Stimulus Spending and Economic Growth

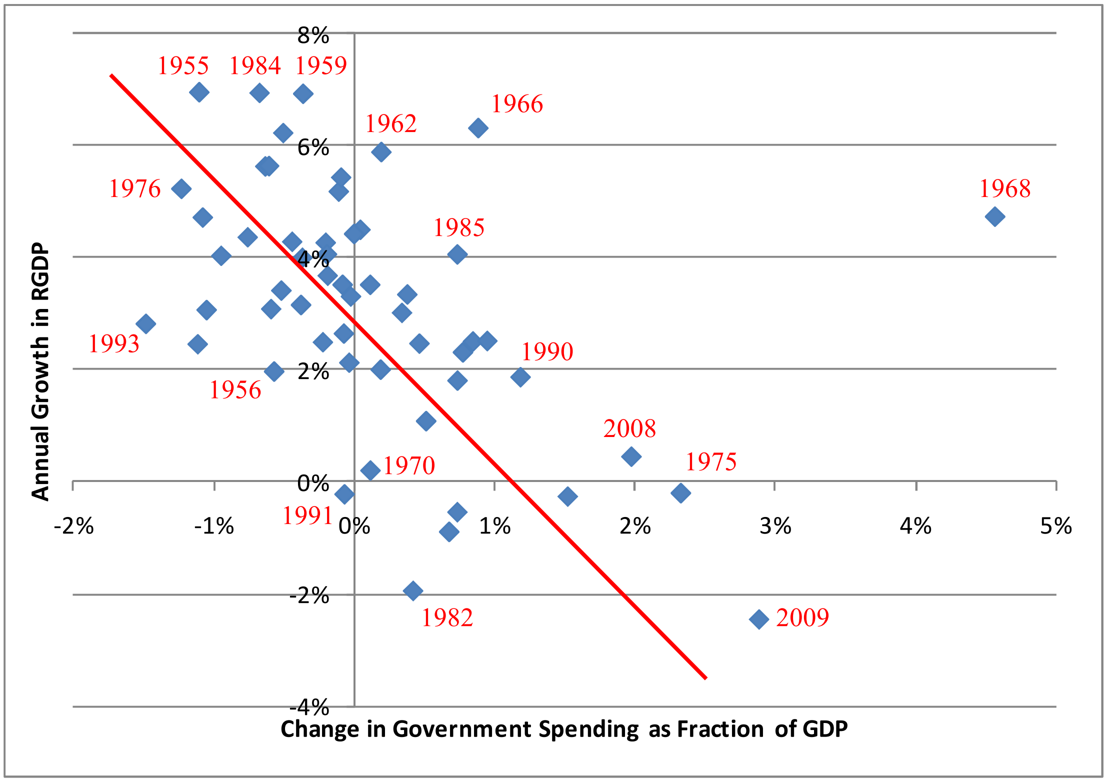

Figure 1. Increases in government spending are associated with declines in RGDP Growth (annual, 1955 – 2009). Source: U.S. Census Bureau.

Figure 1 shows changes in Federal government spending as a fraction of GDP (known as "the government's share of GDP") compared to the annual growth in per-capita real GDP. On average, years in which there are larger positive changes in government spending are also years in which real GDP growth is low. While the graph is a simplistic comparison, the results shown here are consistent with those derived from more formal econometric analyses (see appendix). That analysis estimates a balanced budget multiplier of -0.85 in the first year. In other words, a one percentage point increase in <u>both</u> government spending and the average marginal tax rate is associated with a 0.85 percentage point <u>decline</u> in real GDP growth.

