

7.26: Problems with Inflation

Learning Objectives

- Identify ways inflation can blur the perception of supply and demand
- Explain how inflation can cause redistributions of purchasing power

The Confusion Over Inflation

Economists usually oppose high inflation, but they oppose it in a milder way than many non-economists. Robert Shiller one of 2013's Nobel Prize winners in economics, carried out several surveys during the 1990s about attitudes toward inflation. One of his questions asked, "Do you agree that preventing high inflation is an important national priority, as important as preventing drug abuse or preventing deterioration in the quality of our schools?" Answers were on a scale of 1–5, where 1 meant "Fully agree" and 5 meant "Completely disagree." For the U.S. population as a whole, 52% answered "Fully agree" that preventing high inflation was a highly important national priority and just 4% said "Completely disagree." However, among professional economists, only 18% answered "Fully agree," while the same percentage of 18% answered "Completely disagree."

The Land of Funny Money

What are the economic problems caused by inflation, and why do economists often regard them with less concern than the general public? Consider a very short story: "*The Land of Funny Money*."

One morning, everyone in the Land of Funny Money awakened to find that everything denominated in money had increased by 20%. The change was completely unexpected. Every price in every store was 20% higher. Paychecks were 20% higher. Interest rates were 20% higher. The amount of money, everywhere from wallets to savings accounts, was 20% larger. This overnight inflation of prices made newspaper headlines everywhere in the Land of Funny Money. But the headlines quickly disappeared, as people realized that in terms of what they could actually buy with their incomes, this inflation had no economic impact. Everyone's pay could still buy exactly the same set of goods as it did before. Everyone's savings were still sufficient to buy exactly the same car, vacation, or retirement that they could have bought before. Equal levels of inflation in all wages and prices ended up not mattering much at all.

When the people in Robert Shiller's surveys explained their concern about inflation, one typical reason was that they feared that as prices rose, they would not be able to afford to buy as much. In other words, people were worried because they did not live in a place like the Land of Funny Money, where all prices and wages rose simultaneously. Instead, people live here on Planet Earth, where prices might rise while wages do not rise at all, or where wages rise more slowly than prices.

Economists note that over most periods, the inflation level in prices is roughly similar to the inflation level in wages, and so they reason that, on average, over time, people's economic status is not greatly changed by inflation. If all prices, wages, and interest rates adjusted automatically and immediately with inflation, as in the Land of Funny Money, then no one's purchasing power, profits, or real loan payments would change. However, if other economic variables do not move exactly in sync with inflation, or if they adjust for inflation only after a time lag, then inflation can cause three types of problems:

1. blurred price signals
2. unintended redistributions of purchasing power
3. difficulties in long-term planning

Blurred Price Signals

Prices are the messengers in a *market economy*, conveying information about conditions of demand and supply. Inflation blurs those price messages. Inflation means that price signals are perceived more vaguely, like a radio program received with a lot of static. If the static becomes severe, it is hard to tell what is happening.

In Israel, when inflation accelerated to an annual rate of 500% in 1985, some stores stopped posting prices directly on items, since they would have had to put new labels on the items or shelves every few days to reflect inflation. Instead, a shopper just took items from a shelf and went up to the checkout register to find out the price for that day. Obviously, this situation makes comparing prices and shopping for the best deal rather difficult. When the levels and changes of prices become uncertain, businesses and individuals find it harder to react to economic signals. In a world where inflation is at a high rate, but bouncing up and down to some extent, does a higher price of a good mean that inflation has risen, or that supply of that good has decreased, or that demand for that good has increased? Should a buyer of the good take the higher prices as an economic hint to start substituting other products—or have the prices of the substitutes risen by an equal amount? Should a seller of the good take a higher price as a reason to increase production—or is the higher price only a sign of a general inflation in which the prices of all inputs to production are rising as well? The true story will presumably become clear over time, but at a given moment, who can say?

High and variable inflation means that the incentives in the economy to adjust in response to changes in prices are weaker. Markets will adjust toward their equilibrium prices and quantities more erratically and slowly, and many individual markets will experience a greater chance of surpluses and shortages.

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Another way of thinking about these blurred price signals is that inflation causes *price confusion* and *money illusion*. Typically, when prices of products rise, people can interpret the changing price with higher demand or greater scarcity, and adjust their purchasing behavior accordingly. When all prices are rising, people are less able to interpret signals from the changing price. Money illusion occurs when people mistake changes in nominal prices with changes in real (or relative) prices and might change their purchasing behavior even if there is no change in their purchasing power.

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Unintended Redistributions of Purchasing Power

Inflation can cause redistributions of purchasing power that hurt some and help others. People who are hurt by inflation include those who are holding a lot of cash, whether it is in a safe deposit box or in a cardboard box under the bed. When inflation happens, the buying power of cash is diminished. But cash is only an example of a more general problem: anyone who has financial assets invested in a way that the nominal return does not keep up with inflation will tend to suffer from inflation. For example, if a person has money in a bank account that pays 4% interest, but inflation rises to 5%, then the real rate of return for the money invested in that bank account is negative 1%.

