

# Lecture Notes: Chapter 1: Introduction to Macroeconomics

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## Overview

### What Is Macroeconomics?

*Macroeconomics* is the study of what is happening to the economy as a whole, the economy-in-the-large, the *macroeconomy*.

Macroeconomists' principal tasks: to try to figure out why overall economic activity rises and falls: the value of production, total incomes, unemployment, inflation. Intermediate variables like interest rates, stock market values, and exchange rates--that play a major role in determining the overall levels of production, income, employment, and prices.

### *Why Macroeconomics Matters*

Three reasons: cultural literacy, self-interest (understanding the situation you are in), civic responsibility—your duty to vote, and to understand whether who you are voting for can deliver what he or she promises.

Politicians believe strongly that their success at the polls depends on the state of the economy. They think that fairly *and* unfairly they get the credit when the economy does well and suffer the blame when the economy does badly. One of the most outspoken political leaders on this topic was mid-twentieth-century American politician Richard M. Nixon, who publicly blamed his defeat in the 1960 presidential election the Eisenhower administration's unwillingness to take action against an economic slump:

"The matter was thoroughly discussed by the Cabinet....[S]everal of the Administration's economic experts who attended the meeting did not share [the] bearish prognosis.... [T]here was strong sentiment against using the spending and credit powers of the Federal Government to affect the economy, unless and until conditions clearly indicated a major recession in prospect....I must admit that I was more sensitive politically than some of the others around the cabinet table. I knew from bitter experience how, in both 1954 and

1958, slumps which hit bottom early in October contributed to substantial Republican losses in the House and Senate.... The bottom of the 1960 dip did come in October.... the jobless roles increased by 452,000. All the speeches, television broadcasts, and precinct work in the world could not counteract that one hard fact."

*Source:* Richard M. Nixon, *Six Crises* (Garden City, NY: Doubleday, 1962), pp. 309-311:

Economic historians continue to dispute the causes of the "stagflation"--a combination of relatively high inflation and relatively high unemployment--that struck the American economy in the early 1970s, after Richard Nixon finally became President. Was it the result of his manipulation of economic policy for political goals so that during his 1972 reelection campaign the economy would look better than it had in 1960? The evidence is contradictory. But no matter how much Nixon's policy contributed to stagflation, all agrees that his major goal was not to create a healthier economy over the long term but to make the economy look good in 1972.

## Macroeconomic Policy

### *Growth Policy*

Nothing matters more in the long run for the quality of life in an economy than its long-run rate of economic growth. Argentina vs. Sweden in economic growth in the 20<sup>th</sup> century. In 1929, for example, Argentina was fifth in the world in the number of automobiles per capita. Yet today Argentina is classified as a "developing" country. Why? Destructive economic policies have retarded economic growth.

### *Stabilization Policy*

The second major branch of macroeconomic policy is the government's *stabilization* policy. *Business cycles*. Periods in which production grows and unemployment falls are called *booms*, or *macroeconomic expansions*. Periods in which production falls and unemployment rises are called *recessions*, or worse, *depressions*. Booms are to be welcomed; recessions are to be feared.

Today's governments have powerful abilities to improve economic growth and to smooth out the business cycle by diminishing the depth of recessions and depressions. Good macroeconomic policy can make almost everyone's life better; bad macroeconomic policy can make almost everyone's life much worse. For example, policy makers' reliance on the gold standard as the international monetary system during the Great Depression was the source of macroeconomic catastrophe and human misery. Thus the stakes that are at risk in the study of macroeconomics are high.

At the end of 1982 the U.S. macroeconomy was in the worst shape since the Great Depression. The unemployment rate was more than ten percent. In an average week in 1983, some 10.7 million Americans were unemployed--actively seeking work, but unable to find a job that seemed worth taking. That year the average unemployed American had

already been unemployed for more than twenty weeks. The average household income in the United States was eight percent below its long-run trend.

By contrast, at the end of 2000 U.S. unemployment was just four percent, and average household income was four percent above trend. In which year would you rather be trying to find a job?

Bad macroeconomic policy makes years like 1982 and 1983 much more common than years like 1999 and 2000. Though good macroeconomic policy cannot maintain the degree of relative prosperity seen in 2000 indefinitely, it can all but eliminate the prospect of years like 1982 and 1983.

## Macroeconomics Versus Microeconomics

By itself macroeconomics is only half of economics. For more than half a century economics has been divided into two branches, macroeconomics and *microeconomics*.

Macroeconomists examine the economy in the large, focusing on feedback from one component of the economy to another, and studying the total level of production and employment.

Microeconomists study the markets for single commodities, examining the behavior of individual households and businesses. They focus on how competitive markets allocate resources to create producer and consumer surplus, as well as on how markets can go wrong.