Stimulus Spending and Timing

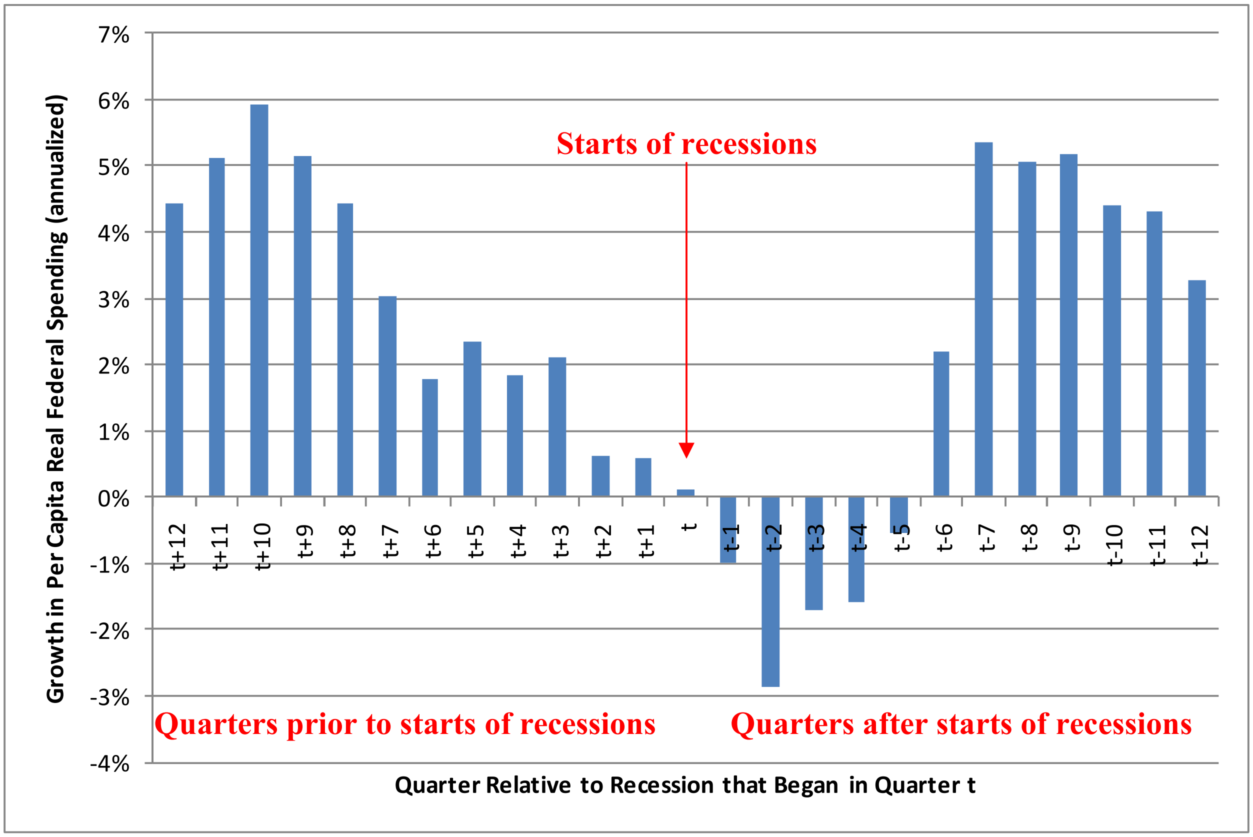

Figure 2. Average growth rates in government spending in the quarters prior to and after recessions that began at quarter t (quarterly, 1947.2 – 2009.4). Source: National Bureau of Economic Research

Even if the evidence had suggested that government spending stimulates the economy, the data seem to indicate that, as a practical matter, the government cannot get its timing right. Figure 2 shows the average quarterly growth in per capita real government spending in the three years prior to and following the starts of recessions. For example, the bar in the center labeled *t* represents the quarter in which recessions began. On average, per capita real spending grew 0.1% (on an annualized basis) in these quarters. On average, government spending *contracted* in the five quarters following the starts of the recessions. Since the average recession lasted four quarters, on average the government has been contracting spending in exactly those quarters when Keynesian theory would recommend expansion and an expanding spending in quarters in which theory would recommend contraction.

