No. 10-56
October 2010

WORKING PAPER

WHY INFLATION MATTERS

By Steven Horwitz

MERCATUS CENTER
George Mason University

Introduction

Although it has yet to make an appearance on the current economic scene, inflation continues to be a ghost that haunts the future of the U.S. economy. As part of the variety of expansions of government power over the course of the financial crisis and recession that followed, the Federal Reserve System has pumped an unprecedented amount of money into the banking system, effectively more than doubling the size of the money it creates. For now, that money remains in the banking system, and has yet to enter the spending stream to drive up prices and burden the economy with the various costs and consequences of inflation.

In addition, the trillions of dollars spent on the bailouts and stimulus package, as well as the expansion of government spending in the regular budget, create conditions favorable for inflation. Those trillions represent a large degree of deficit spending, and when added on to the trillions in debt accumulated by the Bush administration and those before it, the result is the over $13,000,000,000,000 in federal government debt that currently burdens our economy. That debt needs to be paid off somehow, some way. One way to do so is through inflating the money supply.

Moderate to high inflation is one of the surest ways to cause havoc in an otherwise productive economy and to undermine most people's standard of living, especially those in the middle and lower class and those on fixed incomes. Even though many measures of inflationary expectations remain low, those are premised, to some degree, on the belief that the Federal Reserve (the Fed) can painlessly withdraw all of the funds it has injected over the past two years. Those low inflationary expectations also assume that the market for U.S. government bonds will remain strong and that the temptation for the Fed to buy up those bonds and turn them into money will not emerge.

But what if either of those scenarios did come to pass and inflation became a more immediate threat? Given the damage that moderate to high inflation can cause, as those who lived through the 1970s and early '80s or who have experienced the hyper-inflations in other countries can recall, it is in our best interest to understand those dangers so as to do what we can to both protect ourselves and our families and to send a clear message to Washington that the policy environment needs to change. Washington needs to get its fiscal house in order before we get levels of inflation that will impose serious costs on the economy and the "fiscal houses" of millions of American families.

This study explains the mechanics of inflation and how large deficits and debts create a more favorable environment for inflation. After looking back at how inflation affected the cost of basic household goods in the 1970s and early 1980s, it explores the way inflation can damage the economy as a whole and undermine the price coordination process that is fundamental to markets and the economic growth they make possible. Even if inflation is not an immediate threat, the explosion in the deficit and debt over the last few years provides a reason to remind ourselves of the problems it can cause.

What is inflation?

Inflation is most commonly understood as an "increase in the general level of prices." For many purposes, that is a good definition as it does capture the typical way inflation manifests itself for most people. However, there are two problems with that definition that make it less than ideal. First, it does not get at the underlying reason that prices are rising, and second, not all increases in the price level should legitimately be considered "inflationary." This definition can be made more specific by referring to increases in the general level of prices as "price inflation."

Better definitions of inflation focus on the factor most associated with generally rising prices, namely the money supply. As Milton Friedman famously said, "inflation is always and everywhere a monetary phenomenon."[1] One other common definition of inflation is "too much money chasing too few goods" and this is in some ways a better definition than a "rising price level," but it has the drawback of suggesting that the problem is not necessarily too much money but possibly too few goods. A more exact definition would be that inflation is simply "an excess supply of money," where "excess" refers to "more money than people wish to hold at the current price level." We call this "monetary inflation."

In most cases, monetary inflation is the cause of price inflation. Prices rise because people have "too much money" in the sense that they have actual money holdings greater than their desired money holdings. Economists distinguish between people's "nominal" money demand, which refers to how many dollars they wish to hold in their wallets or bank accounts, and their demand for real balances, which refers to how much purchasing power they wish to hold. Nominal money demand varies with the price level. In a world where bread costs $15 per loaf and other prices are similarly higher, keeping a nominal balance of $50 in your wallet would represent a very low demand for real balances. In a world where bread costs 30 cents per loaf, that $50 is a much higher demand for real money balances. Because those prices matter, economists argue that people will adjust their nominal holdings as prices change so that they get the real money balances they desire. Nominal money demand fluctuates with the price level, real money demand fluctuates with tastes, preferences, and income among other factors.

Our demand to hold money balances is not infinite as can be seen by our choice to reduce our holdings of money after we get paid by spending some of it on, for example, groceries, rent,

[1] Milton Friedman, *Money Mischief: Episodes in Monetary History*, New York: Houghton Mifflin Harcourt, 1994, p. 49.

or a car payment. From a portfolio perspective, money is one form in which people hold their wealth and often we prefer to have less money and more of the other goods and services we desire. Because our acceptance of money is "routine," in the sense that we get paid on a regular basis, we do not have moment to moment control over our money holdings and can frequently find ourselves with our actual holdings of money greater than our desired holdings.[2] This is just the flip side of our holdings of goods and services frequently being *less* than what we would desire.

When the monetary authority creates more money than people wish to hold given the current level of prices, we have monetary inflation (people end up holding more money as the Federal Reserve creates funds for banks to loan as discussed later on in this paper). As some people find themselves receiving additional money as it enters the economy (but before prices start to rise), they adjust their portfolios by getting rid of some money and buying goods and services they wish to consume. That process of shifting their wealth from money to goods and services adds to the demands for those various goods and services, driving up their prices. The recipients of their expenditures now receive higher prices but have larger nominal (and thus real) money balances. They face the same portfolio choice the first group faced and they will spend the excess. This process, which is something like the old game "hot potato," will continue until prices rise sufficiently such that the higher nominal money supply is worth in real terms what the old money supply was, i.e., until people's actual real money balances have fallen to their level of desired real money balances.[3]

---

[2] Leland Yeager, "A Cash-Balance Interpretation of Depression," *Southern Economic Journal 22*, 1956, pp. 438-47.