These two groups of economists differ in their view of how markets work.

Microeconomists assume that imbalances between demand and supply are resolved by changes in prices. Rises in prices bring forth additional supply, and falls in prices bring forth additional demand, until supply and demand are once again in balance.

Macroeconomists consider the possibility that imbalances between supply and demand can be resolved by changes in quantities rather than in prices. That is, businesses may be slow to change the prices they charge, preferring instead to expand or contract production until supply balances demand.

In every generation, economists attempt to integrate microeconomics and macroeconomics by providing "microfoundations." But no one believes that the bridge between microeconomics and macroeconomics has yet been soundly built. Economists are divided between those who think that the failure to successfully integrate the two branches is a flaw that urgently needs to be corrected, and those who think it is a regrettable but minor annoyance.

## Tracking the Macroeconomy

### Economic Statistics and Economic Activity

The *National Income and Product Accounts* [NIPA] reported by the U.S. Commerce Department's Bureau of Economic Analysis, are the fundamental data of macroeconomics.

Whenever you work for someone and get paid, that is economic activity. Whenever you buy something at a store, that is economic activity. Whenever the government taxes you and spends its money to build a bridge, that is economic activity. In general, if a flow of money is involved in a transaction, economists will count that transaction as "economic" activity. Overall, "economic activity" is the pattern of transactions in which things of real useful value--resources, labor, goods, and services--are created, transformed, and exchanged. If a transaction does not involve something of useful value being exchanged for money, odds are that NIPA will not count it as part of "economic activity."

In the United States, individual economic statistics are released month-by-month and quarter-by-quarter, a "quarter" being a three-month period: a quarter of a year. Thus you will often hear economists and other analysts talk about the "change in inventories in the second quarter."

The sheer number of statistics is confusing at first glance.

We will focus on *six key indicators of economic activity*.

### Six Key Indicators

- Real Gross Domestic Product
- The unemployment rate
- The inflation rate
- The interest rate
- The level of the stock market
- The exchange rate.

The first two are directly and immediately connected to people's material well-being. The other four are indicators and controls that profoundly influence the economy's direction.

#### *Real GDP*

- "Real" means that this measure corrects for changes in the overall level of prices.
- "Gross" means that this measure includes the replacement of worn-out and obsolete equipment and structures as well as completely new investment

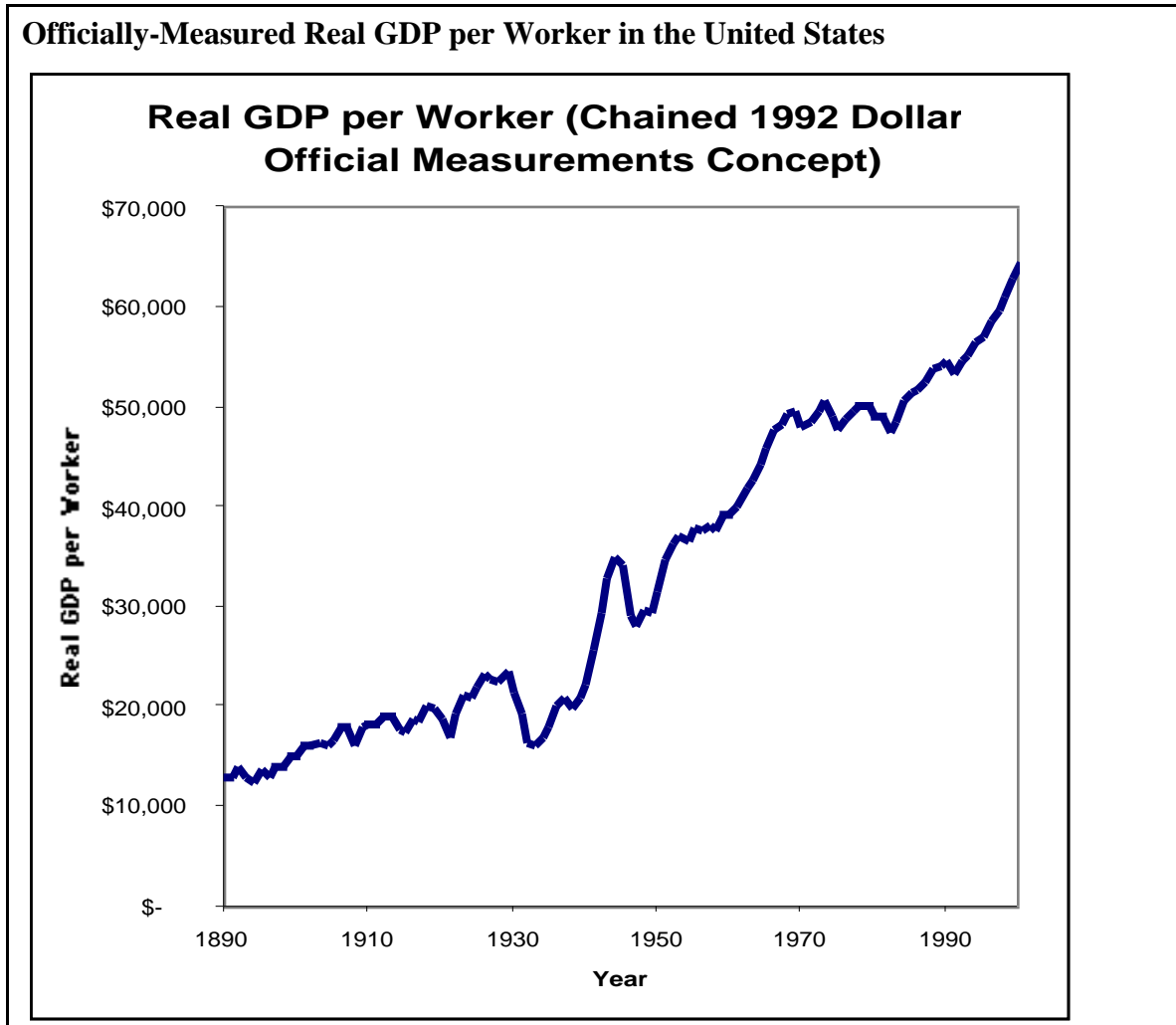
- "Domestic" means that this measure counts economic activity that happens in the United States, whether or not the workers are legal residents and whether or not the factories are owned by American companies
- "Product" means that real GDP measures the production in America of *final goods and services*. It includes *consumption goods* (things that consumers buy, take home or take out, and consume) and *investment goods* (things like machine tools, buildings, highways, and bridges, that boost the country's capital stock and productive capacity). It also includes government purchases: things that the government (acting as our collective agent) buys and uses.