The Ratchet Effect

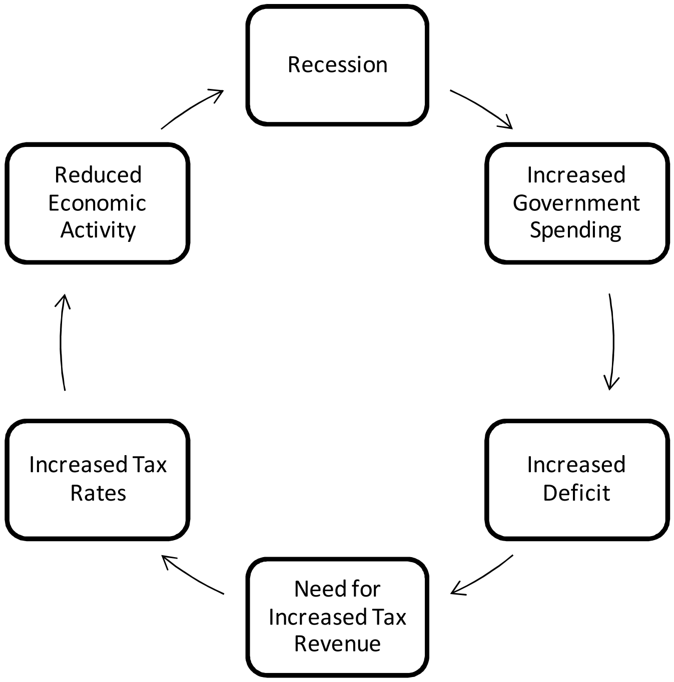

Figure 3. The ratchet effect

In times of recession, the call to lower taxes to spur real GDP growth is countered with the claim that the government, faced with increased budget deficits, cannot afford to lower taxes. This claim lays the ground work for what economists refer to as the "ratchet effect" of taxation – in recession, governments use the fear of deficits to resist lowering taxes, but in expansions, governments use the increased revenue to increase spending. The increased spending, in turn, increases the potential deficit and so the resistance to lowering taxes for the subsequent recession.[1] Nowhere in the cycle is there a natural push to lower taxes, only to raise them.

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[1] Peacock, A.T. and J. Wiseman, 1961. The Growth of Public Expenditure in the United Kingdom.

Taxing the Rich and Tax Revenue

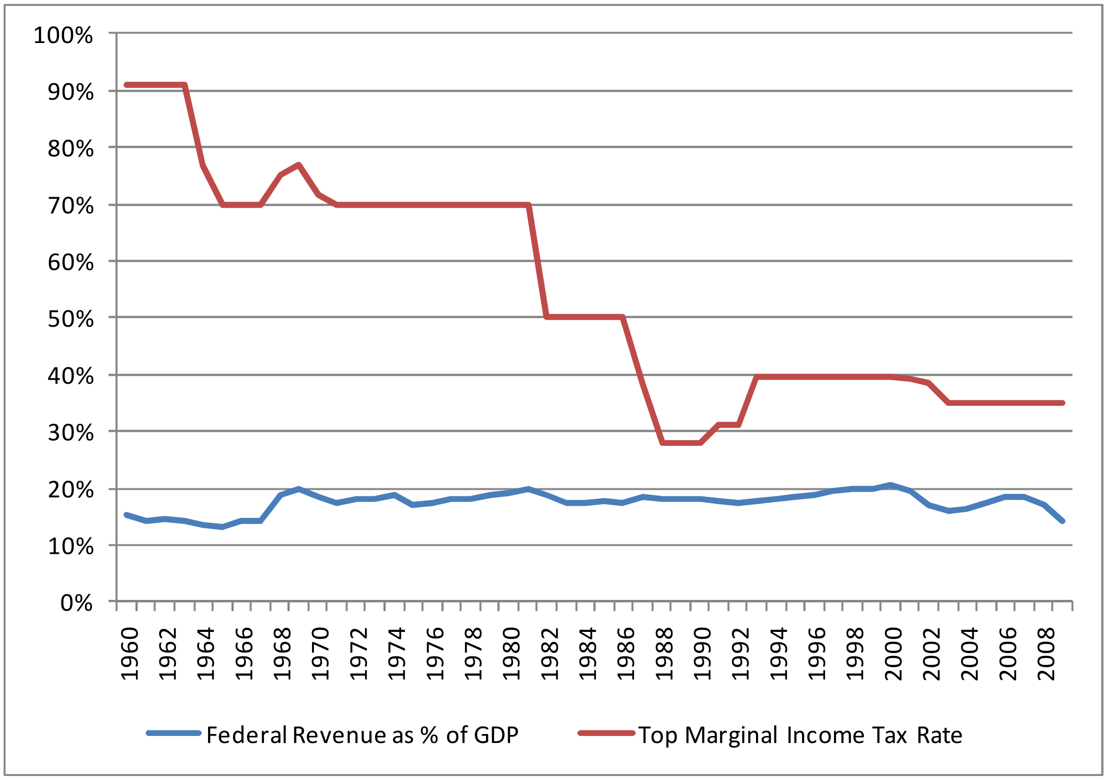

Figure 4. Despite large fluctuations in the top Federal marginal income tax rate, tax revenues remained relatively constant (annual, 1960 – 2009). Source: Bureau of Labor Statistics; National Taxpayers Union.

Evidence suggests that the Federal government may have little control over its tax revenues. Figure 4 shows the top Federal marginal income tax rate (1960 through 2009) superimposed on the Federal tax revenue as a fraction of GDP. Over this 50-year period, the top marginal income tax rate fluctuated from a high of 91% to a low of 28%. If higher taxes really did generate more tax revenue, then we should expect to see wild swings in Federal tax revenues over this period as well. However, taken as a fraction of GDP, Federal tax revenue was relatively constant at an average of 17.5% of GDP (plus or minus 3.7%) over this same 50-year period. Perhaps counter intuitively, tax revenues were not highest when tax rates were highest. Federal tax revenue (as a fraction of GDP) was greatest in 2000 (at 20.5% of GDP) when the top marginal tax rate was 39.6% and lowest in 1965 (at 13.3% of GDP) when the top marginal rate was 70%. What is evident in Figure 4 is that the Federal government appears to have little control over its tax revenue – regardless of whether tax rates are high or low, the Federal government collects as revenue a relatively constant 17.5% of GDP.

