The Economy in Historical Perspective

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This chart displays the annual US Federal budget deficit beginning in 1940 relative to the size of the US economy by expressing the deficit as a percent of the total output, or income, of the country as measured by Gross Domestic Product (GDP). The line is positive in most years, meaning that the Federal government borrowed money during those years in the amount of the indicated percentage. When the line is negative, most recently during the “peace dividend” years of the late 1990s and early 2000s, the Federal government repaid previously borrowed money. There are two important aspects of the way information is presented in the chart.

First, the magnitude of the deficit can be judged only by relating it to some measure of ability to repay the borrowed funds. News stories often sensationalize the magnitude of the Federal deficit by reporting raw dollars which, taken alone, sound very large indeed. An example is this story


that appeared in the August 20, 2009 edition of the Columbia Daily Tribune and reported the Federal deficit as a “massive $1.58 trillion,” a “record shattering” amount. Whether $1.58 trillion is the largest dollar amount ever recorded for the Federal deficit is largely uninformative for the substantive question of whether the deficit is dangerously large. The chart shows that the Federal deficit, at nearly 10% of GDP, was indeed large relative to the size of the economy by historical standards, but was much smaller than the peak of about 30% of GDP that occurred in the midst of World War II.

This highlights the second important aspect of the way information is presented in the chart. We do not obtain perspective on whether 10% of GDP is a qualitatively large number unless we compare it to past experience. It is important to show many years of data to make this comparison immediately available. GDP itself is a controversial concept in some circles but it at least provides some standard of comparison for the dollar magnitude of the deficit over time.
To put this discussion in more familiar terms, consider an individual who borrows $100,000 in a year. Is this an imprudent level of borrowing for this person? No one can say without knowing something about what the borrowed money is used for or, at least, the individual’s ability to repay the loan. If the loan is a first mortgage taken on a principal residence with a market value of, say, $150,000; the annual income of the individual is $50,000; and the individual has no other significant debt then most of us would likely agree there is nothing frivolous or imprudent about this loan. Note that this loan is 200% of the annual income of the borrower. Contrast this with the current Federal deficit, at about 4% of the annual income of the nation.

There are, of course, many other questions about the Federal deficit, including what the funds are used for and whether it has accumulated to an alarming level even though the annual deficits have generally been less than 5% of GDP. The latter is addressed in the next chart. The former is very difficult to assess. Our hypothetical homeowner acquired a valuable asset with the borrowed funds, whereas the Federal government is widely perceived to merely spend money on things that have no capitalized value. There are, in fact, many government-owned long term assets that were partially acquired with borrowed funds, such as roads; military hardware; land such as parks, military bases and office parks; office buildings; and vehicles to name only a few. But there is no systematic accounting of the market value of these government assets, making it hard to judge whether the Federal deficit is large relative to the market value of the assets acquired with the borrowed funds.
This chart displays gross US Federal debt, beginning in 1940, again relative to the size of the US economy by expressing the debt as a percent of GDP. Gross Federal debt is held by the public as well as government agencies. All of the discussion about the deficit regarding the importance of measuring relative to some measure of ability to pay, and doing so over a long time period, applies with equal force to the debt.

The chart is very revealing about both long-term trends and recent events. Relative to the size of the economy, Federal debt peaked at the end of World War II at about 120% of GDP. This means it would have taken 1.2 years at that time to pay off the entire Federal debt if all of the income in the US were devoted to repayment. Of course, it is not possible to devote all income to debt repayment. Still, this provides a useful perspective. The hypothetical homeowner in the discussion of the deficit chart would need 2 years to pay off the mortgage if all income were devoted to debt repayment.

Federal debt declined almost continuously relative to the size of the economy after World War II until the early 1980s, reaching a low of about 33%. At that time, it would have taken only one-third of a year to pay off the entire Federal debt if all income in the country had been devoted to debt repayment. This decline occurred despite annual deficits in most years because of growth in the size of the economy.

A change occurred in the early 1980s. Total Federal debt began growing faster than the economy until it peaked in the mid-1990s at about 67% of GDP. Then came the “peace dividend” which, coupled with economic growth, pushed the debt back down below 60% of GDP. Federal debt has grown faster than the economy since the early 2000s and has accelerated very quickly in the last few years. It went over 100% in fiscal 2013 for the first time since the late 1940’s. Although this debt level is not outside of historical experience, 66 years elapsed between Federal debt levels exceeding 100% of GDP; and the debt level in 1947 was directly caused by the borrowing that financed World War II.
This chart shows total debt owed through US credit markets beginning in 1945 as a percent of GDP. It includes debt owed by private households and businesses as well as government debt. The chart shows that total debt was a fairly constant proportion of the US economy until the early 1980s. It began to grow substantially at about the same time that Federal debt began to grow and more than doubled, to about 362% of GDP, by 2009. Following the financial crisis, total debt has now dropped to below 350% of GDP. This is the first significant decline since well before the run-up began in the early 1980’s.

Unlike the previous chart, only Federal government debt held by the public is included in this chart. Adding in Federal government debt held by government agencies would increase the current amount to about 390% of GDP. Comparing this chart with the Federal debt chart reveals that Federal debt is about one-fourth of the total. The rest is owed by private entities except for a relatively small amount owed by state and local governments. The vast majority of borrowing in the US economy is private.
This chart shows US and Missouri nonfarm employment since 1940. Total employment is arguably the best timely measure of aggregate economic performance because it is reported on a monthly basis and is compiled more quickly than income-based data such as personal income or GDP. It also does not suffer from some of the shortcomings of the unemployment rate, which requires that both employment and unemployment be measured. Measures of unemployment are survey-based and subject to response error, and also are affected by the entry and exit of discouraged or marginal workers into the labor force. Total employment has fewer of these problems but, as with most economic data measured at frequencies shorter than a year, there are normal seasonal fluctuations in employment that can give a misleading impression of economic performance. For example, employment typically swells during summer due to construction and travel. Thus, the chart shows monthly employment after adjustment for normal seasonal variation.