[3] Algebraically, what happens here is that we start with a money supply M and a price level P and a real demand for money of M/P. When the money supply rises to $M_1 > M$, we also have actual money holdings of $M_1/P >$ desired money holdings of M/P. As actors attempt to get M_1/P back down to M/P, they will spend their excess money holdings, driving up P. P will stop rising when monetary equilibrium is restored at P_1 such that $M_1/P_1 = M/P$. This

The larger the excess supply of money, the more spending that will occur and the more that prices will rise. In general, if money is in excess supply by 10 percent, then we should expect an increase in the price level of 10 percent as well. However, it is important to see that this does not mean that *each and every price will rise by 10 percent*. Because different individuals will see different quantities of the excess money supply at different times and places, and because each of those people will spend that money on different goods and services, the prices of goods and services will all rise by different amounts. These so-called "relative price effects" are important for understanding how inflation disrupts the economy as a whole, as I will discuss in a later section.

Finally, the general level of prices can move for reasons other than an excess supply (or deflationary deficient supply) of money. Changes in productivity, whether of capital or labor, can have this effect as well. Increases in productivity due to new technology or better-skilled workers will drive prices down (as goods can be produced more cheaply) and wars or natural disasters that destroy capital or labor decrease productivity and push prices up. The latter might be "price inflation," but it is not "monetary inflation" in the harmful sense we are discussing, and neither is, say, increasing gasoline prices due to a disruption in supply. These cases are simply prices changes that reflect the underlying realities of relative scarcity and productivity, which is what market prices are supposed to do. One implication is that prices alone cannot tell us if we are suffering from harmful inflation—we need to watch the money supply. A second implication is that a stable price level might be masking inflation if it is combined with rising productivity

---

also implies the quantity equation result that the percentage change in the price level is equal to the percentage change in the money supply. See the paragraph to follow.

that is simultaneously tending to lower prices. In an economy that is experiencing secular growth with neither inflation nor deflation, the price level should be gently falling.[4]

From Fiscal Profligacy to Monetary Over-expansion

Understanding why we might see monetary inflation requires that we acknowledge the relationship between the Fed, which controls the money supply, and Congress or the president, which controls spending and taxation. In many countries, the central bank is owned and operated directly by the federal government. In such an arrangement, it is easy to see why their interests would be tightly aligned: politicians and bureaucrats would love to be able to manipulate the money supply for political gain. In the U.S., the Fed is not officially a branch of government in the same way, giving it more independence and making it tougher for Congress to get it to what it wants it to.

However, the Fed is hardly completely independent. The Fed was created by Congress and Congress always has the power to change its mission or even abolish it if members wished. Members of the Board of Governors, including the chair, are nominated by the president and approved by the Senate. The chair position is renewed every four years, so any chair who strays too far from what Congress or the president wishes runs the risk of losing his job. The chair is required to testify in front of Congress on a regular basis and will be held responsible for any perceived economic problems for which the Fed is responsible. Although the interests of the U.S. central bank and the U.S. federal government are not as tightly overlapping as in many countries, there are still numerous reasons to think that the Fed has reasons to act in ways that

[4] For more on this point, see George Selgin, *Less Than Zero: The Case for a Falling Price Level in a Growing Economy*, London: Institute for Economic Affairs, 1997. Some economists argue that relatively stable prices masking an underlying monetary inflation causing an unsustainable economic boom describes the US during the 1920s lead-up to the Great Depression as well as the period between 2001 and the current recession.

benefit Congress and the president politically. The Fed's actions and new powers gained during the 2008 financial crisis were certainly perceived as valuable to a Congress and president who believed that the Fed and other needed to "do something" during that situation.

To see this relationship in more detail, we need to understand the ways that the Fed attempts to control the money supply. The Fed can only directly control the monetary base, which is the sum of the total supply of currency and coin plus the reserve deposit accounts that banks keep at the Fed. The Fed always has the option of literally printing more money, but that's not the most efficient or beneficial (to them and the federal government more generally) way of expanding the monetary base. It would rather do so by expanding bank reserves. It does so by engaging in open market operations, which is buying and selling government bonds.

When the Fed goes into the marketplace to buy bonds from various financial institutions, it pays for those bonds by doing the electronic equivalent of the following: writing a check off of itself to pay the bond dealer who then deposits that check in their account at a bank or similar institution. The bank presents the check to the Fed for payment, and the Fed pays the bank by crediting its reserve account for the amount of the check. Again, this is all done electronically, but the net result is that the Fed has acquired the asset of a government bond and the liability of the bank's reserve account at the Fed is larger by the same amount. The bond dealer has given up a government bond and acquired a larger account balance at the bank (a swap of assets), and the bank has acquired a larger account balance at the Fed on the asset side and a larger account balance that it "owes" the bond dealer on the liability side.

The important result, however, is that the additional reserves the bank has acquired enable it to create more loans. Most of those reserves are not required to back up deposits, and the rest of them can be lent out. Those loans will in turn find their way into the actual money

balances of various people who will then start the spending process identified in the previous section. This is how the Fed attempts to affect the total supply of money: it can control the monetary base and it tries to predict how much a given change in the base will translate into a multiplied increase in the total money supply as it works its way through the banking system and the economy as a whole.

This link between government debt and money creation is key to understanding how fiscal and monetary policy can interact. Fiscal policy cannot be understood without taking seriously the incentives facing political actors. Assuming that politicians and bureaucrats will know and enact policies in the public interest regardless of the effects on their broadly-conceived self-interest turns out to be singularly unhelpful in explaining the outcomes we actually observe.[5] Just as people in private markets seek profits, members of Congress seek votes. Promising to spend money on constituents generally produces votes, while raising their taxes does not. The result is that there is an inherent pro-spending/anti-tax bias within the political process. If politicians are left unconstrained by a common set of accepted norms, or by constitutional rules, the result will be constantly increasing spending creating constantly increasing budget deficits and total debt.

