

# Are You Protected From Inflation?

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**I**F your wage contract had a cost-of-living clause and the income tax structure were tied to a price index, you might believe you were insulated from the effects of inflation. Wrong! Despite these efforts to alleviate the more painful results of inflation, unexpected inflation could still affect you, increasing wealth in some instances and decreasing it in others.

Too frequently only the most obvious consequences of inflation are considered. It is very easy to recognize a situation where the same number of dollars will purchase fewer goods this week than last week. However, inflation can have other, more subtle, effects. Some of these consequences of inflation depend on whether the changes in prices are anticipated or unanticipated.

## UNANTICIPATED INFLATION

Inflation is an ongoing rise in the general price level. *Unanticipated* inflation refers to price level increases which are not expected or are larger than expected. One of the effects of unanticipated inflation is a redistribution of wealth in an economy. Wealth (also called net worth or equity) in this context refers to the *real* or constant dollar net value of the stock of economic goods and claims on economic goods accumulated by a person, family, or business up to a point in time. Unanticipated inflation can increase or decrease an individual household's wealth. The following two examples illustrate how one household can gain from unanticipated inflation, while the other loses wealth. The data used in the examples are based on the average December 31, 1962 balance sheets of households headed by individuals in two age groups — those over 65 and those under 35 years of age.<sup>1</sup> The characteristics of the typical balance sheet of these

<sup>1</sup>Balance sheet data are based on survey data reported in Dorothy S. Projector and Gertrude S. Weiss, *Survey of Financial Characteristics of Consumers* (Washington, D.C.: Board of Governors of the Federal Reserve System), 1966. This survey of household wealth is one of the most comprehensive available. However, the data are subject to certain limitations. In particular, data relating to currency holdings and ownership of insurance policies by households were not included.

two age groups are such that unanticipated inflation affects them differently. The wealth of almost every household will be affected by unanticipated inflation in a manner similar to one or the other of the households used in the examples.<sup>2</sup>

### *The Case of a Net Monetary Creditor*

The first case portrays a typical household headed by a person over 65 years old. Column (1) of Exhibit I is the balance sheet of this household as of December 31, 1962. The three categories of items entered on the household's balance sheet are assets, liabilities, and wealth. Assets are resources which are owned by the household. Liabilities are debts or claims held by others against the household. The difference between assets and liabilities, each valued in 1962 dollars, is the 1962 dollar value of the household's wealth — in this case \$30,684.

It is important to distinguish between real and monetary assets and liabilities when considering the effect of unanticipated inflation on the household. *Real assets* are the household's claims to specific items whose dollar values change with the general price level. The household's real assets in this example are claims to a house (a claim with a 1962 market value of \$7,477), a car (\$411), a business (\$3,727), real estate (\$2,767), and stocks (\$8,672 — which are claims on the wealth of a business).<sup>3</sup> With inflation, the dollar value of these real assets normally increases in about the same proportion as does the price level.<sup>4</sup> This occurs because the general price level is a sum-

<sup>2</sup>The case of a household's wealth which is unchanged as a result of unanticipated inflation because its monetary assets exactly equal its monetary liabilities (a net monetary neutral household) is not considered in this discussion.

<sup>3</sup>The wealth of businesses will also be affected by unanticipated inflation depending on their status as net monetary creditors or debtors. For the sake of simplicity and lack of information pertaining to the monetary status of firms in which the household owned stock it is assumed that wealth losses and gains of the firms represented by the household's stock holdings net out on balance. To the extent that this would not actually be the case, the households would have experienced different wealth changes.

<sup>4</sup>Real assets are subject to changes in relative prices which will be ignored in this discussion.