This suggests that designing a tax policy with the intent of increasing the proportion of the economy the government captures in taxes is a useless endeavor. Regardless of tax policy, the government collects a fixed 17.5% of GDP. Instead, to raise revenue politicians should design tax policies with the intent of increasing economic activity. Because the government is destined to collect a fixed slice of the economic pie, the tax policy that allows the economic pie to grow the most is the policy that will generate the most revenue.

Taxing Everyone and Tax Revenue

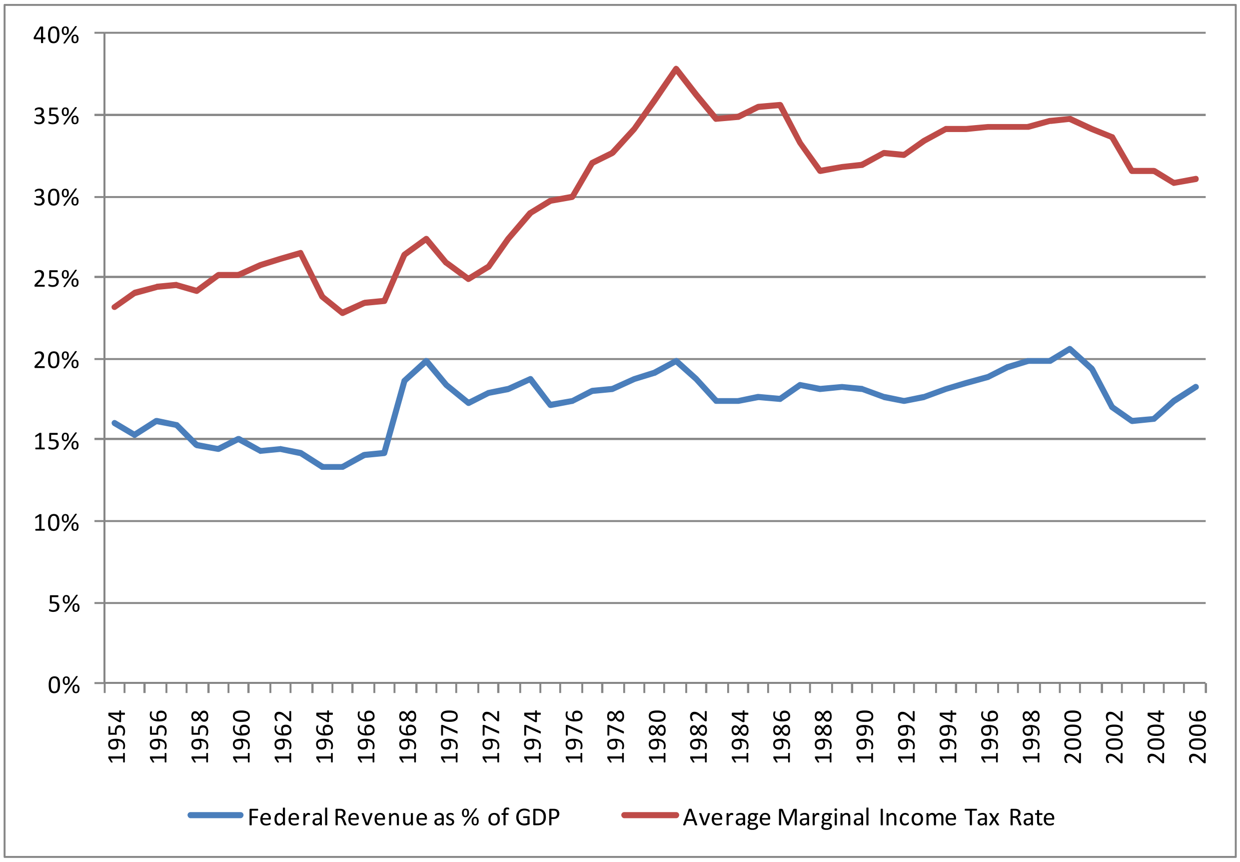

Figure 5. From 1954 to 2006, each 1% point increase in the average Federal marginal income tax rate is associated with a 0.38% increase in Federal tax revenue as a fraction of GDP. Source: Barro and Redlick; National Taxpayers Union.

