



Joint Economic Committee

Republicans

Representative Kevin Brady
Vice Chairman Designate

REPUBLICAN STAFF COMMENTARY

Spend Less, Owe Less, Grow the Economy

March 15, 2011

I. INTRODUCTION

The global financial crisis and the subsequent recession increased government outlays for transfer payments to households and reduced tax receipts in the United States and other developed countries. In addition, the U.S. and some other governments recapitalized failing banks, insurers, and other firms and initiated Keynesian “stimulus” programs containing one-time rebates, even higher transfer payments to households, and additional government spending on infrastructure. Consequently, government budget deficits and government debt as a percentage of GDP rose sharply. According to the International Monetary Fund (IMF):

[B]ased on current likely policies... advanced economies will continue to run sizable primary deficits [i.e., government non-interest outlays less government receipts] over the medium term, leading the average general government gross debt ratio—which has already ballooned by close to 20 percentage points of GDP since the onset of the crisis—to rise by a further 20 percentage points by 2015, reaching about 110 percent of GDP.¹

Soaring federal spending. The current and prospective levels of U.S. government spending are extremely troubling. Federal outlays averaged 19.4% of GDP during most of the post World War II period (fiscal years 1947–2007). During the last three fiscal years, federal outlays have soared 26.6%—from \$2.73 trillion, equal to 19.6% of GDP, in fiscal year 2007 to \$3.46 trillion, equal to 23.8% of GDP, in 2010. In its January 2011 baseline for fiscal years 2012 to 2021, the Congressional Budget Office (CBO) projected that federal outlays will be 24.7% of GDP in the current fiscal year and 24.0% of GDP in fiscal year 2021 [fig.1]. In June 2010, the most recent long-term projection, the CBO projected that federal outlays would climb to 35.2% of GDP in 2035 in the alternative fiscal scenario under current policies [fig. 2].

Ballooning federal debt. This explosion in federal spending has caused an unprecedented deterioration of the fiscal condition of the federal government. At the end of fiscal year 2007, gross federal debt was \$9.00 trillion, equal to 64.4% of GDP, while publicly held

Highlights

- ❖ Fiscal consolidations are programs to reduce government budget deficits and stabilize debt as a percentage of GDP.
- ❖ Fiscal consolidation programs that rely predominately or entirely on spending reductions are more likely to achieve their goals of government budget deficit reduction and debt stabilization as a percentage of GDP than programs that rely primarily on tax increases.
- ❖ In the long term, fiscal consolidation programs that reduce government spending as a percentage of GDP accelerate economic growth.
- ❖ In the short term, fiscal consolidation programs that rely predominately or entirely on spending reductions have expansionary “non-Keynesian” effects that may offset the contractionary Keynesian reduction in aggregate demand.
- ❖ In some cases, “non-Keynesian” effects may be strong enough to make fiscal consolidation programs expansionary in the short term.
- ❖ Eliminating agencies and programs; cutting the number and compensation of government workers; and reducing transfer payments to households and firms have strong “non-Keynesian” effects.
- ❖ Reforming government pension and health insurance programs for the elderly to make them sustainably solvent may also have strong “non-Keynesian” effects even if reforms are phased in slowly, do not affect current beneficiaries, and do not significantly reduce government outlays in the short term.

federal debt was \$5.05 trillion, equal to 36.2% of GDP. During fiscal year 2010, the federal government ran a \$1.29 trillion budget deficit (8.9% of GDP). At the end of fiscal year 2010, gross federal debt reached \$13.53 trillion (93.2% of GDP), while publicly held federal debt was \$9.02 trillion (62.1% of GDP) [fig. 3]. In its January 2011 baseline, the CBO projected that publicly held federal debt will grow to 76.7% of GDP in 2021. In June 2010, the CBO projected that publicly held federal debt would climb to 185% of GDP in 2035 in the alternative fiscal scenario under current policies [fig. 4].

High government debt slows growth. A high level of federal debt as a percentage of GDP will slow U.S. economic growth. In “Growth in a Time of Debt,” economists Carmen Reinhart and Kenneth Rogoff (2010) observed, “The sharp run-up in public sector debt will likely prove one of the most enduring legacies of the 2007–2009 financial crisis in the United States and elsewhere.”² Analyzing 20 developed countries between 1946 and 2009, Reinhart and Rogoff found a distinct threshold for gross government debt equal to 90 percent of GDP. For developed countries above this threshold, the median real GDP growth rate is 1 percentage point lower than developed countries below this threshold, and the mean average real GDP growth rate is almost 4 percentage points lower. Reinhart and Rogoff warned, “Seldom do countries simply ‘grow’ their way out of deep debt burdens.”³ Rather, Reinhart and Rogoff found that countries that have accumulated large gross government debts as a percentage of GDP must take comprehensive action to reduce their debt levels.