## Exhibit I

Unanticipated Inflation  
Net Monetary Creditor

	Col. (1) December 31, 1962 <sup>1</sup> (1962 Dollars)	Col. (2) December 31, 1975 (1975 Dollars)	Col. (3) December 31, 1975 <sup>2</sup> (1962 Dollars)
<b>Real Assets<sup>3</sup></b>			
House	\$ 7,477	\$13,302	\$ 7,477
Car	411	731	411
Business <sup>4</sup>	3,727	6,630	3,727
Real Estate	2,767	4,923	2,767
Stocks	8,672	15,427	8,672
	<u>\$23,054</u>	<u>\$41,013</u>	<u>\$23,054</u>
<b>Monetary Assets<sup>3</sup></b>			
Checking Acct.	\$ 702	\$ 702	\$ 395
Savings Acct. (Bank) <sup>5</sup>	1,934	1,934	1,087
Savings Acct. (S&I)	1,484	1,484	834
U.S. Savings Bonds <sup>6</sup>	837	837	471
Marketable Securities <sup>7</sup>	1,290	1,290	725
Mortgage <sup>8</sup>	717	717	403
Other	1,989	1,989	1,118
	<u>\$ 8,953</u>	<u>\$ 8,953</u>	<u>\$ 5,033</u>
<b>TOTAL ASSETS</b>	<b>\$32,007</b>	<b>\$49,966</b>	<b>\$28,087</b>
<b>Monetary Liabilities</b>			
Secured Debt	\$ 1,169	\$ 1,169	\$ 657
Unsecured Debt	154	154	87
<b>TOTAL LIABILITIES</b>	<b>\$ 1,323</b>	<b>\$ 1,323</b>	<b>\$ 744</b>
<b>WEALTH</b>	<b>\$30,684</b>	<b>\$48,643</b>	<b>\$27,343</b>
<b>TOTAL LIABILITIES &amp; WEALTH</b>	<b>\$32,007</b>	<b>\$49,966</b>	<b>\$28,087</b>

Source: Federal Reserve System, *Survey of Financial Characteristics of Consumers* (1966).<sup>1</sup>Data are the average assets and liabilities held by households headed by persons over 65 years old.<sup>2</sup>Data are deflated using the annual average values of the consumer price index.<sup>3</sup>Valued at market prices unless otherwise indicated.<sup>4</sup>Equity value. The appropriate measure would be market value, but these data were not reported.<sup>5</sup>Includes savings not itemized elsewhere.<sup>6</sup>Maturity value.<sup>7</sup>Par value. The appropriate measure would be market value, but these data were not reported.<sup>8</sup>Dollars outstanding.

NOTE: Data may differ from original due to rounding.

changes, these monetary assets still represent claims for the same number of dollars. This means, for example, that the household has claims on 702 *dollars* in their checking account, or 837 *dollars* in savings bonds, irrespective of how many goods and services these dollars can purchase. In contrast, if the market value of the household's claims on a real asset, for example its house, rose from \$7,477 to \$8,000, it would still have a claim on the same physical amount of housing services despite any change in the dollar value of those services. Thus, the basic difference between real assets and monetary assets is that the former are claims on a certain quantity of goods and services, whose real value is unaffected (on average) by inflation, while monetary assets are claims to a number of dollars, whose real value is decreased as a result of inflation.

*Real liabilities* are obligations to deliver a certain physical quantity of goods or services whose dollar value may fluctuate. An example of a real liability would be a contract to deliver a certain number of hours of labor or a specific volume of potatoes at a prearranged price. An increase in the general price level increases the dollar value of real liabilities in the same proportion. The household in Exhibit I does not have any real liabilities.

*Monetary liabilities* are debts to be paid now or in the future in a fixed number of dollars. A rate of interest to be paid over the course of the debt is generally associated with a monetary

measure of the dollar values of real assets throughout the economy.

*Monetary assets*, on the other hand, are the household's current or future claims to a fixed number of dollars. In many instances monetary assets earn interest. The household in Exhibit I had monetary assets totaling \$8,953 in December 1962. It held \$702 in checking accounts, \$1,934 in savings accounts at commercial banks, \$1,484 in shares at savings and loan associations, \$837 in the form of U.S. savings bonds, \$1,290 in the form of marketable securities (for example, U.S. Treasury notes or bills), \$717 owed to them on a mortgage, and \$1,989 in the form of miscellaneous monetary assets. When the price level

liability. The household in Exhibit I has monetary liabilities equalling \$1,323. This debt consists of \$1,169 of secured debt (such as a mortgage) and \$154 of unsecured debt (such as debt incurred by use of a credit card). When the general price level changes, the dollar value of monetary liabilities remains unchanged. This means that despite any change in the purchasing power of the dollar from the time the loan was made, the household has to pay back 1,323 *dollars*, rather than a certain volume of physical goods.

