now regarded as risky—are very sorry
    - Shareholders and managers of Bear Stearns, Lehman Brothers, AIG...
The government must, as nineteenth-century economist Walter Bagehot put it, “lend freely.” Anybody and everybody who wants to swap the assets they currently hold for safe government-issued ones must be able to do so. That ability is the only thing that can make all the rest of investors confident that the assets they are holding are not risky at all.

In our current situation, this injunction for the government to do everything needed to expand the supply of assets the market considers safe is a call for a number of different kinds of expansionary policy.

It is a call for expansionary fiscal policy, for deficit spending—in which the government spends and then borrows by issuing its own bonds to finance its deficit spending, and those bonds then become safe assets that investors can hold.

It is a call for banking policy: government long-term loans to banks that are on the edge of failure, government guarantees of privately-issued assets, government purchase of risky assets financed by the issue of its own safe debt.

It is a call for non-standard monetary policy: open-market operations not just in short-term government bonds but in long-term and private securities that perform the same function of taking risk onto the government’s balance sheet and providing the private sector with safe high-quality assets in their place.

And it is a call for raising the expected future rate of inflation a bit: if high-quality assets are now expected to have some of their value gradually eroded by slow inflation, demand for them will fall and so spending on currently-produced goods and services will rise.

**Risks of Aggressive Policy Activism**

If investors are still not confident that the government will preserve the financial system from collapse, then temporary bank nationalizations may be called for: if investors are not confident that the government will continue to support private-sector banks in trouble, they may need to be reassured by making the liabilities of shaky private banks liabilities of the government as well.

But all of these policies work only as long as and insofar as they do not shake investors’ confidence in the government’s own finances. For if investors begin to think of the government’s liabilities as also not safe and subject to risk, all of these government policies will turn out not to raise the supply of safe high-quality assets but to diminish it. Then the gap between demand and supply for high-quality, safe assets will be bigger than ever, and the downward pressure on the flow of spending on currently-produced goods and services larger than ever. We saw this collapse of confidence in government credit in Austria in 1931, in Greece in 2010, and innumerable other times in other countries.
The Minskyite Cure: “At a Penalty Rate…”

“Lending freely” is, however, only half of the Minskyite cure to a downturn. The government must also lend at, as Walter Bagehot put it, “a penalty rate.” For the government to lend to financial institutions that have portfolios so risky that the market has concluded that they are bankrupt and need to be shut down is to reward excessive risk taking. If investors and financiers come to believe that the government will be there to shore up the debts of aggressive financial institutions in a panic and make them safe to hold, investors and financiers will then have no incentive to curb their own appetite for risk—there will be no risk to them, they expect, for the government will bail them out. Thus a Minskyite cure to the current downturn tends to guarantee that the next downturn will be even worse, for nobody will then have any incentive to limit the risks that they are their creditors take.

As my old teacher from MIT, Charlie Kindleberger, liked to say:

The presence of a lender of last resort weakens the self-reliance of the banking system and increases its likelihood of falling into excesses of overtrading, revulsion, and discredit...

Although he did note that

[this argument] has overtones... that there is no use providing the poor with housing since they will only keep coal in the bathtub...

Kindleberger thus saw a dilemma. To cure the crisis and avoid or cut short the period of mass unemployment, the government must do something to increase the supply and decrease the demand for safe, high-quality assets. It must act as what he called a “lender of last resort” for the financial system. But, as he expressly noted, this makes economic policy under such circumstances not a science but “an art.” The rescuer of the system:

should exist... but his presence should be doubted [beforehand]... This is a neat trick: always come to the rescue in order to prevent needless deflation, but always leave it uncertain whether rescue will arrive in time or at all, so as to instill caution in other speculators, banks, cities, or countries... some sleight of hand, some trick with mirrors... because... [nonappearance] has such unhappy consequences for the economic system...

Bagehot, a century earlier, had thought he had a solution to this dilemma. Although the government should provide support and so transform what the market now regards as risky assets into safe ones, it must do so in a way that makes the original holders of those assets unhappy. It must make sure that those who would have lost wealth had the government not intervened do lose wealth. That is what he meant by saying that the government should only lend at a “penalty rate”—an interest rate that makes the original financiers unhappy, and poor. Whether the government does this by charging banks high interest rates on the money it lends them, on forcing the sale of assets to itself at distressed prices, by taking large ownership stakes in private financial institutions and so taking the lion’s share of any future profits, or by direct nationalization at fire-sale prices is a matter of judgment.
It may even be impossible to carry out the “penalty rate” portion of Bagehot’s injunction. As former Federal Reserve Vice Chair Donald Kohn observed in 2009, when the choice is between teaching a few thousand feckless financiers not to over-speculate on the one hand or avoiding the loss of the jobs of tens of millions on the other, there is really no choice at all.