Unsustainable fiscal course. On February 24, 2010 in a hearing of the Committee on Financial Services, then Ranking Member Representative Spencer Bachus asked Federal Reserve Chairman Ben Bernanke whether the U.S. government was on an “unsustainable” fiscal course. “[G]iven the numbers that the CBO and the OMB have projected, that is right,” Bernanke replied. “I do think that it is very important that we begin to look at the path, the trajectory of the deficit as it goes forward.” Bernanke continued, “[I]t would be very helpful even to the current recovery to markets’ confidence if there were a sustainable credible plan for a fiscal exit.”⁴

Risk for a credit rating downgrade. On January 13, 2011, *The Wall Street Journal* reported

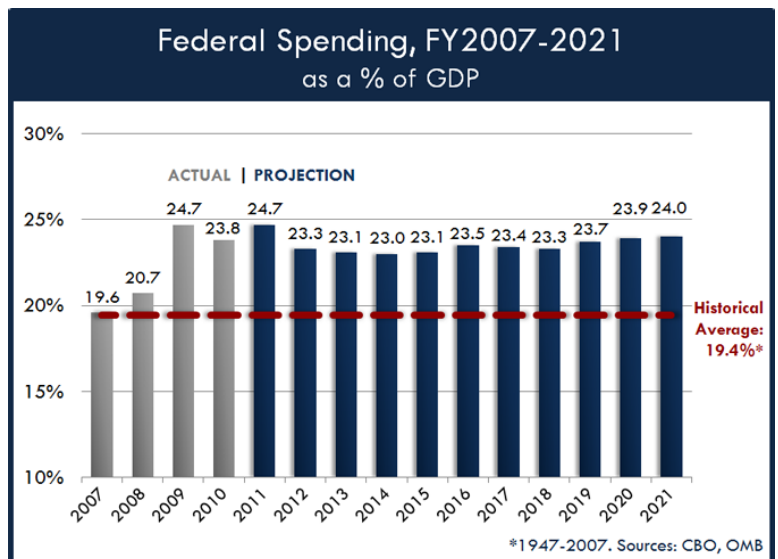


Figure 1

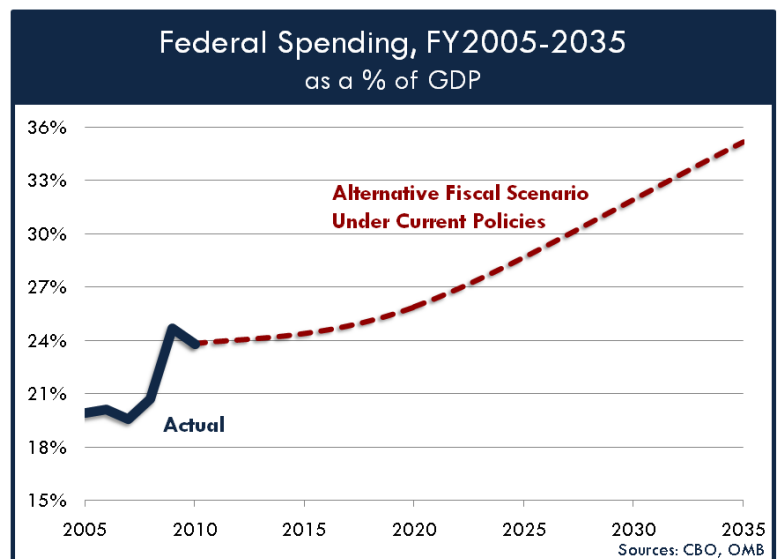


Figure 2

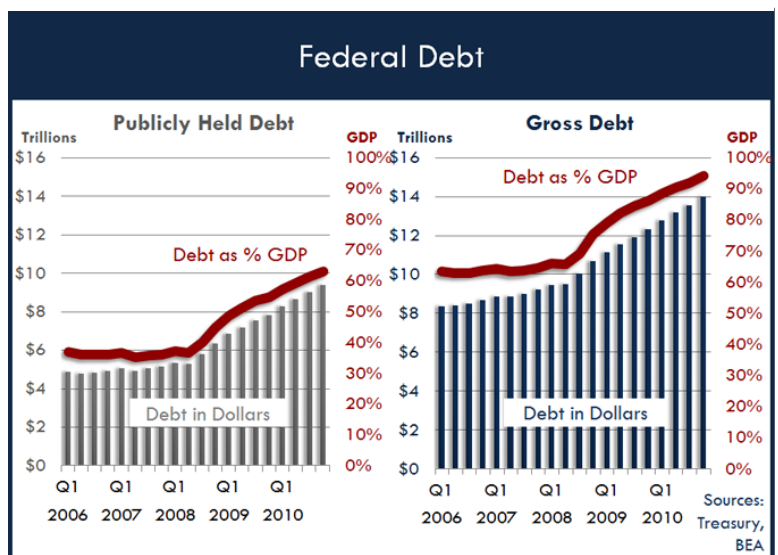


Figure 3

that Standard and Poor's and Moody's Investors Services cautioned the United States on its credit rating, expressing concern over a deteriorating fiscal situation.⁵ The next day, *The Wall Street Journal* reported that the European debt crisis had thinned the ranks of triple-A sovereigns, with Spain and Ireland falling by the wayside. The article warned that the government debt crisis is moving toward the core of the global financial system, leading to speculation that France, Germany, the United Kingdom, and the United States could lose their triple-A ratings.⁶

Fiscal consolidation. To create a “credible plan for a fiscal exit” and avoid a government debt crisis, U.S. policymakers should initiate a fiscal consolidation program that would reduce government budget deficits and stabilize government debt as a percentage of GDP.