The difference between the 1962 dollar value of this household's assets (both real and monetary) and its liabilities is the dollar value of its wealth in 1962, which equals \$30,684. Exhibit I indicates that this

household has more monetary assets (\$8,953) than monetary liabilities (\$1,323); therefore, it is called a *net monetary creditor*. A household's net monetary status is the factor which determines the effect of unanticipated inflation on its wealth.

If we now assume that over the thirteen years from December 31, 1962 until December 31, 1975 this household and all others did not expect the price level to change, we can see how unanticipated inflation would have affected the household's wealth. Over this period, the consumer price index (CPI), used here as a measure of the rate of inflation, actually increased at an average annual rate of 4.5 percent (a cumulative increase in the price level of 77.9 percent over thirteen years). However, we assume that neither observed past changes in the price level nor any other events change inflationary expectations, and, therefore, no economic unit takes any actions to change the structure of its balance sheet. Furthermore, any income the household earns is presumed to be used to make interest payments on its monetary liabilities and to purchase goods and services for immediate consumption. Thus, over thirteen years the household makes no changes in its stocks of real and monetary assets or liabilities. Although these are unrealistic assumptions, they help to illustrate the impact of unanticipated inflation on the household's wealth, since everything is being held constant except the price level.

Column (2) of Exhibit I shows the household's balance sheet as of December 31, 1975. The CPI increased by 77.9 percent from 1962 through 1975, raising the market value of the household's real assets by the same percentage. While the household had the same physical claims to a house, car, etc., these real assets are valued at \$41,013 in terms of 1975 prices, compared to \$23,054 in 1962 prices.

On the other hand, the household's monetary assets totaled \$8,953 in both 1962 and 1975. Likewise, the household's monetary liabilities in 1975 were still obligations to pay \$1,323, the same as in 1962.

The 1975 dollar value of the difference between this typical household's assets (\$49,966) and liabilities (\$1,323), the household's wealth, totaled \$48,643. Although the *nominal* value of the household's wealth increased by 58.5 percent over the thirteen years, it did not increase as much as the price level (77.9 percent). In this example, the household's *real* wealth actually decreased by 10.9 percent between 1962 and 1975.

The decline in the household's wealth is shown more clearly in column (3) of Exhibit I. This column presents the household's 1975 balance sheet in terms of 1962 purchasing power. Thus, \$1 in column (3) has the same purchasing power as \$1 in column (1). The value of the household's real assets in constant dollars is identical in 1962 and 1975, since these assets represent claims on identical physical units. The purchasing power of the household's monetary assets in 1975, although representing the same number of dollars as in 1962, declined to \$5,033, compared to their original purchasing power of \$8,953. On the other hand, although the household's monetary liabilities were obligations to pay the same number of dollars in 1962 and 1975, only \$744 of 1962 purchasing power was owed in 1975, compared to the original debt of \$1,323 in 1962.

Since the household was a net monetary creditor, having more claims to dollars than obligations to pay dollars, the erosion of the purchasing power of the dollar over the thirteen years reduced the household's real wealth. Overall, the household's wealth in 1975 represented only \$27,343 of 1962 purchasing power, compared to \$30,684 originally — a loss of \$3,341. In short, unanticipated inflation reduced the real wealth of this net monetary creditor.

### *The Case of a Net Monetary Debtor*

Now consider the balance sheet of the household in Exhibit II. The data represent the average assets and liabilities on December 31, 1962, of a typical household headed by a person under 35 years of age. As shown in column (1) of Exhibit II, this household had claims on real assets (house, car, etc.) having a 1962 market value of \$7,127. The household's monetary assets (checking account, savings account, etc.) were claims on \$2,812. Like the household in Exhibit I, this household does not have any real liabilities. However, monetary liabilities (mortgages, installment loans, etc.) of this household totalled \$4,140. Its wealth valued in 1962 dollars totals \$5,799. The household's monetary liabilities exceed its monetary assets, so it is a *net monetary debtor*.