Real GDP divided by is an imperfect measure of how well the economy produces goods and services that people find useful--the necessities, conveniences, and luxuries of life. It says nothing about the relative distribution of the nation's economic product. It measures market prices, not user satisfaction, it is an imperfect measure of material well-being.

In the year 2000, calculated using 1992 prices, officially-measured U.S. real GDP per worker--the total value of all final goods and services produced in the United States, divided by the number of workers in the labor force--reached \$65,000. The measured productivity of the average American worker had quintupled since 1890, when the standard estimate of 1992-price real GDP per worker was some \$13,000. Amazingly, this upward leap in economic well-being was accomplished in a little over three generations.

Figure 1.4 shows this upward trend in real GDP per worker. Despite temporary setbacks in recessions and depressions--of which the Great Depression of the 1930s--was by far the largest--the principal event of the twentieth century was this quintupling of measured real GDP per worker. Other macroeconomic events visible in the figure include the World War II boom, the 1974-1975 and the 1980-1983 major recessions, the 1990-1991 minor recession, and the two-decade long period of stagnation from the early 1970s to the early 1990s--a period that saw the 1973 and 1979 sharp oil price increases by OPEC, and the large investment-reducing government budget deficits of the 1990s.

Note that this figure says nothing at all about how economic growth was distributed. In fact, the years between 1930 and 1970 saw the middle and working classes diminish the relative income gap between themselves and the rich. The years between 1970 and the present have see this gap open wider once again.



### *The Unemployment Rate*

The number of unemployed people divided by the total labor force--the sum of the unemployed and the employed. The U.S. Labor Department's Bureau of Labor Statistics conducts the Current Population Survey: a random survey of America's households, every month.