A counter argument is that the top marginal income tax rate only represents the rate levied on the highest income Americans. What may be more relevant is the average of the marginal tax rates across all taxpayers. Robert Barro and Charles Redlick measure the average marginal income tax rate paid on taxes levied by the Federal government. Figure 5 shows a slight relationship between Federal tax revenue (relative to GDP) and the average marginal income tax rate. From 1954 through 2006, tax revenue as a share of GDP rose 0.38 percentage points for every one percentage point increase in the average marginal tax rate. The relationship seems to die out as time passes. A one percentage point increase in the tax rate is associated with only 0.35 percentage point increase in tax revenue from 1964 to 2006, and only a 0.27 percentage point increase in tax revenue from 1974 to 2006.

Taxes, Benefits, and the Disincentive to Work

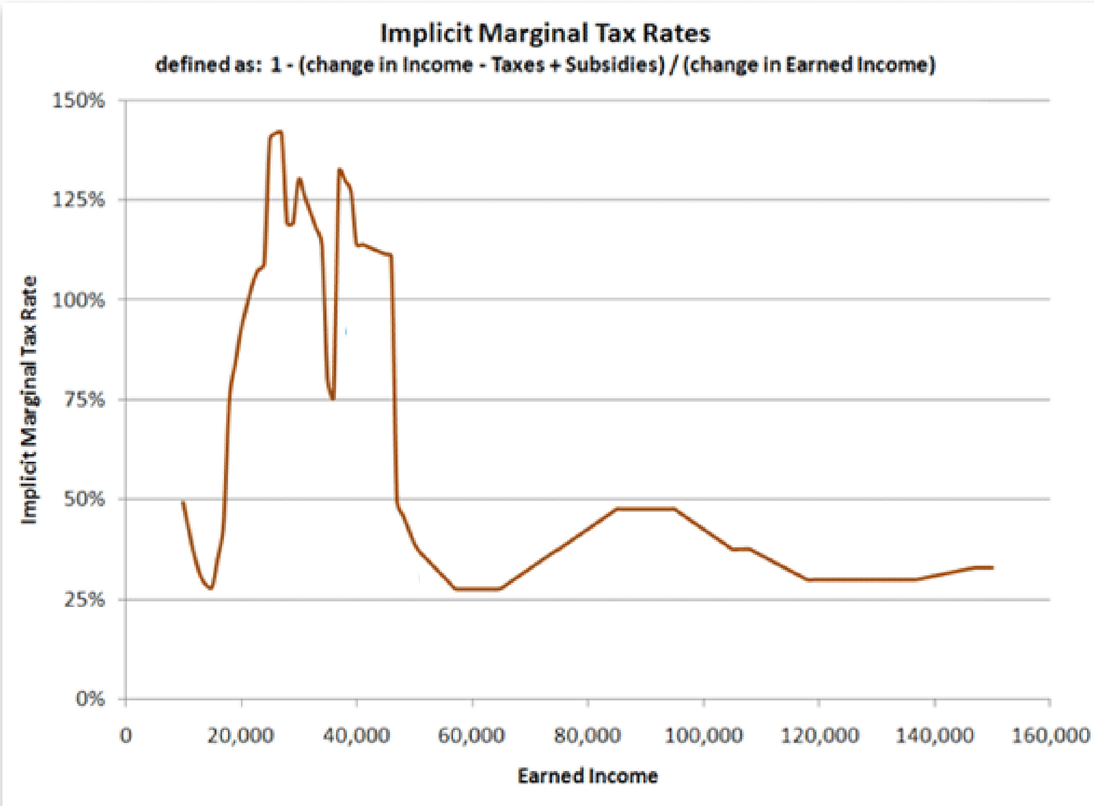

Figure 6. Effective marginal income tax rate after accounting for taxes and means-tested benefits[2]. Source: Clifford Thies, Shenandoah University.

Clifford Thies calculated effective marginal income tax rates for a hypothetical Virginia household comprised of one adult and two minor children. The effective marginal tax rates reflect both the increased tax rates and the reduced tax credits and means-tested benefits (e.g., food stamps, housing subsidies, health insurance) that accompany increases in income. According to his calculations (Figure 6), when a householder earns $20,000, he faces an effective marginal income tax rate of around 25%. As the householder's income rises from $20,000 to $30,000, the effective marginal income tax rate rises to a high of 130%. At $30,000 income, earning $1,000 additional dollars results in $1,300 in additional taxes and lost benefits. Principally due to lost benefits resulting from the increased income, the householder is $300 worse off after receiving the $1,000 raise!

