

The Real Rate of Interest is an Important Price

News

Recitation Assignments

What is the Real Rate of Interest?

What Determines the Real Rate of Interest in the Long Run?

In the Short Run, the real rate of interest is determined by Saving and the Investment.

Saving, Investment, and Financial Markets

What Have We Learned?

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News from 2008

March 19, 2008

Fed Trims Rates Sharply, Sending the Markets Up

By EDMUND L. ANDREWS

WASHINGTON — The Federal Reserve reduced short-term interest rates for the sixth time in six months on Tuesday, capping an extraordinary series of measures it has taken to stabilize financial markets. The cut was smaller than investors had been expecting, though, and exposed some signs of a split among policy makers.

The central bank lowered its federal funds rate — the rate it charges banks for overnight loans — by three-quarters of a percentage point, to 2.25 percent, and left the door open to additional rate cuts in the months ahead.

With the latest reduction, the federal funds rate is far below the rate of inflation, meaning that the "real," or inflation-adjusted, interest rate is below zero. It is also well below the European Central Bank's benchmark interest rate of 4 percent or the Bank of England's rate of 5.25 percent.

Recitation Assignments

Journal Assignment

Fifth and last Journal Assignment is posted. It is due in recitations on December 2-3, 2009.

Journal Collection

Journals will be collected during recitations on December 2-3 and returned during recitations on December 9-10.

Recitation Assignment for This Week

You will work with the real rate of interest. The assignment is posted on the web page. Expect a quiz on one of the assigned problems.

The Nominal Rate of Interest

The Nominal Interest Rate (i) is the annual percentage increase in the nominal (current dollar) value of a financial asset.

If you borrow \$1000 at an interest rate of 8 percent, in one year you will owe \$1080.

If you lend \$1000 at an interest rate of 8 percent, in one year you will have \$1080.

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The Real Rate of Interest

The Real Rate of Interest (r) is the nominal interest rate minus the rate of inflation expected over the coming year.

The real rate of interest measures the expected change in purchasing power of a financial asset over the coming year.

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Example: Borrowing and the Real Rate of Interest

You borrow \$10,000 to buy a used car at an interest rate of 9 percent. You expect the inflation rate over the coming year to be 3 percent.

The real rate of interest is $9 - 3 = 6$ percent.

You give up purchasing power at the rate of 6 percent of \$10,000 per year to obtain your auto earlier rather than later.

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Example: Lending and the Real Rate of Interest

You put \$1000 into your savings account which pays a nominal rate of 4.5 percent per year. You expect inflation to be 3 percent over the coming year.

The real rate of interest is $4.5 - 3 = 1.5$ percent.

You gain purchasing power at the rate of 1.5 percent per year by agreeing to spend your funds later rather than earlier.

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Intuition for the Real Rate of Interest

The real rate measures:

The cost of borrowing in terms of foregone consumption.

The reward to saving in terms of a consumption bonus.

The costs and benefits of borrowing and lending are better measured by the real rate of interest than by the nominal rate of interest.

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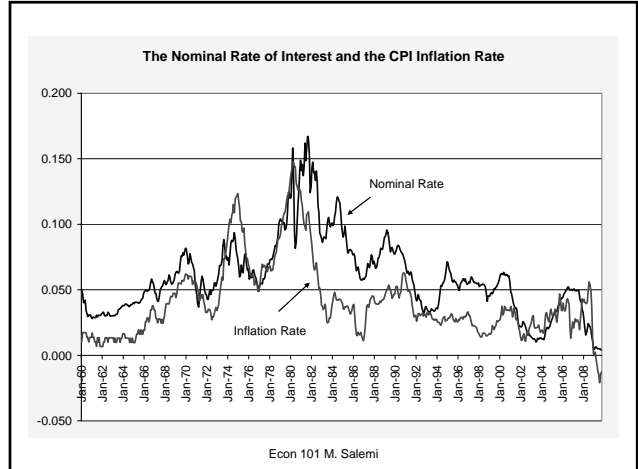
U.S. Data for the Real Rate of Interest

The nominal rate used in the example is the yield on a one year U.S. Treasury bond.

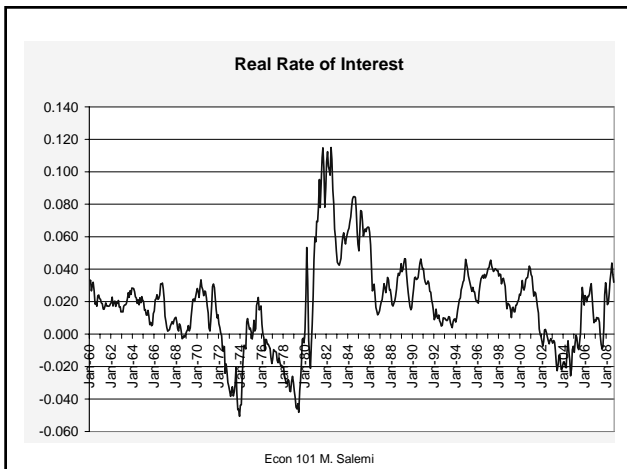
The rate of inflation is the annual rate of change in the consumer price index.