Assume that this household also did not expect any price level changes over the thirteen year period and, therefore, took no actions to change its balance sheet. By December 31, 1975, as shown in column (2) of Exhibit I, the market value of the household's claims on real assets had increased with the price level to \$12,679. The household's monetary assets and liabili-

## Exhibit II

	Unanticipated Inflation Net Monetary Debtor		
	Col. (1) December 31, 1962 <sup>1</sup>	Col. (2) December 31, 1975	Col. (3) December 31, 1975 <sup>2</sup>
	(1962 Dollars)	(1975 Dollars)	(1962 Dollars)
<b>Real Assets<sup>3</sup></b>			
House	\$ 4,648	\$ 8,269	\$ 4,648
Car	925	1,645	925
Business <sup>4</sup>	770	1,370	770
Real Estate	308	548	308
Stocks	476	847	476
	<u>\$ 7,127</u>	<u>\$12,679</u>	<u>\$ 7,127</u>
<b>Monetary Assets<sup>3</sup></b>			
Checking Acct.	\$ 121	\$ 121	\$ 68
Savings Acct. (Bank) <sup>5</sup>	228	228	128
Savings Acct. (S&L)	146	146	82
U.S. Savings Bonds <sup>6</sup>	83	83	47
Marketable Securities <sup>7</sup>	23	23	13
Mortgage <sup>8</sup>	52	52	29
Other	2,159	2,159	1,214
	<u>\$ 2,812</u>	<u>\$ 2,812</u>	<u>\$ 1,581</u>
<b>TOTAL ASSETS</b>	<b>\$ 9,939</b>	<b>\$15,491</b>	<b>\$ 8,708</b>
<b>Monetary Liabilities</b>			
Secured Debt	\$ 3,634	\$ 3,634	\$ 2,043
Unsecured Debt	506	506	284
<b>TOTAL LIABILITIES</b>	<b>\$ 4,140</b>	<b>\$ 4,140</b>	<b>\$ 2,327</b>
<b>WEALTH</b>	<b>\$ 5,799</b>	<b>\$11,351</b>	<b>\$ 6,381</b>
<b>TOTAL LIABILITIES &amp; WEALTH</b>	<b>\$ 9,939</b>	<b>\$15,491</b>	<b>\$ 8,708</b>

Source: Federal Reserve System, *Survey of Financial Characteristics of Consumers* (1966).

<sup>1</sup>Data are the average assets and liabilities held by households headed by persons under 35 years old.

<sup>2</sup>Data are deflated using the annual average values of the consumer price index.

<sup>3</sup>Valued at market prices unless otherwise indicated.

<sup>4</sup>Equity value. The appropriate measure would be market value, but these data were not reported.

<sup>5</sup>Includes savings not itemized elsewhere.

<sup>6</sup>Maturity value.

<sup>7</sup>Par value. The appropriate measure would be market value, but these data were not reported.

<sup>8</sup>Dollars outstanding.

NOTE: Data may differ from original due to rounding.

Column (3) in Exhibit II illustrates how the wealth was gained. The balance sheet in this column presents the value of the 1975 assets and liabilities in terms of 1962 purchasing power. Just as in Exhibit I, \$1 in column (3) represents the same amount of purchasing power as \$1 in column (1). The household's real assets represent the same physical claims in 1962 and 1975 and, thus, have the same real value in both years. The household's monetary assets and liabilities, however, represent the same number of dollars in 1962 and 1975, but not the same amount of purchasing power. The real value of the household's monetary assets in terms of 1962 purchasing power decreased to \$1,581 in 1975, compared to \$2,812 originally. Likewise, monetary liabilities in 1975 represented obligations to surrender only \$2,327 worth of 1962 purchasing power, compared to \$4,140 originally. Since this household owed more dollars than it had claims on dollars, the inflation reduced the real amount it owed, and the real wealth of the household increased by 10 percent, or \$582.