[2] Source: Clifford F. Theis, 2009. "The Dead Zone: The Implicit Marginal Tax Rate," Ludwig von Mises Institute.

Comparing the Cost of Government to the Cost of Health Care

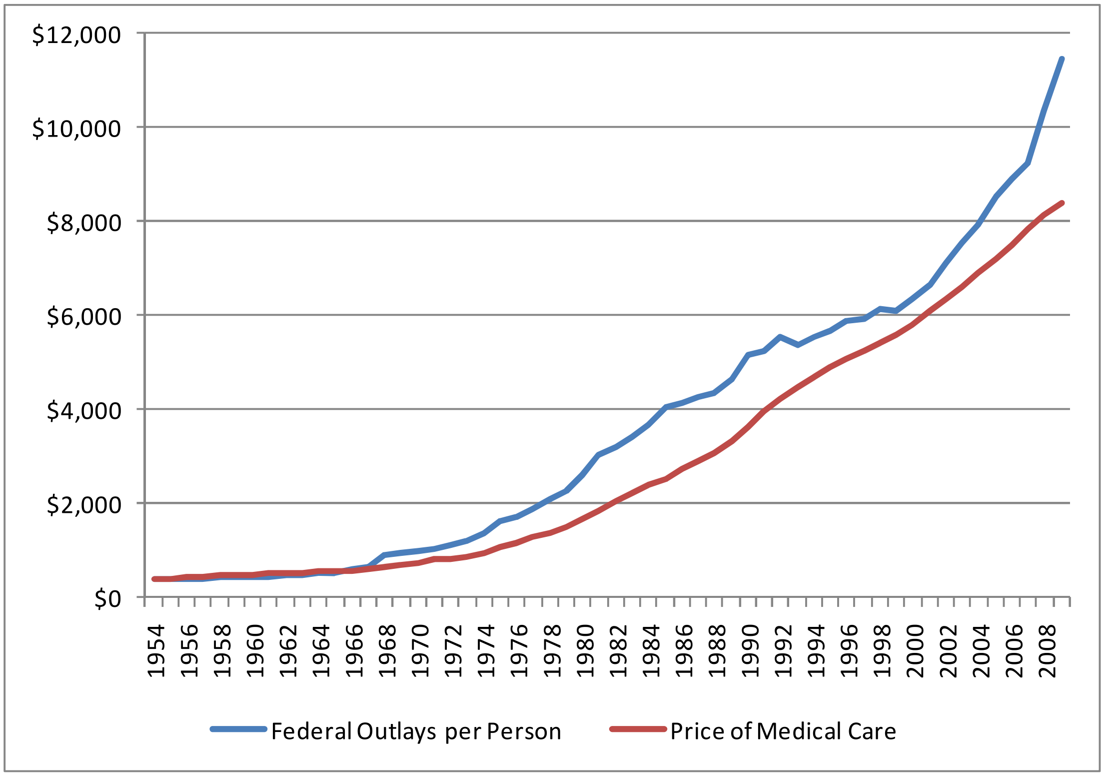

Figure 7. Federal Outlays per Person (current $) versus Medical Care Price Index (1954 = 400). Source: economy.com

The current administration likes to speak of "bending the cost curve" for the health care industry. It is doubtful that the government, an entity neither driven by nor having experience in generating profit, is capable of advising a profit-motivated industry in achieving lower costs. A far greater threat to American well-being than the rising cost of health care is the rising cost of government. In 1954, the Federal government spent almost $400 per person. Today, the Federal government spends almost $11,500 per person. That is an increase of 2,900%. By comparison, the cost of medical care in the U.S. rose 2,100% over the same period (see Figure 7). No doubt, one can argue that the Federal government provides far more services today than it did in 1954. But, by the same argument, medical care today is far better today than in 1954. If the health care industry needs its cost curve bent, the Federal government does even more so.