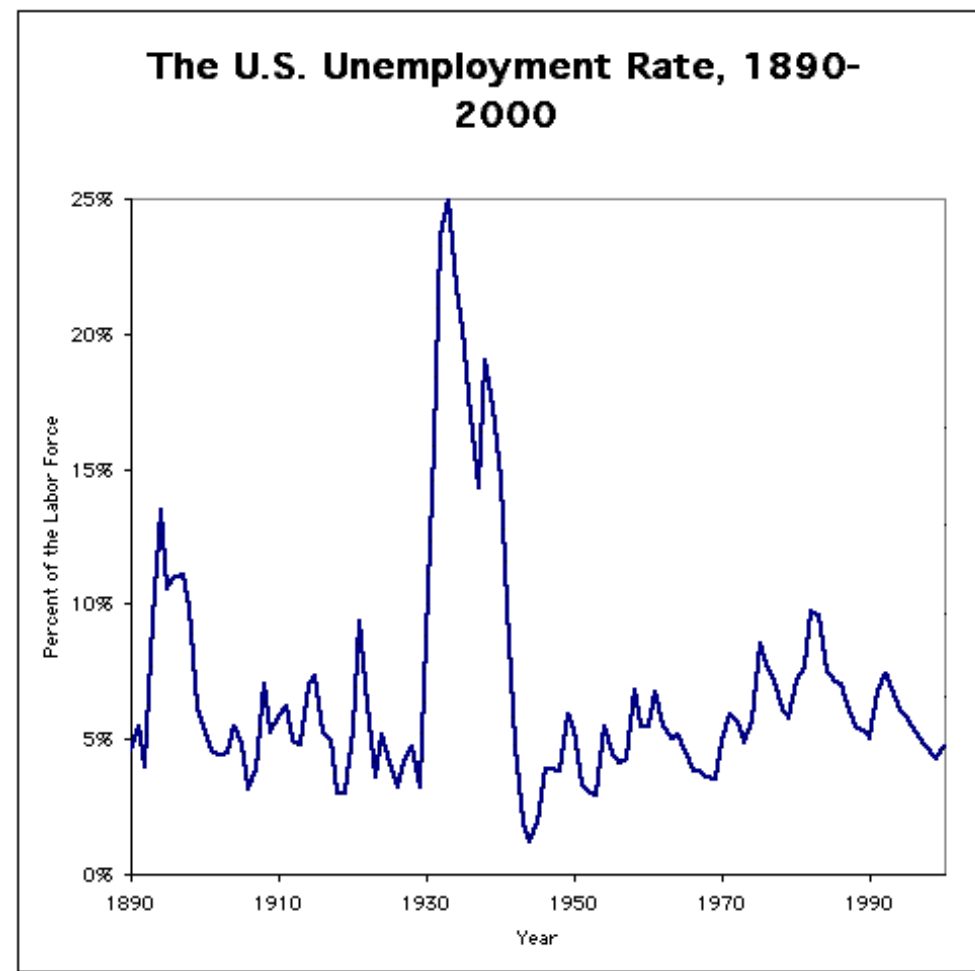
Frictional unemployment.

During recessions and depressions, however, unemployment is definitely not "frictional." *Cyclical unemployment*. In the United States in the Great Depression the unemployment rate rose to 25%. In Germany during the Great Depression the unemployment rate rose to 33%.

The unemployment rate is the best indicator of how well the economy is doing relative to its productive potential.

In the twentieth century the U.S. unemployment rate dipped as low as 1.5 percent during World War II and as high as 25 percent during the Great Depression, the principal macroeconomic catastrophe of the past century. No other recession or depression in the nation's history, not even the depression of the early 1890s, came close to the Great Depression's devastating impact.

**Figure 1.5: The U.S. Unemployment Rate**



### *The Inflation Rate*

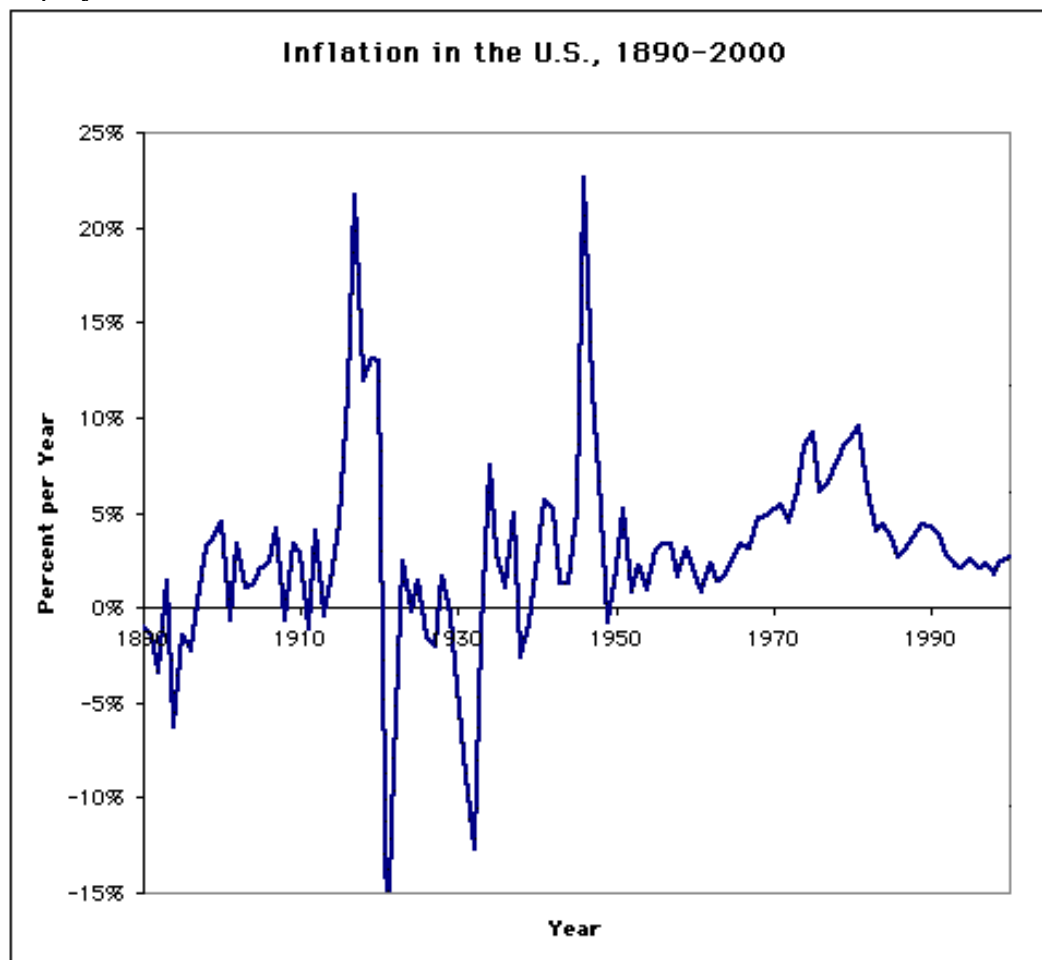
A third key economic indicator is the *inflation rate*.