The problem of a good-looking **nominal interest rate** being transformed into an ugly-looking **real interest rate** can be worsened by taxes. The U.S. income tax is charged on the nominal interest received in dollar terms, without an adjustment for inflation. So, a person who invests \$10,000 and receives a 5% nominal rate of interest is taxed on the \$500 received—no matter whether the inflation rate is 0%, 5%, or 10%. If inflation is 0%, then the real interest rate is 5% and all \$500 is a gain in buying power. But if inflation is 5%, then the real interest rate is zero and the person had no real gain—but owes income tax on the nominal gain anyway. If inflation is 10%, then the real interest rate is *negative* 5% and the person is actually falling behind in buying power, but would still owe taxes on the \$500 in nominal gains.

Inflation can cause unintended redistributions for wage earners, too. Wages do typically creep up with inflation over time eventually. The average hourly wage in the U.S. economy increased from \$3.23 in 1970 to \$19.20 in 2012, which is an increase by a factor of almost six. Over that time period, the Consumer Price Index increased by an almost identical amount. However, increases in wages may lag behind inflation for a year or two, since wage adjustments are often somewhat sticky and occur only once or twice a year. Moreover, the extent to which wages keep up with inflation creates insecurity for workers and may involve painful, prolonged conflicts between employers and employees. If the minimum wage is adjusted for inflation only infrequently, minimum wage workers are losing purchasing power from their nominal wages, as shown in Figure 1.

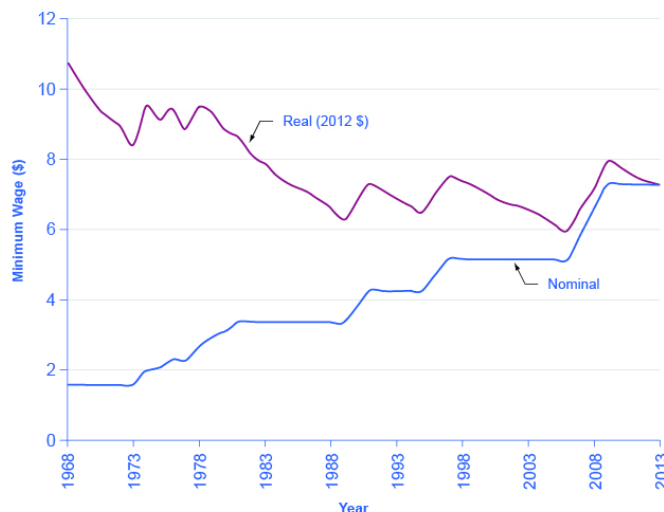


Figure 1.U.S. Minimum Wage and Inflation. After adjusting for inflation, the federal minimum wage dropped more than 30 percent from 1967 to 2010, even though the nominal figure climbed from \$1.40 to \$7.25 per hour. Increases in the minimum wage in between 2008 and 2010 kept the decline from being worse—as it would have been if the wage had remained the same as it did from 1997 through 2007. (Sources: <http://www.dol.gov/whd/minwage/chart.htm>; <http://data.bls.gov/cgi-bin/surveymost?cu>)

One sizable group of people has often received a large share of their income in a form that does not increase over time: retirees who receive a private company pension. Most **pensions** have traditionally been set as a fixed nominal dollar amount per year at retirement. For this reason, pensions are called “defined benefits” plans. Even if inflation is low, the combination of inflation and a fixed income can create a substantial problem over time. A person who retires on a fixed income at age 65 will find that losing just 1% to 2% of buying power per year to inflation compounds to a considerable loss of buying power after a decade or two.

Fortunately, pensions and other defined benefits retirement plans are increasingly rare, replaced instead by “defined contribution” plans, such as 401(k)s and 403(b)s. In these plans, the employer contributes a fixed amount to the worker’s retirement account on a regular basis (usually every pay check). The employer often contributes as well. The worker invests these funds in a wide range of investment vehicles. These plans are tax deferred,

and they are portable so that if the individual takes a job with a different employer, their **401(k)** comes with them. To the extent that the investments made generate real rates of return, retirees do not suffer from the inflation costs of traditional pensioners.

However, ordinary people can sometimes benefit from the unintended redistributions of inflation. Consider someone who borrows \$10,000 to buy a car at a fixed interest rate of 9%. If inflation is 3% at the time the loan is made, then the loan must be repaid at a real interest rate of 6%. But if inflation rises to 9%, then the real interest rate on the loan is zero. In this case, the borrower's benefit from inflation is the lender's loss. A borrower paying a fixed interest rate, who benefits from inflation, is just the flip side of an investor receiving a fixed interest rate, who suffers from inflation. The lesson is that when interest rates are fixed, rises in the rate of inflation tend to penalize suppliers of financial capital, who end up being repaid in dollars that are worth less because of inflation, while demanders of financial capital end up better off, because they can repay their loans in dollars that are worth less than originally expected.