Debt, Obligations, and Unfunded Obligations

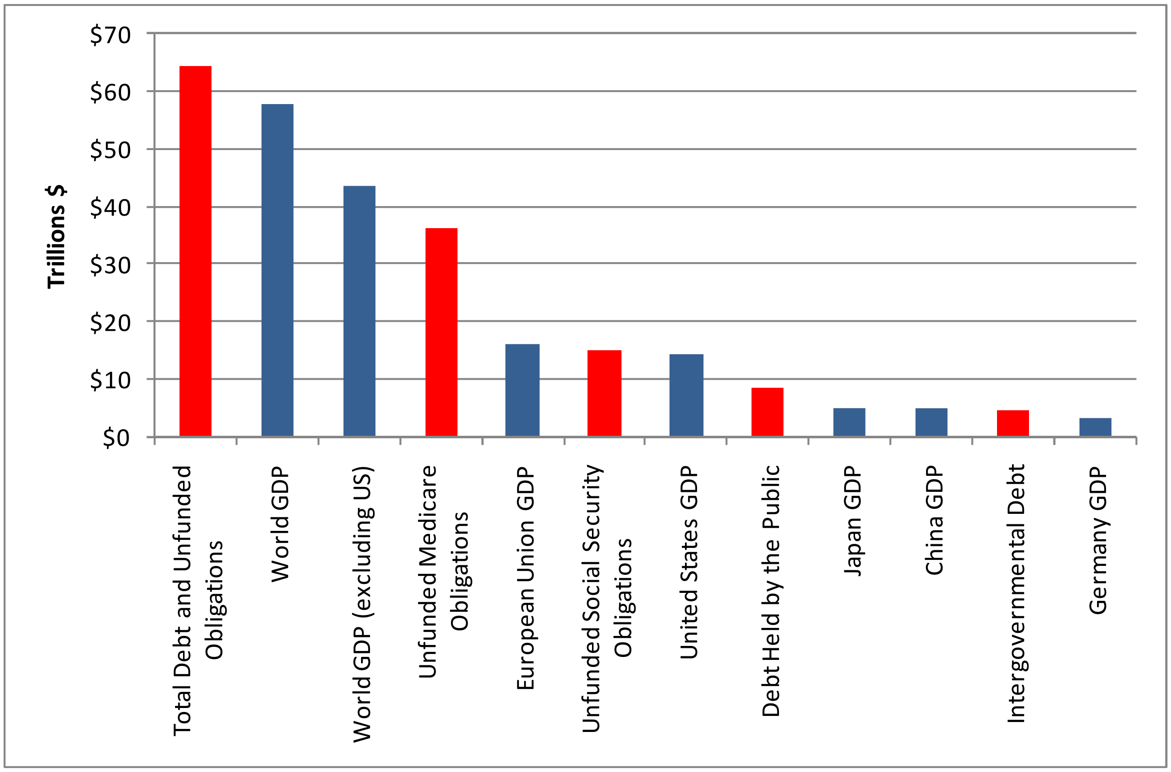

Figure 8. Federal Debt and Unfunded Obligations Compared to Various GDP Measures. Source: treasurydirect.gov; CIA World Factbook.

The Federal government's debts and obligations fall into three groups: *public debt* (money the government has borrowed from the public or foreign governments, $8.4 trillion), *intergovernmental debt* (money the government has borrowed from the Social Security and Medicare trust funds, $4.5 trillion), and *unfunded obligations* (money the government has promised to pay to Social Security and Medicare recipients which it does not have, $51.5 trillion). Figure 8 shows these amounts as compared to various economic measures.

Interestingly, it is illegal for firms to do what the government has done in creating intergovernmental debt and unfunded obligations. Companies that maintain defined benefit retirement plans (which is what Social Security is) are required by law to keep pension fund assets separate from the company's assets. Similarly, under the Pension Protection Act of 2006, it is illegal for companies to maintain unfunded pensions for their workers. Current intergovernmental debt and unfunded obligations would be illegal if these two laws, intended to protect retirees, applied to the Federal government.

In counting the government's debt and obligations, one can argue that we should not count intergovernmental debt because it represents money that the government owes itself. The problem is that, if the government does not renege on its Medicare and Social Security obligations, then it will be forced to raise taxes or cut spending so as to pay off intergovernmental debt – this will make intergovernmental debt, from the government's perspective, identical to public debt. If the government does renege on its Medicare and Social Security obligations, then retirees who were expecting benefits will receive less (or none) – this will make intergovernmental debt, from retirees' perspectives, identical to public debt on which the government has defaulted. The same argument can be made for unfunded obligations. In short, regardless of how the government classifies these debts and obligations, the government either will be forced to treat them as true debts, or force retirees to treat them as true debts on which the government has defaulted.

As of early 2010, Federal public debt is over $27,000 per person. Total Federal debt outstanding and unfunded Social Security and Medicare obligations together are almost $210,000 per person. It is tempting to think of that $210,000 per person as an analogy, as in "Federal debt is so large that, if it were personal debt, it would be $210,000 per person." The figure is not an analogy but an actual debt that is real and personal. The only way the government can meet its debts and obligations is by increasing its tax revenue, and all taxes are ultimately paid by the people. Thus, the $210,000 really is a personal debt hanging over every American.