As we have seen in the last few decades, and especially since 2001, increases in government spending can quickly spiral into budget deficits in the trillions and accumulated debt topping $13 trillion. Governments create debt by borrowing (selling bonds both domestically and to other countries) and those bonds have interest that must be paid periodically. As long as the demand for those bonds remains strong, which really means as long as people are confident in the ability of the U.S. government to pay them off as they come due, the U.S. government can continue to run deficits and borrow the necessary funds at a reasonable interest rate. However, if

[5] See James Buchanan and Richard Wagner, *Democracy in Deficit*, Indianapolis: Liberty Fund, 2009 (1980).

at some point the spending and deficit spiral gets bad enough, it is possible (as we have seen in Greece and elsewhere) that bond markets will balk and begin to ask for higher interest rates or not want to purchase U.S. bonds at all.[6]

That scenario opens up the possibility of the Fed buying not just government bonds already issued and in the portfolios of current investors, but directly buying up new bond issues from the Treasury. This process turns the new debt directly into additions to the money supply, and is therefore known as "monetization" of the debt. Monetization has two large advantages to heavily indebted governments. First, when the Fed purchases government bonds, it is not allowed to keep the interest, which is required to be returned to the Treasury. Every bond the Fed owns is, in essence, an interest-free loan to the federal government. This interest saving can be just pocketed by the Treasury or it can enable the federal government to create additional debt at roughly the same total interest expense it had prior to the Fed's purchase. In other words, if the federal government has a fixed budget amount for interest expenses, every Fed purchase of bonds enables the government to issue more debt within that same budget allocation. For governments with high amounts of debt and expecting more in the future, monetization looks like a good deal.

Second, because monetization adds to the monetary base and, assuming the banks are lending, this increases the money supply, which is highly likely to produce inflation. As inflation increases the price level and thereby reduces the value of the dollar, it reduces the real value of the nominal level of government debt.[7] Government borrows when the dollar is more

---

[6] For a much more technical argument about how fiscal policy can lead to inflation, see John Cochrane "Understanding Policy in the Great Recession: Some Unpleasant Fiscal Arithmetic," available at: http://faculty.chicagobooth.edu/john.cochrane/research/Papers/understanding_policy.pdf .

[7] If, for example, the nominal debt is $100 and inflation increases by 10%, then the $100 that is paid back is worth less than $100 in terms of what it can buy. It is in this sense that the real value (what the $100 will purchase) has decreased relative to the nominal value, which is still $100.

valuable and pays it back years later in the same nominal amount but with dollars that are worth much less. One of the timeless truths of inflation (at least when it exceeds any expectations written into contracts) is that it redistributes wealth from lenders to borrowers. Individuals or households deep in debt might wish they had a printing press with which they could print the money to pay off those debts, but governments actually have one in the form of their central banks.

The spending binge begun by President Bush and expanded on by President Obama has created unprecedented annual budget deficits and a total debt in the tens of trillions.[8] For now, the bonds financing that debt have found a market, but there is no reason to think that can go on forever. The temptation to monetize that debt is ever-present as it saves on rapidly escalating interest expenses, and should bond markets get balky about U.S. debt, the temptation will be extremely hard to resist. Of course, lenders who buy U.S. bonds to help finance the interest on the debt would rationally have expectations of inflation and would either demand higher interest rates on their loans or would outright refuse to make such loans, creating an even bigger problem.

The possibility of larger debt leading to monetization along with a monetary base that has already doubled leads a number of observers to fear inflation, at least in the medium to long run. Between September 10, 2008 and July 14, 2010, the monetary base grew from just under $874 billion to just over $2 trillion, or by about 132 percent.[9] Yet despite the doubling of the

---

[8] From 2002 to 2010, federal government spending increased by $1.7 trillon or 85%. The annual budget deficit grew by a factor of 10, from around $150 billion to over $1.5 trillion (as a percentage of GDP, it grew by a factor of around 7). The total of US federal government debt has more than doubled, rising from around $6 trillion to over $13 trillion. We have accumulated more outstanding debt since 2002 than we did for the entire history of the country prior to 2002. The relevant data can be found here: http://www.presidency.ucsb.edu/data/budget.php and here: http://www.treasurydirect.gov/NP/NPGateway.

[9] See the data here: http://research.stlouisfed.org/fred2/data/BASE.txt . The overall size of the Fed's balance sheet has increased by about the same percentage, see: http://www.federalreserve.gov/releases/h41/hist/h41hist1.pdf .

monetary base, the U.S. price level remains near constant, with some indicators trending downward. Various measures of inflationary expectations are low.[10] For example, one of the newest measures is created by the Federal Reserve Bank of Cleveland, which is based on a number of variables, from inflation-protected government bonds to survey data and more, puts the consensus expectation of inflation at 1.69 percent.[11] How can inflationary expectations be so low even as the Fed has expanded the monetary base by over $1 trillion? One explanation is that for those increases in the monetary base to translate into increases in the money supply and therefore affect prices, banks have to be willing to lend those new reserves, turning them into spending. To the extent that banks simply hold those reserves, or invest them in government bonds, and to the extent that households are holding a higher portion of their wealth in money, that expansion process is cut off before it can begin. The Fed's decision to pay a small amount of interest on bank reserves has also prevented the additions to the base from translating into spending. As long as the economic climate remains uncertain, those additions to the base are unlikely to generate inflation. In addition, the low inflationary expectations reflect the belief that the Fed can undo that expansion in a relatively painless way if it needed to. However, if the economy picks up and the Fed is unable to withdraw those reserves quickly enough, inflation over the medium or longer term would be more likely.

Some of that increase in the monetary base has been used to finance the debt as the Fed has begun limited purchases of debt directly from the Treasury.

[10] One important exception to this point is the rise in the price of gold, normally thought to move in step with inflationary expectations.

[11] See http://www.clevelandfed.org/research/data/inflation_expectations/index.cfm and the related links that explain the underlying methodology.

Inflation and Households

Inflation affects the typical household in a variety of ways, most, but not all of which are negative. Just as inflation benefits governments that are heavily in debt, it also benefits households to the extent they too are in debt, particularly with respect to their home mortgages, which tend to be their largest form of debt. Inflation that is unanticipated and not built into an adjustable rate mortgage means that households too pay back their loans in cheaper dollars than they borrowed them. With a good number of households facing mortgage burdens that they are having trouble coping with, some small amount of unanticipated inflation would indeed reduce the burden of that debt, and, taken in isolation, might well be preferable to other forms of homeowner bailouts. Of course, new homeowners find themselves being unable to buy as much home under conditions of inflation, particularly when rates are high. However, that particular benefit to households cannot be disentangled from the various costs of inflation, both to households specifically and to the economy in general. The rest of this paper discusses the various costs of inflation, many of which are overlooked in conventional analyses that do not see the broader political economy questions inflation raises.