The real rate is the "perfect foresight" real rate which assumes that individuals perfectly predicted the inflation rate.

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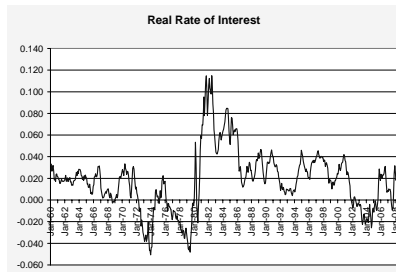
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Use Your Clicker To Answer
The Following
Graded Question.

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Borrowing was least expensive in _____

- A. The 1960's
- B. The 1970's
- C. The 1980's
- D. The 1990's



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Irving Fisher's Real Rate Theory

In 1930, in *The Theory of Interest*, Irving Fisher explained the forces that determine the real rate of interest.

He argued that, in the long run, the real rate of interest is determined by the Patience of the Population and the Productivity of the Nation's Capital.

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Fisher's Theory of the Real Rate



Patience

Productivity of Capital



Low Real Interest Rate

High Real Interest Rate

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Saving and Wealth

Saving of an economic unit is its income minus its current spending on consumption goods.

Saving is a flow. It is measured in dollars per year (or some other period).

Wealth is a stock. It is measured in dollars.

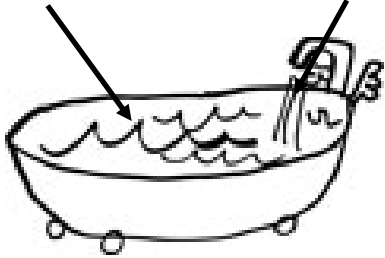
Wealth may be thought of as accumulated saving. Wealth increases when saving is positive or when asset values increase.

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The Relationship between Saving and Wealth

Wealth is a Stock

Saving is a Flow



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Why do people save?

People save to meet long-term objectives:

- Retirement
- College
- House Purchase

People save to protect against unexpected setbacks such as being laid off or sick.

People save to leave an estate to their heirs.

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Saving is the Source of Funds for Capital Formation.

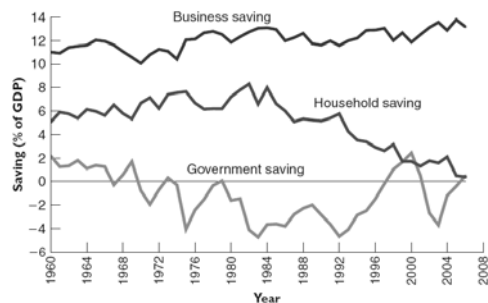
The financial reward to saving is the real rate of interest.

A high real interest rate is an incentive to save.

National saving comprises household saving, firm saving, and government saving.

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Three Components of U.S. Domestic Saving, 1960- 2006

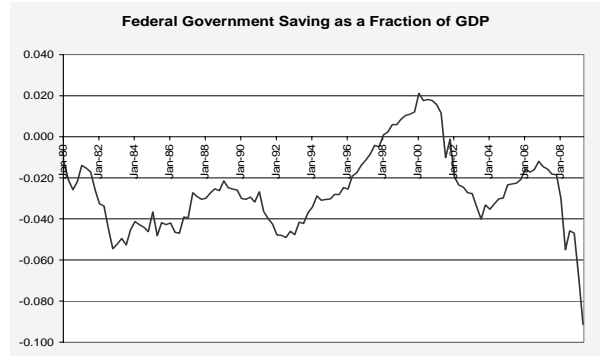


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The Personal Saving Rate Fell in 1982-2000
But Rose During the Current Recession

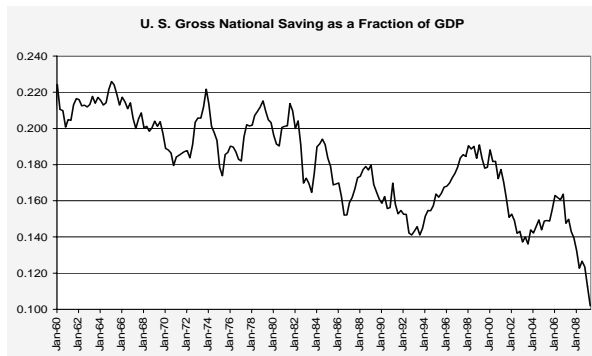


The Government Budget Deficit Has Risen



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The Overall U.S. Saving Rate Has Fallen