On balance, unanticipated inflation redistributes wealth from net monetary creditors, who lose part of the real value of their money-fixed assets to net monetary debtors, who gain through a reduction in the real value of their monetary liabilities. For the economy as a whole some households gain wealth while others lose. However, the redistribution is not based on changes in productivity or explicit legislation (a progressive tax structure, for example). Thus, this effect of unanticipated inflation could be characterized as redistribution without representation and without merit.

## ANTICIPATED INFLATION

The assumption that these two households did not expect any inflation over the thirteen years, and, therefore, did not alter the structure of their balance sheets is unjustified. More likely, a typical household, at least during the latter part of the period, would have expected some of the inflation, although perhaps not the exact pace of price level increase.

ties remained fixed claims or obligations of a certain number of dollars. Therefore, the dollar value of monetary assets remained at \$2,812, and monetary liabilities were unchanged at \$4,140.

In December 1975, the household's wealth equalled \$11,351 in 1975 dollars, an increase of 95.7 percent from 1962, exceeding the 77.9 percent increase in the price level. This household's wealth in 1975 actually represented 10 percent more purchasing power than in 1962.

Consider the case when the two households from Exhibits I and II and all other economic units in the economy know the rate of inflation beforehand, a case of *perfectly anticipated* inflation. In this instance the households know that the price level will increase at an average annual rate of 4.5 percent. With perfect foresight and no institutional barriers, the interest rate structure will incorporate the expected inflation and eliminate wealth redistribution.

However, given current institutional arrangements, households might not be able to prevent wealth redistribution. In order to demonstrate that correctly anticipating the rate of inflation theoretically allows households to avoid the wealth redistribution, it is necessary to assume that no external limits are placed on interest rates which can be paid. In particular, this implies that the household could earn interest on its checking account balances and currency that it holds. Unless *all* assets held by the household can earn an appropriate interest rate, wealth redistribution will not be avoided.

The key difference in this instance is that households know there will be inflation and they know what the rate of inflation will be. Since they desire to avoid any loss in real wealth, purchasers of monetary assets will seek to protect the value of their assets. They can do this by demanding a rate of return on their monetary assets above the interest rate they would have originally agreed to in the absence of inflation. This increment to the interest rate, or "inflation premium," must equal the rate of price increase in order to provide the real yields the household would have received in the absence of inflation.<sup>5</sup>

In this case, since the household knows the price level will increase at an average 4.5 percent annual rate over the thirteen years, they will demand that their monetary assets earn a rate of interest 4.5 percentage points above what the assets would have otherwise earned. For example, if households would have originally agreed to lend money to the Government by purchasing a Treasury bill earning a 2 percent rate of interest in the absence of expected inflation, they will now demand a 6.5 percent rate of return in order to maintain the bill's real value. Thus, a correctly anticipated "inflation premium" protects net monetary creditors from wealth loss.

Borrowers will be willing to pay the inflation premium since they know that they will be repaying the loan with "cheaper" dollars as a result of future infla-

tion. The extra interest paid by net monetary debtors as a result of the inflation premiums incorporated in interest rates offsets the wealth gain which would have occurred if inflation were unanticipated.

Exhibit III illustrates how the net monetary creditor household from Exhibit I maintains the real value of its 1962 balance sheet given anticipated inflation and the assumptions set out. Column (1) of Exhibit III is the household's original balance sheet as of December 31, 1962. Column (2) shows the household's 1975 balance sheet. Real assets are assumed to have increased, in proportion to the increase in the price level, from \$23,054 in 1962 to \$41,013 in 1975. Column (3) shows the 1962 purchasing power of the 1975 dollars reported in column (2). The real value of real assets is the same in both periods just as in Exhibit I. Monetary assets in 1962 equalled \$8,953. In order to offset losses in purchasing power the household is assumed to have demanded an inflation premium averaging 4.5 percentage points per annum incorporated in the interest rates of its monetary assets.<sup>6</sup> This results in an addition to monetary assets totaling \$6,974 over the course of the thirteen years. Thus, the household's monetary assets increased from \$8,953 in 1962 to \$15,927 in 1975. Column (3) shows that the real value of the household's monetary assets in 1975 is the same as in 1962.