To see how inflation can affect households, a look at the inflation of the 1970s provides some useful history. Just to recall the extent of that inflation, the table below (table 1) gives the inflation rates for the period from 1967 to 1982. For the ten years from 1973 to 1982, the inflation rate was never less than 5.76 percent, with four years of ten above 10 percent. For that period, the average annual inflation rate was 8.75 percent while the average annual growth in private sector wages was 7.28 percent. On average, American workers saw prices rising faster than wages over this period. Notice also that some of the biggest gaps between price increases and wage increases were in the years when inflation was highest, particularly 1974–75 and

1979–81. In general, the problems created by inflation get worse as inflation rates rise, particularly when the inflation is unexpected.

Table 1: Annual Inflation Rates and Nominal Wage Increases 1967–82.

Year	Annual Inflation Rate	Annual Change in Average Private Sector Nominal Wages
1967	2.9	4.40
1968	4.19	5.96
1969	5.37	6.62
1970	5.92	5.59
1971	4.3	6.76
1972	3.31	7.44
1973	6.21	6.15
1974	10.98	7.00
1975	9.14	6.77
1976	5.76	6.98
1977	6.45	7.51
1978	7.61	8.09
1979	11.27	7.82
1980	13.52	8.04
1981	10.38	8.61
1982	6.13	5.78

Source: Bureau of Labor Statistics.

We can see the effects of inflation on households by looking at two of the most important elements of household expenditures: gasoline and food. Table 2 shows the price of a gallon of leaded regular gasoline in current dollars from 1970 to 1982. The largest increases in gasoline prices unsurprisingly correspond to the years of the greatest overall inflation, as gas prices are one component of the Consumer Price Index measure. In three years during this period, gas prices jumped by 35 percent or more, clearly a significant burden on households, especially if wages and income were not keeping up with those price increases. From 1970 to 1984, gas prices rose by about 239 percent. Rapid price changes such as these make it very difficult for households to adjust their consumption behavior to the new circumstances. For example, it

would make sense to buy a more fuel efficient car in response to higher gas prices, but households might not be able to afford to switch right away and producers cannot react quickly enough to provide the kinds of cars consumers might ideally wish to have. When prices are rising quickly, even on specific products like this, it is hard for households to make compensating adjustments. Over time, they can do so, but not in the short run, and the result is a loss in wealth.

Table 2: Nominal gasoline prices 1970-1982.

Year	Gallon of regular gasoline	Annual % change:	Total annual gasoline expenses[12]
1970	0.36		
1971	0.36	0.00	$ 270.00
1972	0.36	0.00	$ 270.00
1973	0.39	8.33	$ 292.50
1974	0.53	35.90	$ 397.50
1975	0.57	7.55	$ 427.50
1976	0.59	3.51	$ 442.50
1977	0.62	5.08	$ 465.00
1978	0.63	1.61	$ 472.50
1979	0.86	36.51	$ 645.00
1980	1.19	38.37	$ 892.50
1981	1.31	10.08	$ 982.50
1982	1.22	-6.87	$ 915.00

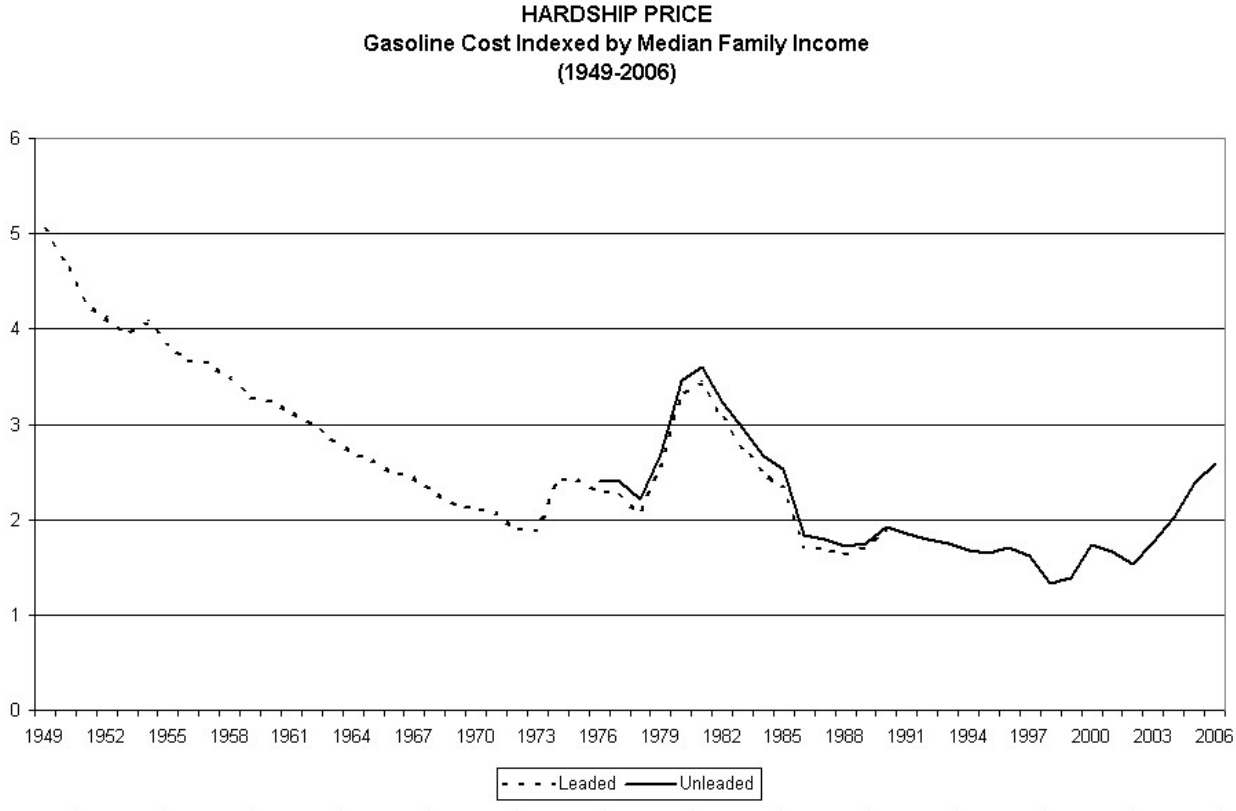
Source: http://www.eia.gov/emeu/aer/txt/ptb0524.html and author's calculations.