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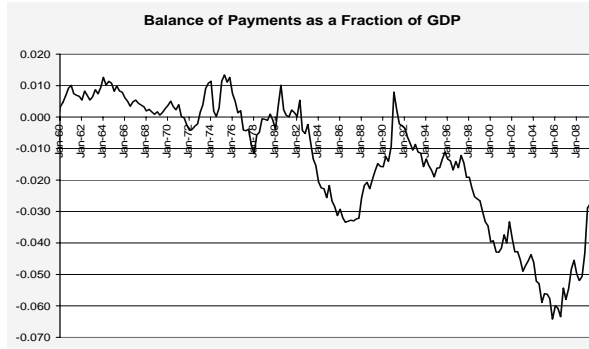
Is the Decline in Household and
Government Saving a Problem?

In the short run, probably not because the "rest of the world" has been willing to lend funds to the United States.

In the long run, probably so because the rest of the world will expect those funds to be repaid.

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The World Has Been Lending to the U.S.



Why is a Balance of Payment Deficit Essentially a Loan?

Normally, the U.S. pays for its imports by sending exports to the rest of the world or by paying for imports with income earned from foreign businesses owned by US citizens.

In recent years, our exports have been smaller than imports.

Foreign citizens have used their "extra dollars" to buy U.S. stocks and bonds.

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Investment is Capital Formation

Firms acquire new capital only when the expected benefits of new capital exceed the expected costs.

Cost-benefit analysis must take into account the fact that the costs and benefits occur at different times.

The real rate of interest is a cost of investment.

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The Real Rate of Interest Is a Cost of Investment

If firms must borrow funds, it is easy to see why they would regard the real rate of interest as a cost for an investment project.

If firms have the necessary funds, the real rate of interest is still a cost of an investment project—an opportunity cost.

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Saving, Investment, and Financial Markets

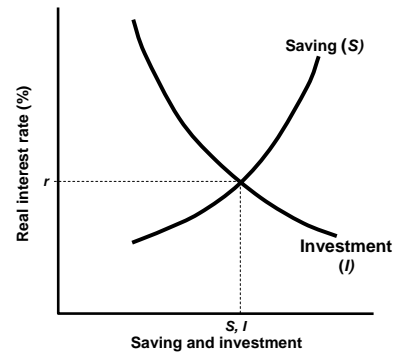
Financial markets equate the supply of funds from savers and the demand for funds by capital builders.

Demand and supply each depend on the real rate of interest.

In equilibrium, desired investment equals saving.

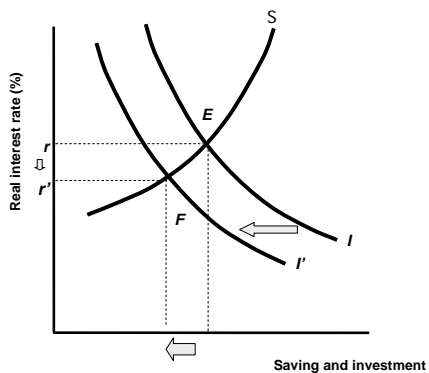
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The Supply and Demand for Savings



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The Effect of a Recession on Investment



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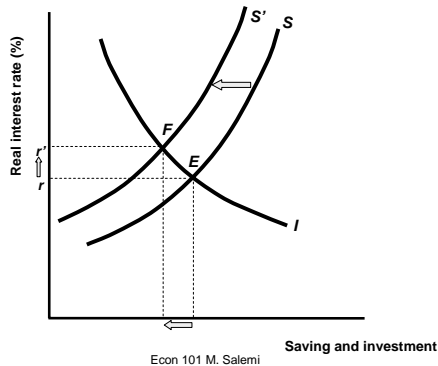
What Happens to Investment When A Recession Occurs?

Firms perceive that consumer spending will fall due to lower consumer confidence and higher unemployment.

Firms cancel investment projects because they believe they will not be profitable.

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The Effect of A Larger Government Budget Deficit On National Saving and Investment



What Happens When the Budget Deficit Increases?

The increased deficit is a decrease in national saving.

The government must borrow funds to finance the deficit.

That borrowing crowds out private sector borrowing.

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Use Your Clicker To Answer
The Following
Graded Question.

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Which of the following changes will raise the equilibrium rate of interest?

- A. An increase in household saving due to the aging of baby boomers.
- B. An increase in U.S. exports.
- C. A decrease in the U.S. government budget deficit.
- D. A decrease in saving by firms.

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What Have We Learned?

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The Real Rate of Interest is an Important Price

The Real Rate of Interest is the nominal rate minus the expected inflation rate.

In the long run, the real rate is determined by the patience of people and the productivity of capital.

An increase in the real rate is an incentive to increase saving.

An increase in the real rate is an incentive to lower investment spending.

Demand and supply can be used to predict the effect on the real rate of various shocks.

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