A very high inflation rate--more than 20 percent a month, say--can cause massive economic destruction, as the price system breaks down and the possibility of using profit-and-loss calculations to make rational business decisions vanishes. Such episodes of

*hyperinflation* are among the worst economic disasters that can befall an economy. But not since the Revolutionary War has the U.S. experienced hyperinflation. Box 1.5 tracks the inflation rate in the United States over the past century.

Strangely, moderate inflation rates--a little more than 10 percent a year, say--are highly unsettling to consumers and business managers. Moderate inflation should not seriously compromise consumers', investors', and managers' ability to determine the best use of their financial resources or to calculate profitability. Yet all these groups are strongly averse to it. Politicians in the industrialized economies have discovered that if they fail to preside over low and stable inflation rates then they are likely to lose the next election.

In the United States in the twentieth century significant peaks of inflation occurred during World Wars I and II, when overall rates of price increase peaked at more than twenty percent per year (see Figure 1.6). Before World War II, deep recessions like the Great Depression of the 1930s were accompanied by *deflation*: a decline in the level of overall prices that bankrupted businesses and banks, exacerbating the fall in output and employment.



The steep decline in inflation that occurred in the early 1980s is called the "Volcker disinflation," after then-Federal Reserve Chair Paul Volcker. Alarmed by the accelerating inflation of the late 1970s and early 1980s, Volcker decided to raise interest rates in order to decrease aggregate demand. In doing so he risked a deep recession, which came in 1982-1983. But his action did stop the rise in inflation and reduce it back to the "creeping" range.