US employment was about 31.6 million at the beginning of 1940 and Missouri accounted for about 857 thousand of those jobs. The steady increase in the sizes of both the US and Missouri economies is plainly evident in the upward employment trends. US employment is now about 141 million and Missouri is about 2.8 million of that total.

Another evident feature of employment is the temporary decreases that occur during recessions. Officially defined recession periods are displayed as shaded vertical bars on the graphs. The decreases in 2008 and 2009 are of most current interest. US and Missouri employment both dropped significantly during the Great Recession; more, in fact, than in any period since 1940. However, the absolute magnitudes of the employment decreases are poor measures of recession severity because both the national and state economies were larger at the beginning of this recession than before any previous recession. It might be expected that more jobs would be lost during a recession in a larger economy. As with most economic data, it is important to measure employment relative to some benchmark. This is done in the next four charts.
This chart displays monthly US employment during downturns in the economy as a percent of employment at the beginning of the downturn. Each line is a different recession, beginning in the month shown in the chart legend. The horizontal axis measures the duration of the recession, so the length of each line indicates the number of months of declining employment. The vertical decrease in each line shows the percent of total employment that was lost during the recession. For example, the recession that began in October 1974 (dark blue line) had 7 months of declining employment and, at the end of that 7 months, employment was about 97.2% of the pre-recession peak. Put differently, the US economy lost 2.8% of its jobs during those 7 months. The chart shows that the October 1974 recession was short but very steep compared to other recent recessions.

It is notable that recessions seem to be getting longer. The August 1981 recession lasted 17 months (and could arguably be considered an extension of the short recession that began in March 1980). The June 1990 recession bucked the trend at only 12 months, but then the February 2001 recession was very long at 31 months. Despite its length, the February 2001 recession was not severe; employment dropped gradually during the downturn and the total drop was only 2%.

The chart places the latest recession in historical perspective. It began in December 2007 as a slow downturn. During the first 9 months, employment dropped less in percentage terms than in any recent recession. However, employment losses accelerated and continued a stunning decline that lasted 27 months and resulted in total employment loss of more than 6% of the jobs in the economy. This is more than twice as much employment loss, relative to the size of the economy, as any recent recession, and is even larger in absolute number of jobs lost since the economy was larger at the beginning of this recession than at any previous time. The drop was so severe that total employment dropped to a level approximately the same as at the end of the February 2001 recession. A decade of employment growth was lost during the latest recession.
This chart duplicates the previous chart but extends the time frame to show the recovery in employment that followed each recession. Employment rebounded very quickly following the recessions of the 1970s and 1980s. Recoveries, however, like downturns, became more gradual and prolonged in the 1990s. It was 33 months before employment fully recovered following the June 1990 recession and 49 months (over 4 years!) following the February 2001 recession. After 77 months, employment finally returned to the pre-recession level of December 2007.
This chart and the next present the same information for the Missouri economy. The timing of each recession is slightly different but the same basic patterns are present in Missouri and the US. Decreases in employment often, but not always, start a few months earlier, persist a bit longer, and are more substantial in Missouri. The 1974 and 1981 recessions were particularly severe in Missouri relative to the US. The Great Recession has also been much worse in Missouri. The percentage drop was roughly equal to the drop that occurred in the US, but the sustained rebound in Missouri has been much more modest than in the national economy.
Recovery is often much slower in Missouri than in the US overall. A dramatic example is the 1980 recession, after which Missouri employment did not regain its pre-recession level until 53 months after the recession began (the US had recovered after 11 months). The very long 2001 recession was even longer in Missouri, where full recovery of employment took about a year longer than in the US. The Great Recession is consistent with this pattern, as Missouri employment began a consistent upward trend only after over 52 months from the onset of recession and is still over 2 percent below the pre-recession peak.
This chart displays a long historical perspective on the annual rate of inflation in the US as measured by percent changes in the Consumer Price Index. The high inflation of the 1970s is clearly evident, although the long history displayed shows that the 1970s episode was not unprecedented; the 1940s were similar, and inflation was even higher during World War I and the immediately surrounding years.

There were periods of significant deflation during the 1920s and the Great Depression years.

In contrast, inflation has been relatively mild during the most recent 30 years, except for the sudden drop during 2009 when prices actually decreased slightly.
The last chart shows the General Revenue of Missouri state government. As with most other economic data, General Revenue grows over time as the economy grows, and therefore must be measured in relative terms to gain perspective. The chart displays General Revenue as a percent of personal income in the state. It can be taken as a rough measure of the core size of state government relative to the entire state economy.

Missouri General Revenue grew from about 3.5% to 4% of personal income during the 1970s and remained at that level until the late 1980s. An upward trend began in 1988, was interrupted in the early 1990s, and then resumed until 1995 when General Revenue hit about 4.8% of personal income.

The provisions of the Hancock Amendment to the Missouri constitution, which limits growth in State revenues in the absence of an explicit tax increase passed by the Legislature, were binding during the late 1990s. The effects of the Hancock Amendment are clearly evident in the chart. General Revenue abruptly stopped growing relative to Missouri personal income and remained flat, as required by the Amendment, until 2000 when various changes enacted by the Legislature and the weakening economy caused General Revenue to begin falling relative to the size of the State economy.

The size of Missouri state government began a downward trend in 2000 that is now over a decade in progress. A precipitous drop occurred during the Great Recession as Missouri tax revenues plummeted, not just in dollar terms, but also relative to the incomes of Missourians. Core state government in Missouri is now about the same relative size as it was in the mid 1970s.