Theoretically, a fiscal consolidation program may accomplish its goals by either reducing government spending or increasing government receipts (including tax increases, higher user fees, and asset sales). A growing body of empirical studies proves that fiscal consolidation programs based predominately or entirely on government spending reductions are far more likely to be successful in achieving their goals of government budget deficit reduction and government debt stabilization than fiscal consolidation programs in which tax increases play a significant role. In fact, empirical studies have found that fiscal consolidation programs that reduce government spending as a percentage of GDP will boost the real GDP growth rate in the long term. These studies also suggest that fiscal consolidations based predominately or entirely on government spending reductions may even boost the real GDP growth rate in the short term under certain circumstances.

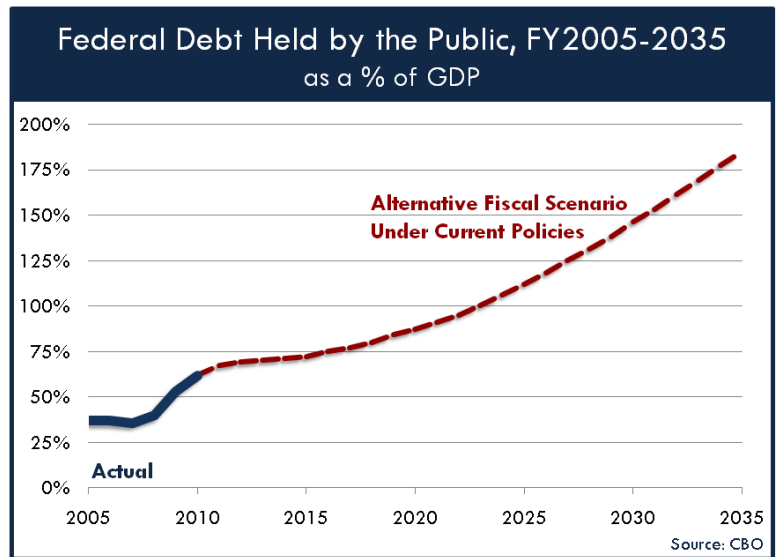


Figure 4

II. COMPETING THEORIES: FISCAL CONSOLIDATION AND ECONOMIC GROWTH

A. KEYNESIAN VIEW

Keynesian theory. Keynesian economists hold that fiscal consolidation programs are contractionary in the short term, but may be expansionary in the long term. According to Keynesians, either decreasing government outlays or increasing government receipts reduces the real GDP growth rate in the short term.

As for spending reductions, Keynesians say:

1. Decreasing the number of government workers or their compensation lowers government consumption;
2. Decreasing government outlays for infrastructure lessens government investment; and
3. Decreasing transfer payments to households shrinks personal consumption expenditures as most of these transfer payments go to households with a high marginal propensity to consume.