One way of seeing the burden of the quickly rising gas prices was computed by Jerry Taylor of the Cato Institute in 2008. Figure 1 below computes the "hardship price" of gasoline by viewing gas costs in relationship to median family income. The vertical axis reflects an index Taylor created computing the price per gallon of gasoline as a percentage of that measure of

[12] Assumes 15,000 miles per year at 20 mpg.

family income going back to 1949 (and ending in 2006, as it was the last available data in 2008). The higher the number, the larger the price per gallon of gas as a percentage of median family income, hence terming it a "hardship index." Taylor's chart illustrates that the highest level of the hardship index corresponds to the peak of the inflation of the late 1970s and early 1980s (other than the post-WWII yeas), in line with the large increases in nominal prices noted above. It was during this period that gasoline prices were at their highest percentage of median family income since 1960. The long-run downward trend is also notable, and was Taylor's original point, and also illustrates how inflation can interrupt otherwise desirable economic trends. Had the inflation of the 1970s never occurred, how low might this measure have gone?

Figure 1: Hardship Price of Gasoline.



Source: http://www.cato-at-liberty.org/2008/08/13/gasoline-affordability-reconsidered/

Staple food items saw similar price increases over the period. Consistent year-to-year data on identical products is hard to find, but some of what is available tells a story similar to that of gasoline. Table 3 looks at the nominal prices of Kellogg's Cornflakes, a standard Hershey chocolate bar, and a box of Oreo cookies from 1970 to 1984. Generally, the mid-'70s and late '70s/early '80s periods are the ones with the largest price increases, tracking what we saw with the overall inflation rate. Annual rates of change were quite variable, but there were numerous years in which these household staples increased by 15 to 20 percent or more, and several in which prices rose by more than 30 percent. All three of the items saw large increases over the whole 15-year period. The nominal price of cornflakes rose by 3.5 times its original price, with Hershey bars not far behind and Oreos almost tripling. By comparison, the average hourly private sector wage during this period rose from $3.36 to $8.61, or an increase of 156.3 percent, which is considerably less than each of these three items.[13] For at least this set of basic household grocery items, the effect of inflation was prices rising more quickly than wages, leaving households worse off as a result.

[13] Of course not all items rose by the same amount. Eggs, for example, rose by 128.2 percent from 1972 to 1984. If the price in 1970 was slightly lower than 1972, they likely just about kept pace with wages, even though they did not increase as much as the other food items.

Table 3: Prices of various staple food items, 1970–1984.

Year	Kellogg's Cornflakes (cents per oz)	Annual % change	Hershey Bar (cents per oz)	Annual % change	Oreo Cookies (cents per oz)	Annual % change
1970	2.111		7.273		3.000	
1971	2.625	24.3%			3.667	22.2%
1972	2.056	-21.7%			3.063	-16.5%
1973	2.083	1.4%	7.937		3.267	6.7%
1974	2.389	14.7%	10.714	35.0%	3.667	12.2%
1975	3.750	57.0%			5.933	61.8%
1976	3.833	2.2%	12.500		5.211	-12.2%
1977	4.167	8.7%	16.667	33.3%	5.933	13.9%
1978	4.792	15.0%	20.833	25.0%	5.267	-11.2%
1979	4.917	2.6%			7.000	32.9%
1980	5.211	6.0%	23.810		6.600	-5.7%
1981	6.222	19.4%			8.895	34.8%
1982	6.944	11.6%	20.690		8.684	-2.4%
1983	5.500	-20.8%	24.138	16.7%	9.737	12.1%
1984	7.417	34.8%			8.950	-8.1%
Total increase over period		**251.3%**		**231.9%**		**198.3%**

Source: http://www.foodtimeline.org/foodfaq5.html and author's calculations

One important point about these food data is that when looked at over the longer run, the trend facing American households has been one of declines in the real price of food, along with most of the other consumption items found in the typical household. The inflation of the 1970s and early 80s was an aberration in the long-run trend of improving consumption possibilities for the average American family. In over 30 years since, American families have gained back the ground they lost and improved on it. However, had the inflation of that period never happened, there would have been no lost ground and households today would be *even better off than they actually became*. Inflation interrupts the progress that markets provide through technological innovation which makes labor and capital more productive and those losses far outweigh the benefits to households in their capacity as debtors.

Finally, it is worth remembering that most households are not just debtors and spenders, they are savers as well. Inflation not only impoverishes households through higher prices, it eats away at the real value of savings if interest rates do not account for inflation. To take a simple example, consider a family with savings of $10,000 in 1973 invested at the then-maximum 5.25 percent interest rate on savings. By 1982, that $10,000 would have grown to about $16,700. However, when we take the effects of inflation into account, the value in 1973 dollars of that $16,700 would have been about $7,690. In other words the original $10,000, *even at 5.25 percent interest*, would have lost about 23 percent of its value by 1982. At lower rates of interest, the losses would be larger. Today, we no longer have the caps on interest rates, but if savers underestimate future inflation and cannot find instruments that will pay interest rates that fully compensate for future inflation, they will continue to suffer real wealth losses during inflation. So even as inflation helps households by reducing their indebtedness, it harms them through reductions in the real value of their savings.

The severity of the costs of inflation rises in step with the inflation rate, and perhaps at an increasing rate at modest to high levels of inflation, so at low levels of inflation they may not be as significant. Inflation under 4 or 5 percent would not causes as much damages as the higher rates of the 1970s and early ’80s did. However, the question is whether central bankers and other policymakers can restrain themselves from the temptation to run higher inflation rates once we open the door to using inflation as a policy tool. In the absence of credible constraints on central banks, the history of inflation, and the increased interdependence of fiscal and monetary policy through the Fed’s new powers, faith in the forbearance of central bankers is not likely to be rewarded. Even if the costs of low inflation are small, any level of inflation makes it more likely that more damaging higher inflation will result. If higher levels of inflation enable

Congress to relieve the burden of the debt and spend more, members have an incentive to pressure the Fed to continue to provide that relief valve. Perhaps that is pressure the Fed can resist, but as the Fed's new powers have also entangled it more deeply in fiscal policy, resistance to political pressure is more difficult than in years past. Even low levels of inflation open a door that might be better left closed.