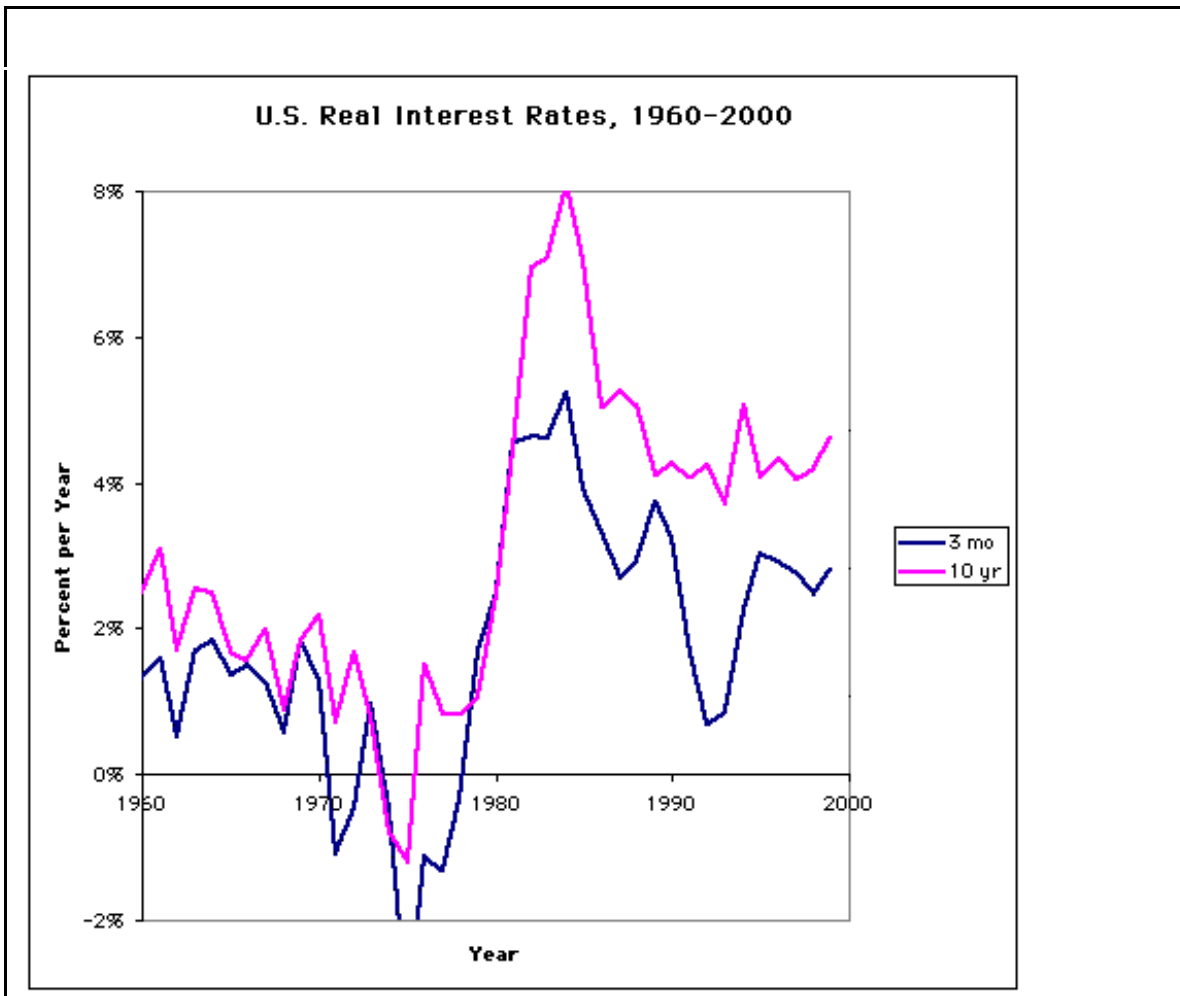
### *The Interest Rate*

Though economists speak of "the" interest rate, there are actually many different interest rates applying to loans of different durations and different degrees of risk. The different interest rates often move up or down together so that economists speak of *the* interest rate, referring to the entire complex of different rates. But interest rates do not move in concert all the time. The causes of variations in the *yield curve*, which describes the pattern of interest rates, are an important part of macroeconomics.

Whenever interest rates are low--that is, when money is "cheap"--investment tends to be high, because businesses find that a wide range of possible investments will generate enough cash to pay the interest on borrowed money, repay the principal of the loan, and still produce a profit.

Interest rates on long-term debt, like the ten-year notes issued by the U.S. Treasury, are usually higher than interest rates on short-term debt, like the three-month Treasury Bills. Whenever long-term interest rates are shorter than short-term interest rates, the yield curve is said to be "inverted." An inverted yield curve is one of the signals of a possible coming recession.

Interest rates have fluctuated widely in the United States since 1960. Real interest rates--that is, interest rates adjusted for inflation--have even been negative at times. During the 1970s nominal--money--interest rates were so low and inflation so high that the interest and principal on a short-term loan bought fewer commodities when the loan was repaid than the original principal could have purchased when the loan was made. In the early 1980s--the Volcker years--interest rates increased radically. Since then they have remained higher than their levels of the 1950s and 1960s.