As for tax increases, Keynesians say:

1. Higher taxes on households (including higher individual income, payroll, and consumption taxes) decrease personal consumption expenditures; and
2. Higher taxes on firms (including higher individual and corporate taxes) decrease non-residential fixed investment (i.e., business investment in productive assets such as equipment, software, and structures).

Keynesians agree with the conventional view that fiscal consolidation programs may boost economic growth in the long term. Fiscal consolidation programs decrease the government's demand for funds in the credit market by reducing government budget deficits and slowing the accumulation of government debt. All other things being

equal, a smaller demand for credit reduces its price. Therefore, real interest rates fall.⁷ Over time, lower real interest rates will spur business investment in productive assets, accelerating the real GDP growth rate.

Keynesians are generally indifferent about whether fiscal consolidation occurs through government spending reductions or tax increases. According to Keynesian theory, the size of government budget deficits or surpluses, not the level of government spending or taxes, affects real interest rates and business investment. The composition of fiscal consolidation programs is therefore irrelevant.

How government budget deficits and debts affect real interest rates. While Keynesian theory may sound plausible, it is not well supported. First, the relationship between government budget deficits or surpluses (or government debt) and real interest rates is more complex and smaller than Keynesians contend. Increases in federal budget deficits due to temporary factors—e.g., recession or war—which financial market participants expect to be transitory and reversed do not affect real interest rates. However, a permanent increase in federal budget deficits does elicit a small, but statistically significant increase in real interest rates.

For example, Engen and Hubbard (2004) found that “an increase in government debt equivalent to one percentage point of GDP” would increase real interest rates by 2 to 3 basis points.⁸ Moreover, Laubach (2009) found that a projected increase in the federal budget deficit equal to 1% of GDP raises the five-year-ahead 10-year forward Treasury rate by 20 to 29 basis points. Alternatively, Laubach found that a projected increase in the federal debt held by the public equal to 1% of GDP increased the five-year-ahead 10-year forward Treasury rate by 3 to 4 basis points.⁹

“Higher government debt as a percentage of GDP, in the long term, reduces business investment.”

Relationship among government budget deficits and debt, real interest rates, and business investment. Second, recent empirical studies have found that government debt, the real interest rate, and business investment are not as statistically related as Keynesians contend. In a study examining whether additional government debt “crowds out” private investment through a higher real interest rate, Traum and Yang (2010) found “no systematic relationship among [government] debt, the real interest rate, and [business] investment.”¹⁰

- **Short term.** Additional government debt, in the short term, may either “crowd in” or “crowd out” business depending on what caused government debt as a percentage of GDP to increase. If higher government debt as a percentage of GDP is due to a reduction in “distortionary taxes”—e.g., high marginal tax rates on capital income – that increase the after-tax rate of return on business investment, then higher government debt is associated with a short-term increase in business investment. On the other hand, if higher government debt as a percentage of GDP is due to an increase in government spending as a percentage of GDP—particularly for higher government consumption and transfer payments to households and firms—then higher government debt is associated with a short-term decrease in business investment.
- **Long term.** Higher government debt as a percentage of GDP, in the long term, reduces business investment. Imposing higher taxes in order to service the increase in government debt as a percentage of GDP drives this negative long-term relationship with business investment.

Traum and Yang analyzed the effects of the *Omnibus Budget Reconciliation Act of 1993* (OBRA 1993) and the *Economic Growth and Tax Relief Reconciliation Act of 2001* (EGTRRA 2001) on business investment.

- **OBRA 1993.** President Bill Clinton signed OBRA 1993 into law on August 10, 1993. Among other things, OBRA 1993 (1) increased the top federal individual income tax rate to 39.6%, (2) increased the top federal corporate income tax rate to 35%, (3) removed the earnings cap on the Medicare payroll tax, (4) increased the taxable portion of Social Security benefits, and (5) increased the federal motor vehicle fuel tax by 4.3 cents. The capital and labor tax increases in OBRA 1993 reduced the real stock of federal debt by 11% below what it would have otherwise been in the second quarter of 1997, while the reductions in federal spending as a percentage of GDP between 1993 and 1996 reduced the real stock of federal debt by another 6% below what it would have otherwise been in the second quarter of 1997. Despite a reduction in federal debt held by the public from 49.3% of GDP at the end of fiscal year 1993 to 45.9% of GDP at the end of fiscal year 1997, business investment was about 7% lower than it would have otherwise been without the OBRA

1993 tax increases. When government spending reductions, which have a positive effect on business investment, are also included with the OBRA 1993 tax increases, business investment was still about 0.5% lower than it would have otherwise been.