The "Coping Costs" of Inflation

The ways in which the rising prices and lagging wages of inflation affect households are only part of the bigger picture of the costs that inflation imposes. Those direct losses in wealth are important, but inflation also causes *diversions* of wealth that make people worse off than they would be in the absence of inflation. Understanding these costs requires that we keep that comparative perspective in mind: how do households use their wealth when inflation is taking place compared to how they would use their wealth if inflation were absent? A good analogy here is to the ways in which the threat of criminal behavior imposes costs on households. People who live in high-crime areas expend resources to protect themselves against crime (e.g., home security, car alarms, multiple door locks, perhaps weaponry). If there were less crime, or even no crime, the resources devoted to crime-prevention could be spent on items that directly met more valued wants. Households would have more to spend on food, medical care, or housing, or whatever else they valued. Given the threat of crime, their expenditures on prevention make sense, but households are worse off than they would be in the absence of that threat. Inflation imposes "coping costs" in much the same way on both households and firms.[14]

[14] The discussion here can be found in more detail in my "The Costs of Inflation Revisited," *Review of Austrian Economics 16*, 2003, pp. 77-95.

Historically, economists have identified two such "coping costs" associated with inflation: the costs involved with making more trips to the bank to replenish money holdings more frequently as prices rise and the costs to firms of physically changing prices more often when inflation occurs. Even before electronic money and computerized price systems which have reduced these particular costs substantially, these costs were, rightly, dismissed as being fairly small in proportion to the whole economy, leading some economists to dismiss the costliness of inflation in general. However, there are many more coping costs than these two.

Perhaps the most important is that both households and firms have to expend resources to protect the value of their assets against damage from inflation. At the very least both have to pay attention to money and price data and their effects on their assets in ways they might not have had to before. One option is for firms to devote more of their own employees and capital to financial matters.[15] Both might be led to hire professional help to manage their portfolios, or to just give them more general advice about how to protect themselves. Financial institutions are likely to respond to this demand for their services by developing new instruments designed to help households and firms avoid the damage of inflation. During the 1970s, when banks had government-imposed maximums on the interest rates they could pay on checking and savings accounts, savers who wanted interest rates that were higher so as to avoid inflation-generated losses in wealth had to find alternatives. Money market mutual funds were developed by some banks as a way around the regulations that could provide a market interest rate for depositors. This sort of innovation has costs to the financial institutions and consumers, all of which are coping costs of inflation (and, in that historical case, also a cost caused by regulation). The

[15] During the Brazilian hyperinflation of the late 1980s, *U. S. News and World Report* noted that "Dow Chemical's Sao Paulo branch has three dozen employees who do nothing but monitor the financial market," and that most of its profits were due to speculation rather than chemical production. "Living with Hyperinflation," *U. S. News and World Report*, March 5, 1990, p. 61.

expenditures on professional money management and the costs of developing new instruments are all wasteful in comparison to an inflation-free environment.

Both households and firms have to be increasingly aware of inflation when contracts are negotiated. In an inflation-free environment, parties to a contract do not have to worry about changes in the value of the money in which the contract is negotiated. If I promise to pay $10,000 in six months, we can assume that the $10,000 will not have shrunk in value between the time we negotiate the contract and the time at which it is paid. With inflation, the parties now have to be alert to ways in which inflation might change that value over time. They may decide that the reality or threat of inflation is sufficiently small to not worry about it, or they might try to agree on a clause that will adjust the interest of the loan depending on some measure of inflation. Such concerns are especially salient in loan contracts, which is why the inflation of the 1970s led to the evolution of adjustable rate mortgages (another example of financial innovation in response to inflation). Financial institutions had issued 30-year mortgages at rates around 5 percent in the 1960s. As inflation rose in the 1970s, those loans continued to earn the banks and savings and loans only 5 percent, while inflation was eating away at the real value of the dollars they were being repaid and they were paying market rates of interest well into the 15 to 20 percent range to acquire new funds. Paying out more than you are earning is not a recipe for profits and explains why the 1970s and early ’80s were so bad for savings and loans, which had almost exclusively home mortgages on the asset side of their balance sheet. The contracts that firms negotiate with their workers face similar issues, and cost-of-living adjustment clauses were first developed in the early to mid 1970s as a response to rising inflation rates.

Firms face a related set of challenges from inflation. Because inflation causes prices to rise over the course of time, firms have to somehow account for the changing value of money in

their calculations of profit and loss. For example, suppose the firm purchases some inputs on January 1st that total $200. They then transform those inputs into an output using $50 of labor and then the output gets sold on December 31st for $300. Conventionally, we would calculate the profit by adding up the revenues and subtracting all of the costs, giving us $300–$250, or $50 profit. However, what if inflation was 10 percent over the course of the year? The $300 in income is not measured in the same dollars as were the various inputs. In an apples-to-apples comparison, the $300 is worth 10 percent less than $300 would have been absent inflation. This also means that the $50 in profit overstates the real value the firm created because some of the $300 the output sold for simply reflects the higher level of prices overall, rather than genuine additional value.

It is as if we were asked to determine which of two different pieces of wood was longer using a ruler, but in between measuring the two pieces, the inch marks on the ruler got somewhat closer to each other, making the second piece *appear* to be longer than it really is. When we use a ruler to measure, not only do we tacitly assume it really is measuring inches accurately, we also assume that those inch marks do not change when we engage in comparative measurements. What inflation does to the value of money is just like having a ruler where the distance between the inch marks shrinks over time. This poses problems for accountants and managers as to how to, if at all, adjust for inflation and interpret the results. To the extent that these accountancy problems lead firms to either expend resources or make mistakes in their interpretations of their profit figures, they are costs of inflation.[16]

If that weren't complicated enough, an additional problem is created when we recognize the earlier point about relative price effects. Each and every industry will be affected differentially by the excess supply of money, so even if we know the *average* inflation rate

[16] The next section will explore the interpretation issue in more detail.

across the economy, we cannot ever know what the particular effect of the inflation on our specific industry has been. A given industry might have been more or less in the path of the inflation. The average inflation rate might be our best guess at making some sort of adjustment to our profit and loss calculations, but being the "best" guess does not mean it is often an accurate one. The result is that inflation will play havoc with those calculations and likely lead entrepreneurs to make errors in judgment based on having misinterpreted their profits or losses.