An inflation premium of 4.5 percentage points per annum is also assumed to be associated with the household's monetary liabilities. As a consequence, over the course of thirteen years the household would have incurred \$1,031 additional dollars of monetary liabilities, raising its total monetary liabilities to \$2,354 in 1975. Again, this is the same real value as in 1962. The household's 1975 wealth in this case amounts to \$54,586 in 1975. In terms of 1962 purchasing power the household's real wealth is unchanged and, therefore, it has avoided any wealth loss.

Exhibit IV shows the case of the net monetary debtor in the instance of perfectly anticipated inflation. Column (1) is the original 1962 balance sheet. Real assets increased in proportion to the price level, as indicated in column (2), but maintain the same real value, as shown in column (3). Monetary assets, which incorporate an inflation premium, earn annual increments to principal which total \$2,190 so that their real value remains unchanged. Likewise, monetary liabili-

<sup>5</sup>The effect of taxes on interest earnings is ignored in this discussion.

<sup>6</sup>As in the earlier examples, interest which would have been earned when no inflation was expected is assumed to be spent by the household. The incremental interest earned as a result of the inflation premium incorporated in interest rates is assumed to be added to the principal annually.

## Exhibit III

Anticipated Inflation  
Net Monetary Creditor

	Col. (1) December 31, 1962 <sup>1</sup> (1962 Dollars)	Col. (2) December 31, 1975 (1975 Dollars)	Col. (3) December 31, 1975 <sup>2</sup> (1962 Dollars)
Real Assets	\$23,054	\$41,013 <sup>3</sup>	\$23,054
Monetary Assets	8,953	15,927 <sup>4</sup>	8,953
Total Assets	\$32,007	\$56,940	\$32,007
Monetary Liabilities	\$ 1,323	\$ 2,354 <sup>4</sup>	\$ 1,323
Wealth	30,684	54,586	30,684
Wealth & Total Liabilities	\$32,007	\$56,940	\$32,007

Source: Federal Reserve System, *Survey of Financial Characteristics of Consumers* (1966).

<sup>1</sup>Data are the average assets and liabilities held by households headed by persons over 65 years old.

<sup>2</sup>Data are deflated using the annual average values of the consumer price index (CPI).

<sup>3</sup>Assumed to have increased in proportion to the CPI.

<sup>4</sup>Assumed to have earned or incurred a 4.5 percentage per annum rate of return (net of taxes) above the rate of interest contracted assuming no inflation.

NOTE: Data may differ from original due to rounding.

ties incur an additional 4.5 percentage point average annual interest charge from which the annual increments to principal total \$3,225 over thirteen years. The real value of monetary liabilities is unchanged. The household's wealth increases to \$10,316, which represents the same amount of purchasing power as in 1962.

By incorporating an appropriate inflation premium in their interest rates based on accurate expectations of future price level changes, households can theoretically avoid an inflationary redistribution of wealth. However, over the period from 1962 through 1975, there were barriers which would have prevented households from totally avoiding the redistribution.

Owners of monetary assets and liabilities were not free to contract interest rates which fully incorporated an adequate inflation premium. For example, over this period banks were not allowed to pay any interest on checking accounts. Interest rates on savings accounts were regulated and, therefore, households would not have been able to earn 4.5 percentage points in addition to the interest rate they would "normally" require. These interest rate restrictions hindered households from protecting the real value of their balance sheet. However, in order to maintain the value of real wealth, households could rearrange

the components of their balance sheets, economizing on those monetary assets which did not earn a high enough rate of return and holding larger amounts of those assets whose interest rates were high enough to compensate for the losses in purchasing power.

Nevertheless, in order to carry out day-to-day transactions, most households will find it necessary to maintain at least some assets in noninterest or low-interest earning forms, such as cash and checking accounts (money). Inflation makes it more expensive to use money since it loses purchasing power. Households will, therefore, cut down on their holdings and use of money. However, in economizing on their money balances, households will lose some of the services of money. Money facilitates transactions and enhances economic efficiency. The

higher cost of holding money will lead the economy to devote otherwise productive resources to the production of money substitutes.