Watch It

This video takes a closer look at the unintended redistributions of purchasing power by examining the ways that the interest impacts borrowers and lenders. You can think of the real interest rate as the nominal rate minus the inflation rate. If someone borrows money at a low interest rate, but the inflation rate goes up, the borrower benefits. Conversely, if someone borrows money at a high interest rate but the inflation rate drops, the lenders benefit.

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The unintended redistributions of buying power caused by inflation may have a broader effect on society. America's widespread acceptance of market forces rests on a perception that people's actions have a reasonable connection to market outcomes. When inflation causes a retiree who built up a pension or invested at a fixed interest rate to suffer, however, while someone who borrowed at a fixed interest rate benefits from inflation, it is hard to believe that this outcome was deserved in any way. Similarly, when homeowners benefit from inflation because the price of their homes rises, while renters suffer because they are paying higher rent, it is hard to see any useful incentive effects. One of the reasons that inflation is so disliked by the general public is a sense that it makes economic rewards and penalties more arbitrary—and therefore likely to be perceived as unfair—even dangerous, as the next example shows.

Is there a connection between German hyperinflation and Hitler's rise to power?

Germany suffered an intense hyperinflation of its currency, the Mark, in the years after World War I, when the Weimar Republic in Germany resorted to printing money to pay its bills and the onset of the Great Depression created the social turmoil that Adolf Hitler could take advantage of in his rise to power. Shiller described the connection this way in a National Bureau of Economic Research 1996 Working Paper:

A fact that is probably little known to young people today, even in Germany, is that the final collapse of the Mark in 1923, the time when the Mark's inflation reached astronomical levels (inflation of 35,974.9% in November 1923 alone, for an annual rate that month of $4.69 \times 10^{28}\%$), came in the same month as did Hitler's Beer Hall Putsch, his Nazi Party's armed attempt to overthrow the German government. This failed putsch resulted in Hitler's imprisonment, at which time he wrote his book *Mein Kampf*, setting forth an inspirational plan for Germany's future, suggesting plans for world domination. . .

. . . Most people in Germany today probably do not clearly remember these events; this lack of attention to it may be because its memory is blurred by the more dramatic events that succeeded it (the Nazi seizure of power and World War II). However, to someone living through these historical events in sequence . . . [the putsch] may have been remembered as vivid evidence of the potential effects of inflation.

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Problems of Long-Term Planning

Inflation can make long-term planning difficult. In discussing unintended redistributions we considered the case of someone trying to plan for retirement with a pension that is fixed in nominal terms and a high rate of inflation. Similar problems arise for all people trying to save for retirement, because they must consider what their money will really buy several decades in the future when the rate of future inflation cannot be known with certainty.

Inflation, especially at moderate or high levels, will pose substantial planning problems for businesses, too. A firm can make money from inflation—for example, by paying bills and wages as late as possible so that it can pay in inflated dollars, while collecting revenues as soon as possible. A firm can also suffer losses from inflation, as in the case of a retail business that gets stuck holding too much cash, only to see the value of that cash eroded by inflation. But when a business spends its time focusing on how to profit by inflation, or at least how to avoid suffering from it, an inevitable tradeoff strikes: less time is spent on improving products and services or on figuring out how to make existing products and services more cheaply. An economy with high inflation rewards businesses that have found clever ways of profiting from inflation, which are not necessarily the businesses that excel at productivity, innovation, or quality of service.

In the short term, low or moderate levels of inflation may not pose an overwhelming difficulty for business planning, because costs of doing business and sales revenues may rise at similar rates. If, however, inflation varies substantially over the short or medium term, then it may make sense for businesses to stick to shorter-term strategies. The evidence as to whether relatively low rates of inflation reduce productivity is controversial among economists. There is some evidence that if inflation can be held to moderate levels of less than 3% per year, it need not prevent a nation's real economy from growing at a healthy pace. For some countries that have experienced hyperinflation of several thousand percent per year, an annual

inflation rate of 20–30% may feel basically the same as zero. However, several economists have pointed to the suggestive fact that when U.S. inflation heated up in the early 1970s—to 10%—U.S. growth in productivity slowed down, and when inflation slowed down in the 1980s, productivity edged up again not long thereafter, as shown in Figure 2.



Figure 2. U.S. Inflation Rate and U.S. Labor Productivity, 1961–2012. Over the last several decades in the United States, there have been times when rising inflation rates have been closely followed by lower productivity rates and lower inflation rates have corresponded to increasing productivity rates. As the graph shows, however, this correlation does not always exist.

Glossary

[glossary-page][glossary-term]401(k): [/glossary-term]

[glossary-definition]a defined contribution retirement program to which the employee and often the employer contribute[/glossary-definition]

[glossary-term]nominal interest rate: [/glossary-term][glossary-definition]the actual interest rate charged on a loan[/glossary-definition][glossary-term]

[glossary-term]pension: [/glossary-term][glossary-definition]a defined benefit retirement payment[/glossary-definition][glossary-term]

[glossary-term]real interest rate: [/glossary-term][glossary-definition]the interest rate after inflation is taken into account; the nominal interest rate minus the rate of inflation[/glossary-definition][glossary-term]

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