All of the expenditures of resources, time, and "worry" that take place as both households and firms consider whether and how to adjust the contracting process in response to inflation are costs imposed by inflation and represent social waste compared to a lower or zero-inflation environment. At very low levels of inflation, people may decide that the damage done by inflation is so small as to be less than the cost of trying to account for those losses, so they may decide not to engage in those inflation-protecting activities. In that case, the direct costs of inflation are greater than they would be if people were attempting to counter them. One way or the other, inflation will impose costs, either directly by eating away at the value of money or by inducing actors to protect themselves against those costs and bearing a different set of costs in the process.

The ways in which inflation creates wasteful costs by diverting resources from ultimate wants into fighting inflation do not appear as declines in GDP. In fact, such expenditures count toward GDP in just the same way as do expenditures on any other goods and services. Whether a firm uses resources to purchase a new machine to improve its efficiency or is induced to spend the same amount on financial advice, the effect on GDP is the same. This point is just another version of the fallacy that natural disasters are good for the economy because we have to spend

resources cleaning them up.[17] Yes, the clean up adds to GDP but all the resources expended in cleaning up and getting things back to where they were *could have* been spent on *additional* goods and services taking us *beyond* where we were had the disaster not occurred. GDP only tells us how much "stuff" the economy produces; it does not tell us whether that stuff is valuable or whether it is new wealth or cleaning up from a loss in wealth. The coping costs of inflation are precisely analogous to the costs of cleaning up from a natural disaster. We cannot look to GDP to see these costs of inflation.

One specific example of this point is the way in which the financial sector tends to grow during inflation as people turn to it to fight inflation's effects. We have evidence from a variety of countries that growth in their financial sector tracks inflation. Two different studies that looked at the relationship between inflation rates and the size of the financial sector found a positive relationship. One study concluded: "The effect of inflation on the size of the financial sector is economically as well as statistically significant: a 10% rise in inflation boosts the size of a country's financial sector by about 1/3 of a percent of GDP."[18] A second study got a similar result and also noted that:

> It can be expected that this estimate is at the lower end of the actual reallocation effect taking place in an inflationary environment because the data do not include the inflation-induced shift of resources within nonfinancial firms toward financial activities reflecting an increase in efforts to improve money management.[19]

This reallocation of resources to finance, either internal or external, counts the same in GDP as what it replaced of course, but it is not a "net" addition to the extent that the growth is a result of inflation-fighting measures by households and firms. In the absence of the inflation, those same

---

[17] This argument goes back at least as far as Frederic Bastiat's "Fallacy of the Broken Window."
[18] William B. English, "Inflation and Financial Sector Size," *Journal of Monetary Economics 44,* 1999, pp 391-92. In the US in 2009, 1/3 percent of GDP would have been about $47 billion.
[19] Michael Frenkel and Gil Mehrez, "Inflation and the Misallocation of Resources," *Economic Inquiry 38,* 2000, p. 625.

resources would have been spent elsewhere with more or less the same effect on GDP. The financial sector can, of course, grow for good reasons, but when it comes with inflation, that growth is one manifestation of the waste engendered by the coping costs of inflation.

Inflation and the price system

Discussions of inflation are normally couched in terms of macroeconomic concepts such as "the price level," GDP, and perhaps even the unemployment rate. However, some of the most severe damage that inflation can do to an economy takes place at the microeconomic level in ways that disrupts the ability of market prices to coordinate the actions of entrepreneurs and consumers. When the market process is disrupted in this way, not only does it directly drag down economic growth, it can lead to the adoption of a variety of policies that will make matters even worse over time.

To see this point, a quick refresher on how prices coordinate the actions of market actors is in order. Market prices emerge from the exchanges of goods/services for money made on both sides of the market. Such exchanges are possible both because of the existence of money, which dramatically reduces the cost of finding an exchange partner in comparison to barter, and because of private property rights and legal institutions that convey and enforce ownership. With private property, owners can decide with whom they wish to exchange and on what conditions. Money serves as one half of each of these exchanges, with buyers, in effect, selling money and purchasing goods and services and sellers, in effect, buying money with the goods and services they sell. It is only through money as a medium of exchange that we can have the exchanges that produce the prices of a modern market economy.

As Friedrich Hayek argued in 1945, the complexity of this whole process of exchange is greater than anything that could be comprehended by the human mind.[20] The economic problem he argued is fundamentally a problem of knowledge. Each of us knows only a fraction of the total amount of knowledge necessary for complex production and consumption and the knowledge each of us possesses is different but overlapping.

Each act of buying and selling (or refusing to buy or sell) has its own marginal effect on the price of the good, which enables the price of that good to serve as a surrogate for the underlying knowledge of the buyers and sellers that informed their decisions to act the way they did. The dispersed, contextual, and /or tacit nature of that knowledge prevents it from being collected and manipulated by some external agency, leaving, according to Hayek, competition and the price system as the best, if imperfect, way to share that knowledge. Market prices are highly sensitive barometers of the underlying knowledge and preferences of market actors. By observing and interpreting those prices, other market actors can form expectations of the future and more effectively plan their own production and consumption decisions. In this way, prices that emerge from the voluntary monetary exchanges of buyers and sellers serve as "aids to the mind" that enable humans to coordinate their behavior with each other.[21]

Inflation disrupts this process by making prices less reliable as a surrogate for actors' underlying knowledge and preferences. As I noted earlier, excess supplies of money do not make their way into the economy in a smooth and even manner. Instead, money enters at specific times and places, with the result that some prices will rise more, and more quickly, than will others. These relative price effects are important because what ultimately matters to producers and consumers is the price of good X compared to the price of good Y. So if a 10

---

[20] F. A. Hayek, "The Use of Knowledge in Society," *American Economic Review 35*, 1945, pp. 519-30.
[21] The phrase "aids to the mind" is from Ludwig von Mises, "Economic Calculation in the Socialist Commonwealth," in *Collectivist Economic Planning*, F. A. Hayek, ed., Clifton, N.J.: Augustus M. Kelley, 1935.

percent increase in the money supply leads to the price of running shoes rising by 15 percent and the price of dress shoes by 5 percent, the price of running shoes has risen relative to dress shoes, apparently signaling to the market that running shoes have risen in value.