- **EGTRRA 2001.** President George W. Bush signed EGTRRA 2001 into law on June 7, 2001. Among other things, EGTRRA 2001 (1) reduced federal marginal individual income tax rates from a range of 15% to 39.6% to 10% to 35% in phases through 2006, (2) made major changes to qualified retirements plans, and (3) phased-out the estate tax by 2010. The EGTRRA 2001 tax reductions increased the real value of federal debt by 7% over what it would have otherwise been at the end of the fourth quarter of 2002. Nevertheless, the EGTRRA 2001 tax reductions increased output and business investment by 0.8% and 2.2%, respectively, above what they would have otherwise been at the end of the fourth quarter of 2002.¹¹

B. NEOCLASSICAL VIEW

Neoclassical economists have a different view of fiscal consolidations. According to neoclassical economists, the composition of fiscal consolidation programs largely determines:

1. Whether programs succeed in achieving their objectives for government budget deficit reduction and government debt stabilization; and
2. How programs affect the real GDP growth rate in both the short term and the long term.

Optimal size of government. Unlike Keynesians, neoclassical economists focus on government spending as a percentage of GDP rather than government budget deficits or government debt as a percentage of GDP to assess the burden that government imposes on the private sector. Determining the appropriate level of government spending necessarily requires an analysis of the appropriate size of government. On the one extreme, anarchy discourages individuals from working, saving, and establishing firms to invest in productive assets. On the other extreme, an extremely large government makes large transfer payments and levies very high taxes that discourage work, saving, and investment. At both extremes, very little economic growth occurs. Between these extremes, the optimal size of government, as measured by government spending as a percentage of GDP, maximizes the real GDP growth rate over time.

The optimal size of the U.S. government varies through time based on many factors, some of which include (1) external threats, (2) the assignment of governmental functions among the federal government, states, and localities, and (3) demographics. Vedder and Galloway (1998) found that the optimal level of federal spending was 17.5% of GDP for 1947 through 1996 and 11.1% of GDP for 1796 through 1996.¹² While the precise government spending-to-GDP ratio for the optimal size of the federal government is debatable, most neoclassical economists agree that the current level of federal spending—a projected 24.7% of GDP in fiscal year 2011—is far above the optimal level.

“Increasing government spending slows economic growth.”

- Landau (1983, 1986), Grier and Tullock (1989), and Barro (1991) found a consistently negative relationship between government spending as a percentage of GDP and the real GDP growth rate, meaning that increasing government spending slows economic growth.¹³
- Examining the effects of government size and fiscal volatility on growth for OECD member-countries and EU member-states from 1970 to 2004, Afonso and Furceri (2007) found that both larger government and fiscal volatility reduced the real growth rate per capita of GDP for both sets of countries.¹⁴ In particular, they conclude that “a percentage point increase in the share of total revenue (total expenditure) would decrease output by 0.12 and 0.13 percentage points respectively for the OECD and for the EU countries.”¹⁵
- Based on an analysis of 107 countries between 1970 and 1985, Engen and Skinner (1992) found that increasing tax revenue by 10 percentage points of GDP reduces the medium-term (15 years) real GDP growth rate by 3.2 percentage points annually. Moreover, Engen and Skinner also found that a 10 percentage point increase in government spending as a percent of GDP that is fully paid for through higher taxes would reduce the medium-term real GDP growth rate by 1.4 percentage points. The findings of

Engen and Skinner refute the Keynesian contention that it is the government budget deficit, not the level of government spending that is the drag on economic growth.¹⁶

Economic efficiency. To neoclassical economists, reducing government spending as a percentage of GDP increases economic efficiency by shifting financial, physical, and labor resources from the government to the private sector. In turn, greater economic efficiency boosts long-term economic growth. The private sector is generally more efficient than government because (1) private firms and government pursue different goals, and (2) private firms face competitive discipline, while governments have monopoly power.