Loss of money's services can result in economic dislocation. For example, a worker may want to be paid at the end of each day instead of at the end of the week or month, so that he can spend the money before it loses more purchasing power. The loss of money's services will cause people to alter their production patterns in order to protect themselves against lost purchasing power. This will involve more fre-

## Exhibit IV

Anticipated Inflation  
Net Monetary Debtor

	Col. (1) December 31, 1962 <sup>1</sup> (1962 Dollars)	Col. (2) December 31, 1975 (1975 Dollars)	Col. (3) December 31, 1975 <sup>2</sup> (1962 Dollars)
Real Assets	\$ 7,127	\$12,679 <sup>3</sup>	\$ 7,127
Monetary Assets	2,812	5,002 <sup>4</sup>	2,812
Total Assets	\$ 9,939	\$17,681	\$ 9,939
Monetary Liabilities	\$ 4,140	\$ 7,365 <sup>4</sup>	\$ 4,140
Wealth	5,799	10,316	5,799
Wealth & Total Liabilities	\$ 9,939	\$17,681	\$ 9,939

Source: Federal Reserve System, *Survey of Financial Characteristics of Consumers* (1966).

<sup>1</sup>Data are the average assets and liabilities held by households headed by persons under 35 years old.

<sup>2</sup>Data are deflated using the annual average values of the consumer price index (CPI).

<sup>3</sup>Assumed to have increased in proportion to the CPI.

<sup>4</sup>Assumed to have earned or incurred a 4.5 percentage per annum rate of return (net of taxes) above the rate of interest contracted assuming no inflation.

NOTE: Data may differ from original due to rounding.

quent trips to the bank and greater use of nonmoney transactions (barter). These attempts to prevent wealth loss will use up productive resources, lowering the productive capacity of the whole economy.

Just as there are institutional barriers preventing households from fully protecting themselves against wealth redistribution, it is probable that households, although anticipating inflation, will not *accurately* anticipate the pace of price increase. Past rates of inflation have varied from year to year and, thus, have increased uncertainty about future rates of inflation. Expectations of future inflation, but at an uncertain rate, can decrease households' desires to hold long-term investment assets since they will have a better idea of the rate of inflation one year from now than ten years from now. Long-term investments will involve greater risks when the future rate of inflation is uncertain. If a smaller amount of long-term funds is available, the price of long-term borrowing by industry to expand plants or households to build houses, for example, would increase. Thus, a possible consequence of increased uncertainty about future inflation is a reduction in the rate of growth of the economy's capital stock and a lowering of the society's welfare.

If households have accurate expectations of future price level changes reflected in the interest rate structure, it is theoretically possible to avoid inflationary wealth redistribution.<sup>7</sup> However, current institutional arrangements, which hinder households from fully adjusting their portfolios, make some wealth redistribution inevitable. In addition, anticipated infla-

<sup>7</sup>However, even perfectly anticipated inflation involves costs. For a discussion of these costs, see John A. Tatom, "The Welfare Cost of Inflation," this *Review* (November 1976), pp. 9-22.

tion leads to a loss in money's services and a loss to the whole economy in terms of lower efficiency and production.

## CONCLUSION

Certain consequences of inflation depend on whether the rate of inflation is anticipated or unanticipated. Inflation is not likely to be perfectly anticipated nor totally unexpected. To the extent that inflation is unanticipated, redistribution of wealth occurs. Net monetary creditors lose wealth, while net monetary debtors gain wealth. Households gain or lose depending on the composition of their balance sheets.

The government sector is a net monetary debtor to the rest of the economy and, thus, benefits as a result of unanticipated inflation. Nevertheless, unanticipated inflation transfers wealth (control over resources) from private decisionmakers to public control without necessitating higher taxes and, therefore, without requiring explicit authorization by a majority of the citizens. As a consequence of this positive wealth transfer, which is a relatively attractive method of raising revenue, the government has less incentive to control inflation.

Even if households perfectly anticipate inflation, institutional arrangements prevent households from fully protecting themselves against wealth losses. Especially to the extent that households hold money during periods of inflation, they will lose wealth. And the economy as a whole will lose welfare as households hold less money and benefit less from the services of money as a result of adjustments to expected inflation and increased uncertainty.