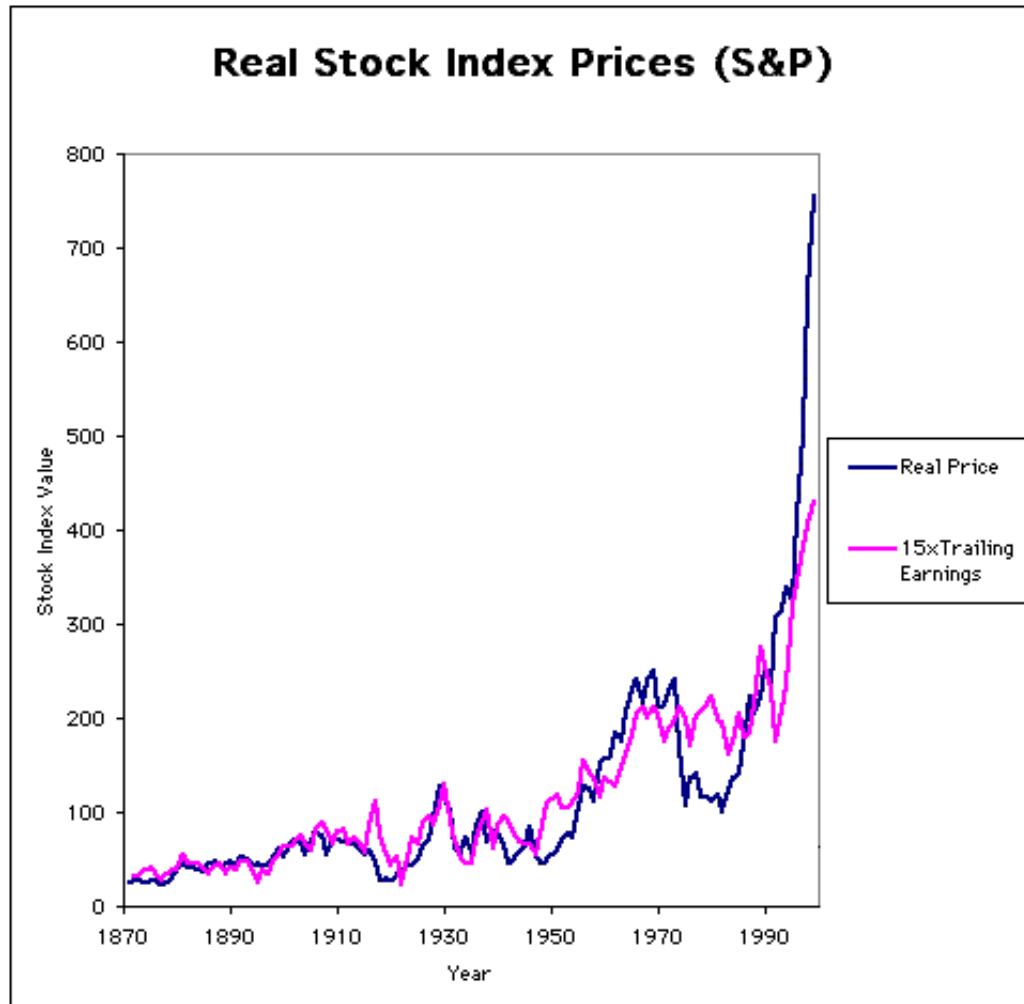
### *The Stock Market*

The *level of the stock market* is the key economic indicator you hear about most often--you hear about it every single day unless you try hard to avoid the news.

The level of the stock market is an index of expectations for the future. When the stock market is high, investors expect economic growth to be rapid, profits to be high, and unemployment to be relatively low. (Note, however, that there is an element of tail-chasing in the stock market: perhaps it would be more accurate to say that the stock market is high when average opinion expects that average opinion will expect that future economic growth will be rapid.)

For more than a century and a quarter, the United States has had a thick market in equities--the "stocks" of a corporation, pieces of paper that indicate ownership of its shares. One of the major indices that tracks the performance of the stock market as a

whole is Standard and Poor's composite index--the S&P 500. Figure 1.8 plots the *real* value—that is, the value adjusted for inflation—of this stock market index over time.