- **Different goals.** Private firms pursue the goal of wealth maximization and align the interests of firm managers and workers with those of the owners through incentive-based compensation (e.g., stock options). In contrast, governments pursue multiple and often conflicting goals because of the inherently divergent interests of elected officials, government employees, and citizens cannot be as easily aligned. For example, some elected officials may seek re-election or election to higher office by promising unsustainable transfer payments to households knowing the bills will come due years later. Some agency officials may seek to enlarge unnecessarily their agency's budget to increase their own compensation and prestige. Some individuals and private firms may capture the government, hoping to use its regulatory, spending, or taxing power to gain some advantage.¹⁷
- **Competitive discipline.** Competition forces private firms to respond to price signals, increase the quantity and quality of their output, and reduce waste. In contrast, most governmental functions are legal monopolies (e.g., armed forces and police) or near monopolies (e.g., K-12 public schools). Because of the lack of competition, government is insensitive to price signals, indifferent to increasing the quantity or quality of its output, and prone to waste.¹⁸

III. EMPIRICAL EVIDENCE: FISCAL CONSOLIDATION AND ECONOMIC GROWTH

"Non-Keynesian" effects. For decades, Keynesians asserted that reducing government spending as a percentage of GDP had opposing short-term and long-term effects on economic growth (i.e., reducing government spending would be contractionary in the short term, but expansionary in the long term). In recent years, however, Alberto Alesina, Francesco Giavazzi, and other neoclassical economists have revived the traditional view that fiscal consolidation programs based predominately or entirely on government spending reductions have expansionary "non-Keynesian" effects that may offset some or all of the contractionary "Keynesian" reduction in aggregate demand in the short term.

"Non-Keynesian" effects on major household purchases. First, Giavazzi and Pagano (1990), Perotti (1999), and Giavazzi et al. (2000) argued that fiscal consolidation programs based predominately or entirely on government spending reductions provide a short-term boost to personal consumption expenditures and residential fixed investment. When government budget deficits are persistently high and the level of government debt is rising rapidly as a percentage of GDP, households expect the government to levy large tax increases on them, either imminently or sometime in the future, in order to service the government's debt burden. Fiscal consolidation programs that reduce government spending as a percentage of GDP decrease short-term uncertainty about taxes and diminish the specter of large tax increases in the future. In turn, higher expectations for permanent disposable income create a positive wealth effect among households. Consequently, households will purchase more homes and durable consumer goods such as motor vehicles in the short term.¹⁹

"...changes in business investment explain a large part of the change in GDP growth around these large fiscal stabilizations."

--Alesina et al.

"Non-Keynesian" effects on business investment. Second, Alesina et al. (2002) found that "[f]iscal adjustments which rely mostly on spending cuts, particularly in transfers and government wages, are associated with a surge in growth during and immediately after the adjustment . . . changes in business investment explain a large part of the change in GDP growth around these large fiscal stabilizations."²⁰

Like households, firms expect large tax increases, either imminently or sometime in the future, when they observe increased government spending causing large government budget deficits and a rapidly rising level of government debt as a percentage of GDP. Fiscal consolidation programs that reduce government spending as a percentage of GDP reduce short-term uncertainty about taxes rising to pay for the spending and allay fears about large tax increases in the future. Moreover, fiscal consolidation programs that decrease the number and compensation of government workers increase the availability and reduce the cost of skilled labor to private firms. The combination of improved expectations about taxes and lower labor costs increases the expected after-tax rate of return on new business investment. Consequently, private firms will boost their investment in non-residential fixed assets in the short term.²¹

Examining data for 18 OECD member-countries from 1960–1986, Alesina et al. (2002) estimated how an increase in primary government spending and its major components—government employee compensation, transfer payments, and government consumption—would affect private investment as a percent of GDP. The authors found that an increase in primary government spending equal to one percentage point of GDP would decrease private investment by 0.15 percent of GDP in the same period and by 0.74 percent of GDP cumulatively over five years. Alesina et al. (2002) also found that an increase in government employee compensation equal to one percentage point of GDP would decrease private investment by 0.48 percent of GDP in the same period and by 2.56 percent of GDP cumulatively over five years. Similarly, an increase in government transfer payments equal to one percentage point of GDP would decrease private investment by 0.21 percent of GDP in the same period and by 1.05 percent of GDP cumulatively over five years.²²

Cutting government spending. For these expansionary “non-Keynesian” factors to offset significantly or even overwhelm the contractionary Keynesian reduction in aggregate demand in the short term, fiscal consolidation programs must be based predominately or entirely on government spending reductions. Increasing the marginal income tax rate on labor income through higher individual income or payroll tax rates reduces both the quantity and quality of work that households provide, reducing real GDP. Likewise, increasing the marginal income tax rate on capital income through higher individual or corporate income tax rates, higher taxes on capital gains and dividends, or lengthening tax depreciation schedules reduces individual saving and business investment, also reducing real GDP.