In the absence of inflation, such a relative price increase would be a signal to producers that they should strongly consider producing more running shoes to capture that apparent increase in value. Conversely, producers of dress shoes would read such a change as a signal to produce fewer and to consider shifting production elsewhere, perhaps to running shoes! With no inflation, the signaling process of the market is as clear as it is capable of being. With inflation, however, producers face a new problem: changes in prices may be due to changes in people's underlying preferences and knowledge, or they could be the (temporary) result of inflation. Disentangling these possibilities is important because over-reacting to the temporary results of inflation can lead to choices that will be revealed after the fact to be mistaken and that often cannot be costlessly reversed.

Consider the maker of dress shoes who sees the price changes described above. Suppose she believes (wrongly as it turns out) that the price change is due to a genuine, long-run shift toward more casual footwear. She might decide to invest funds in refitting the machinery in her factor to produce running shoes rather than dress shoes. Perhaps she decides to hire some new marketing and research employees to learn more about the running shoe market. All of these decisions are ones that cannot be costlessly reversed if it does turn out that the price change was only a temporary result of inflation. To the extent producers like this one guess wrong about the source of the price change, they will bear costs that they need not have, and the social consequence is wasted resources in comparison to an inflation-free economy.

The more severe the inflation, the more complicated is this process of sifting through the noise of inflation to get to the signal being sent by prices. Producers and consumers will have to work harder to sort through those signals, more mistakes are likely to get made, more resources will be wasted and more people will be frustrated by the apparent capriciousness of markets. And even if producers end up guessing right fairly frequently, which is difficult to imagine given the complexity of the processes by which new money might or might not affect their own industries and prices, any resources they expend in trying to figure out what the price change means are "coping costs" of the sort I have already discussed, and thus represent costs of inflation. All of this reduces economic growth and can even cause ibt to turn negative if the problems are severe enough.

A larger concern from the way that inflation makes the communication of the price system more obscured by static is that it can undermine whatever degree of confidence the public has in markets as the way to best coordinate an economy. If inflation-ridden prices become so unreliable that entrepreneurship becomes increasingly like guesswork and profit and loss signals are weak guides to what people really want, market participants are that much more likely to turn to government to, for example, impose price controls as was done in the 1970s under President Nixon.

Because inflation is complex and because many of the problems it creates are not obviously connected to the excess supply of money, its victims are unlikely to tell politicians to "stop inflating," but instead are likely to ask for redress of specific problems it causes. For example, if inflation misallocates resources toward one industry, people are likely to focus on the high profits or other aspects of that industry and ask for it to be regulated rather than seeing the problem as the underlying inflation. The ways in which the housing and financial markets

benefitted from the post-2001 boom and then became the target of much regulatory ire could be seen as an example of this process. Politicians, of course, are only happy to oblige in meeting these demands to "do something" as doing so increases their chances of re-election.[22] Again, this need not be a wholesale shift toward more government, but as inflation renders markets less reliable, at least *some* people will find it more profitable to turn to government.

The resulting growth in government can exacerbate the very problems that may have generated in the inflation in the first place. If the microeconomic discoordination caused by inflation leads to more government spending, which in turn leads to larger deficits and more debt, the end result of inflation might be an even higher level of inflation, should governments choose to monetize the increased debt. Although such a scenario is not on the immediate horizon, it is one possible outcome when inflation begins to make itself known.

Finally, in the world of the second best, if one had to choose between low levels of inflation and the massive fiscal stimulus/bailouts that have marked the last few years, the low level of inflation might be preferable, given that the costs might be relatively small compared to the wastes of fiscal policy. Stimulus and bailout spending would distort resource allocation at least as much as low inflation and would likely create new institutional configurations that would last well beyond their supposed immediate need. However, it is worth noting that the same danger of long-run damage can come with inflation: what confidence do we have that central bankers can stop at low rates? If we believe stimulus spending is often wasteful due to it being politicized, how can we then assume central bankers will ignore the political incentives to not increase inflation rates? Given the difficult of limiting both monetary and fiscal policy to "just

[22] See Axel Leijonhufuvd "Costs and Consequences of Inflation," in *Information and Coordination*, Oxford: Oxford University Press, 1981.

enough," it is not clear why we should have to choose between the two. We are likely to be better off allowing markets to recover on their own.[23]

Conclusion

Although inflation ultimately comes from overly expansionary monetary policy, our current binge of government spending and the rapidly rising deficits and debt it is causing can trigger the process by which monetary policy becomes too expansionary. As debt levels rise within the U.S., it is possible that buyers of U.S. government bonds will begin to have their doubts about our ability to repay that debt and demand higher interest rates on the money they are lending. Any bond market weakness of that sort will strongly tempt Congress to pressure the Federal Reserve into monetizing debt, leading to inflation. The question remains whether the Fed is able to resist such pressures.

Many critics of the current level of debt are raising problems associated directly with large deficits and accumulated debt, and they do indeed cause a number of problems. However, an equally important reason to be concerned and to push for structural and institutional changes that can curb the culture of deficits and debt is that they can lead to inflation and the damage it can cause to households and the economy more generally. In a world where governments have the power of the printing press at their disposal, high levels of government debt are a temptation to inflate that is best avoided. If we do not get our fiscal house in order, our monetary house and the entire economy may be in peril as well.

[23] Expansion of the money supply would be justified if it were the case that the demand for money were sufficiently high that the current supply was so deficient that deflation was a real concern. As of now, there's not enough evidence to suggest that we are in that scenario.