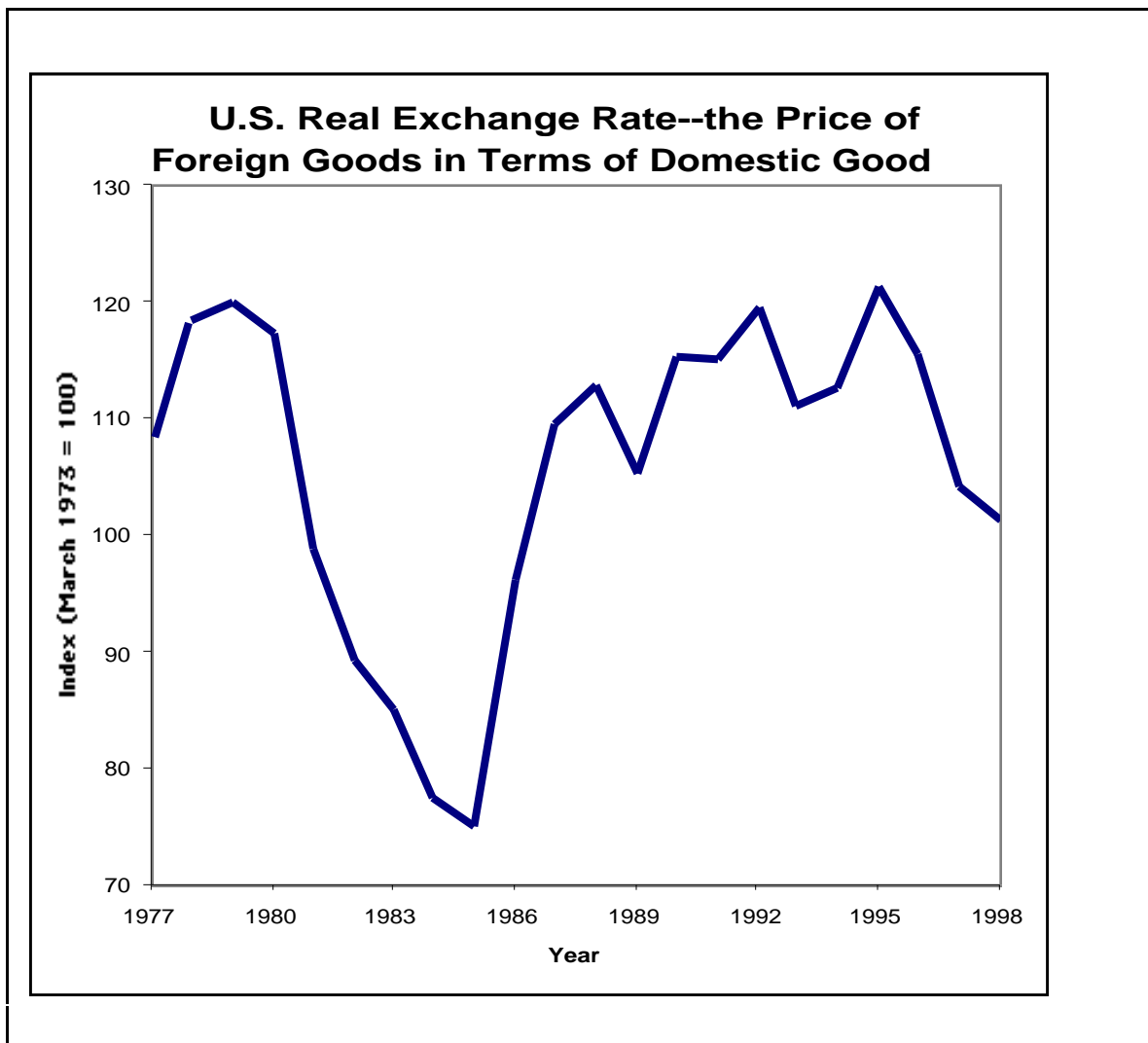
Over the past century, on average, a share of stock has traded for about fifteen times its past year's, or "trailing", earnings per share. Earnings per share are calculated by taking a corporation's annual profits and dividing by the number of shares of stock the corporation has outstanding. The fifteen-times-earnings figure is only an average: companies with good prospects for growth sell for more than fifteen times their earnings, and corporations seen as in decline sell for less.

There are some years in which expectations of the future of the economy are relatively depressed, and stock indices like the S&P 500 sell for much less than the fifteen-times-earnings rule-of-thumb. Consider 1982, when the stock market as a whole was worth 40 percent less than fifteen-times-earnings.

### *The Exchange Rate*

The sixth and last key economic quantity is the *exchange rate*. The *nominal exchange rate* is the rate at which the monies of different countries can be exchanged one for another. The *real exchange rate* is the rate at which the goods and services produced in different countries can be exchanged one for another.

The exchange rate governs the terms on which international trade and investment take place. When the domestic currency is *appreciated*, its value in terms of other currencies is high. Foreign-produced goods are relatively cheap for domestic buyers, but domestic-made goods are relatively expensive for foreigners. In these circumstances imports are likely to be high; exports are likely to be low. When the domestic currency is *depreciated*, the opposite is the case. Domestically-made goods are cheap to foreign buyers. Thus exports are likely to be high. But domestic consumers' and investors' power to purchase foreign-made goods is limited. Thus imports are likely to be low.



Before the early 1970s, the U.S. exchange rate was *fixed* vis-a-vis other major currencies in the Bretton Woods System. The U.S. Treasury stood ready to buy or sell dollars in exchange for other currencies at fixed parities determined by each country's posted valuation of its currency in terms of gold.

Since the early 1970s the U.S. exchange rate has been *floating*--free to move up or down in response to the market forces of supply and demand (see Figure 1.9). When U.S. interest rates have been relatively high compared to other countries--as in the early 1980s--the dollar has *appreciated*. In such a case the dollar will have become much more valuable, as many people have tried to invest in America to capture the high interest rates. We then say that the value of the exchange rate is relatively low. The exchange rate is defined as the value (in terms of dollars) of foreign currency: when the relative value of the dollar rises, the value in dollars of foreign currency falls.

When U.S. interest rates fall relative to those in other countries, the dollar tends to *depreciate*: to fall in value so that U.S. goods are cheap to buy and easy to sell. When the dollar's value is low and the dollar has depreciated, the exchange rate—the value in dollars of foreign currency—will be relatively high.