“Certain government spending reductions generate significantly larger pro-growth effects than others.”

Certain government spending reductions generate significantly larger pro-growth effects than others. For “non-Keynesian” factors to be significant, government spending reductions must be viewed as large, credible, and politically difficult to reverse once made. Some examples of such reductions are:

1. **Decreasing the number and compensation of government workers.** Generally, government workers are well-educated and have significant skills. A smaller government workforce increases the available supply of educated, skilled workers for private firms, thus lowering labor costs.
2. **Eliminating agencies and programs.**
3. **Eliminating transfer payments to firms.** Generally, government provides transfer payments to firms to entice them to engage in otherwise unprofitable and unproductive activities. If eliminating transfer payments causes firms to cease these activities, there are immediate gains in efficiency. For example, the United States could increase efficiency by eliminating subsidies for Amtrak or ethanol.
4. **Reforming and reducing transfer payments to households.** Reforming major programs of transfer payments to households, such as government pension and health insurance benefits for the elderly, to make them sustainably solvent in the long term increases the credibility of fiscal consolidation plans. Even if current beneficiaries are exempt from any change, the reforms are phased in slowly, and any short-term spending reductions are very small, the credibility of fiscal consolidation plans will be enhanced. Moreover, reforming government pension and health insurance benefits for the elderly in the future will induce younger workers to increase their current saving, to work more, and retire later, thus boosting real GDP growth.

Asset sales and privatization. While tax increases are contractionary, increases in other types of government receipts may be expansionary. In particular, government asset sales and the privatization of government-owned enterprises and commercial functions both generate government receipts and increase economic efficiency. Since government asset sales and privatizations are politically difficult to reverse, they may also have an expansionary “non-Keynesian” effect in the short term.

IV. EVALUATING FISCAL CONSOLIDATION PROGRAMS

There are two empirical criteria for evaluating a fiscal consolidation program:

1. **Success criterion.** Did a fiscal consolidation program actually achieve the goals of reducing government budget deficits and stabilize government debt as a percentage of GDP?
2. **Growth criterion.** Did a fiscal consolidation program accelerate the real GDP growth rate?

Government budget deficit reduction and government debt stabilization. Many empirical studies have found that successful fiscal consolidation programs focused on cutting government spending as a percentage of GDP. Many successful fiscal consolidations also reformed tax systems to lower marginal income tax rates and reduce the after-tax cost for business investment in productive assets while eliminating “special interest” tax preferences for specific firms, industries, and locations. Lilico, Holmes, and Sameen (2009) found that successful fiscal consolidation programs were comprised of at least 80% government spending reductions and no more than 20% tax increases.²³

Alesina and Ardagna (2009) examined 107 large fiscal adjustments (defined as a cyclically adjusted improvement in the primary balance of at least 1.5% of GDP in one year) in 21 OECD member-countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States) from 1970 to 2007. Alesina and Ardagna defined a successful fiscal adjustment as a cumulative reduction in the government debt-to-GDP ratio of at least 4.5 percentage points three years after the beginning of a fiscal adjustment. Alesina and Ardagna identified 21 successful large fiscal adjustments in 10 OECD member-countries: Austria (2005), Denmark (2005), Finland (1998), Ireland (2000), Italy (1982), the Netherlands (1972, 1973, 1993, 1996), New Zealand (1993, 1994), Norway (1979, 1980, 1989, 1996), Sweden (1986, 1987, 2004), and the United Kingdom (1977, 1988, 2000). After examining these episodes, Alesina and Ardagna concluded that successful fiscal consolidations were based predominately or entirely on government spending reductions.²⁴

Biggs, Hassett, and Jensen (2010) found strong evidence that government spending reductions outweigh revenue increases in successful consolidations regardless of the methodology used to identify consolidations.²⁵ They found that across both methods for identifying consolidations—Alesina’s cyclically adjusted primary balance method (excludes interest payments and business cycle effects) and the IMF’s action-based method (spending cuts and tax increases explicitly for deficit or debt reduction)—successful fiscal consolidations averaged 85% spending cuts and 15% revenue increases, while unsuccessful fiscal consolidations averaged 47% spending cuts and 53% revenue increases [fig. 5]. Further, they show that the degree of success correlates to a larger share of spending cuts [fig. 6].