Appendix

This stimulus spending model is an adaptation of Barro and Redlick's model. Consistent with Barro and Redlick, I use Ramey's (2009) defense-news variable to account for anticipated changes in government defense spending. The modification to Barro and Redlick's model I employ is

$$\dot{y}_t = \beta_0 + \beta_{\dot{g}} \sum_{s=0}^{\infty} \lambda^s \dot{g}_{t-s} + \beta_{\Delta\tau} \sum_{s=0}^{\infty} \lambda^s \Delta\tau_{t-s-1} + \beta_{\dot{g}^*} \dot{g}_t^* + \beta_S S_t + \beta_{\Delta U} \Delta U_{t-1} + u_t$$

where the variables are defined as follows:

$\dot{y}_t$	Growth rate, from year $t-1$ to year t, of per-capita real GDP
$\dot{g}_t$	Change, from year $t-1$ to year t, in per-capita real Federal outlays expressed as a fraction of per-capita real GDP at time $t-1$
$\dot{g}_t^*$	Change, from year $t-1$ to year t, in per-capita real defense-spending news expressed as a fraction of per-capita real GDP at time $t-1$ (Ramey's defense-news measure)
$\Delta\tau_t$	Change, from year $t-1$ to year t, in the average marginal income tax rate (the first difference in Barro and Redlick's AMTR measure)
S_t	Squared difference, in year t, between the long-term Treasury bill rate and long-term BAA corporate bond rates
ΔU_t	Change, from year $t-1$ to year t, in the civilian unemployment rate

With the exception of my defining government spending as total spending instead of only defense spending, these are the same variables Barro and Redlick use. Estimating the above equation via two-stage least squares yields:

Table 1. Effect of Government Spending and Tax Rates on Real GDP growth

Coefficient	Estimate (standard error)		p-value
λ	0.386	(0.093)	0.000
$\beta_{\dot{g}}$	0.525	(0.203)	0.014
$\beta_{\Delta\tau}$	-0.418	(0.199)	0.042
$\beta_{\dot{g}^*}$	0.007	(0.080)	0.933
β_S	-56.477	(12.407)	0.000
$\beta_{\Delta U}$	1.193	(0.301)	0.000
R^2	0.582		

45 observations (annual, 1963 to 2007). Estimates are generated via TSLS. Instruments are: $\dot{y}_{t-2}$ through $\dot{y}_{t-8}$, $\dot{g}_t$ through $\dot{g}_{t-8}$, $\Delta\tau_{t-1}$ through $\Delta\tau_{t-8}$, $\dot{g}_t^*$ through $\dot{g}_{t-8}^*$, S_{t-1} through S_{t-8}, and ΔU_{t-1} through ΔU_{t-8}.

Following the procedure outlined in Barro and Redlick and ignoring the distributed lag multiplier, λ, we can use these results to construct a balanced budget multiplier. The tax multiplier is -1.375. The government spending multiplier show in

Table 1 is 0.525. Combining this with the tax multiplier yields a balanced budget multiplier of -0.85.

The infinite lag structure in the equation allows for changes in spending and taxation to affect both current and future real GDP growth. The decay parameter, λ, measures the degree to which the effects "die out" as they fade into the past. Assuming that the decay factor is the same for changes in government spending and changes in marginal tax rates, Table 1 shows an estimated decay factor of 0.386. For example, a one percentage point increase in government spending in a given year is associated with a 0.525 percentage point increase in real GDP growth in that same year, another (0.525)(0.386) = 0.203 percentage point increase in real GDP growth in the subsequent year, another (0.203)(0.386) = 0.078 percentage point increase in real GDP growth two years out, etc. Similarly, a one percentage point increase in the average marginal tax rate in a given year is associated with a 0.418 percentage point decrease in real GDP growth in that following year, another (0.418)(0.386) = 0.161 percentage point decrease in real GDP growth in the subsequent year, another (0.161)(0.386) = 0.062 percentage point decrease in real GDP growth two years out, etc. Combining these estimates gives us a sequence of balanced budget multipliers, the first five of which are: -0.85, -0.26, -0.09, -0.03, -0.01. For example, a one percentage point increase in government spending combined with a one percentage point increase in the average marginal tax rate is associated with a 0.85 percentage point decline in real GDP growth in the year the policy change is enacted, another 0.26 percentage point decline in the year after the policy change is enacted, a 0.09 percentage point decline in the year after that, etc. The total effect, 95% of which occurs within three years of the policy enactment, is a 1.25 percentage point decline in real GDP growth for every one percentage point increase in government spending and taxation.