**Why the Difference?**

- The dot-com bubble
  - Securities held by venture capitalists
  - By rich investors
  - As part of the portfolios of large mutual funds
  - By individuals
- Prices fall—but everybody knew these securities were risky anyway
- So the downturn was a mild Keynesian one—people cut back on spending in order to try to save more to make up their losses

- The housing bubble
  - Securities supposed to be distributed
  - But they weren’t
- The originate-and-distribute model was broken
- “But they are ‘AAA’!”
  - That you convinced Moody’s to rate them AAA does not mean that they are AAA
  - And so all the debts of all the organizations that held MBSs became suspect

**How Has This Advice Been Implemented?**

How are we doing? How has the U.S. government, and other governments, done at carrying out the proper policies for dealing with a Minskyite downturn?

**What If the Government Had Let the Economy Alone?**

One answer is that the government has done reasonably well: that the glass is two-thirds full on the “lend freely” component. Two economists, Alan Blinder and Mark Zandi, have made that argument most powerfully. Alan Blinder is a Princeton professor, a former Vice-Chair of the Federal Reserve, was an advisor to Barack Obama in the 2008 presidential campaign, and is a perennial on the short lists for senior economic policy positions under Democratic administrations. Mark Zandi is Chief Economist for Moody’s economics.com website, was an advisor to John McCain in the 2008 presidential campaign, and will be a perennial on the short lists for senior economic policy positions under future Republican administrations.

**How Are We Doing?**

- Better than we might be:
  - The Alan Blinder-Mark Zandi baseline: what if the government had done nothing?
  - Then unemployment would probably be at 16% right now
  - Rather than 9.6%
- Not enough:
  - Unemployment is, when the economy is running smoothly, at 4-6%
  - Not at 9.6%
  - And not looking like it is stuck at 9.6% for quite a while to come
They ask the baseline question: What would the economy look like today if the government had followed the policies recommended by the currently-dominant faction of the Republican Party and had done nothing starting in the summer of 2008? What if they had refused to rescue and support the banks, refused to spend government money on a recovery program, and focused instead on reducing the long-run deficit?

Then, they conclude, the unemployment rate today would probably be at 16%.

Instead, as of this lecture the unemployment rate is 9.6%.

The unemployment rate, in normal times, is between 4% and 6%—say 6%.

Blinder and Zandi thus conclude that the TARP and the TALF and the HAMP and Federal Reserve “quantitative easing” policies and extra deficit spending via the ARRA and all the other government interventions have accomplished 6.4% of a 10%-reduction-in-unemployment-relative-to-where-it-would-otherwise-have-been job. That is almost \( \frac{2}{3} \) of the job. The glass is about \( \frac{2}{3} \) full.

On the other hand, the glass is a little more than \( \frac{1}{3} \) empty as far as “lend freely” is concerned. In retrospect it is clear that the government should have been even more aggressive in promoting recovery, boosting spending, and supporting financial markets.

This conclusion—the \( \frac{1}{3} \) empty glass part—is reinforced by noting that current economic forecasts see little if any reduction in the unemployment rate over the next two years, and in fact a likely small increase in the rate of unemployment for a while.

**The Failure to Lend at a Penalty Rate**

If the glass of economic policy is \( \frac{2}{3} \) full as far as the “lend freely” part of proper economic policy is concerned, the glass is totally empty as far as the “at a penalty rate” part of proper economic policy is concerned. In fact, it is doubtful that there is a glass at all.

**SUMMARY**

A Keynesian downturn is the result of planned savings in excess of planned investment: people as a whole planning to buy more bonds than exist to use as savings vehicles to carry their purchasing power forward into the future. It is cured by either expanding the supply or decreasing the demand for bonds. A monetarist downturn is the result of desired holdings of liquid cash money in excess of the economy’s money stock. It is cured by expanding the money supply.

Our current downturn is, overwhelmingly, neither of these. It is a “Minskyite” downturn—the result of an excess demand by people to hold safe, high-quality assets in their portfolios. The cure for a Minskyite downturn has two parts. (1) “Lend freely”—the government needs to create more high-quality financial assets for people to hold, either by issuing more of its own high-quality liabilities or by guaranteeing, formally or informally, banks and finance companies. (2) “At a pen-
alty rate”—the government needs to try to make sure that those whose initial promises that cer-
tain investments would be safe and high-quality do not profit from the bailout necessary to mini-
mize the size of the downturn.

In this crisis, the U.S. government has done reasonably well on the “lend freely” part—the glass is
about two-thirds full. It has done much worse on the “penalty rate” part of the Minskyite policy
prescription.

**Test Your Knowledge**

1. What does it mean for the government to “lend freely”?
2. What does it mean for the government to “lend... at a penalty rate”?
3. Why is it appropriate for the government to “lend freely” in a Minskyite downturn?
4. Why is it appropriate for the government to “lend... at a penalty rate” in a Minskyite down-
turn?