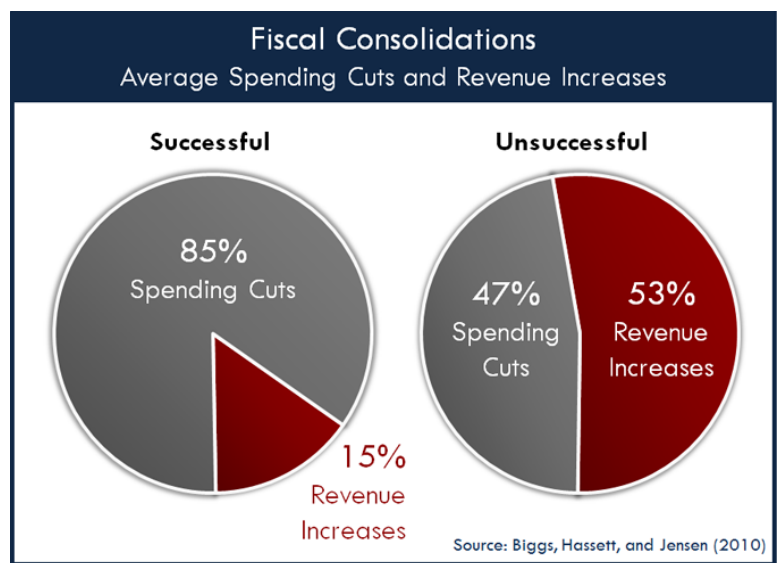


Figure 5

Economic growth effects. Examining Denmark and Ireland in the 1980s, Giavazzi and Pagano (1990) found that large fiscal consolidation programs based predominately or entirely on government spending reductions were expansionary.²⁶

Alesina and Ardagna (1998) examined fiscal adjustments in 15 countries (Australia, Belgium, Canada, Denmark, Finland, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, the United Kingdom, and the United States) during the 1980s. After eliminating Spain (1986–7) and the United Kingdom (1988) because their improvement in the government budget balance was due exclusively to high growth rates, five fiscal adjustments involved both government spending reductions and tax increases. Fiscal adjustments in Ireland (1987–9), Australia (1987), Belgium (1984–5), and Italy (1993, 1994–5) were based on government spending reductions. Alesina and Ardagna concluded that “regardless of the initial level of debt, a large fiscal adjustment that is expenditure-based and is accompanied by wage moderation and devaluation is expansionary. However, no large tax-based fiscal adjustment can be expansionary even if accompanied by devaluation.”²⁷

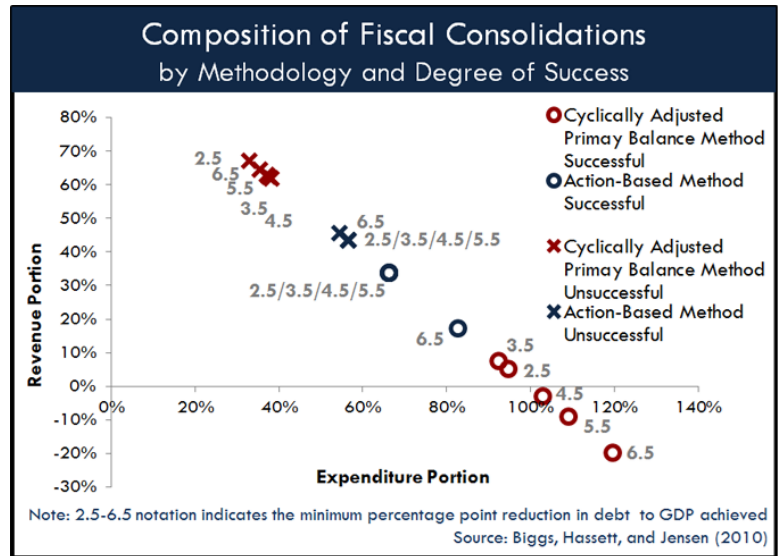


Figure 6

Giudice, Turrini and Veld (2003) studied the fiscal policy conducted by 14 EU member-states over a period of 33 years. There have been 49 (based on size) and 74 (based on duration) episodes of fiscal consolidation. About half of them (24 and 43, respectively) have been connected with higher economic growth. Of that half, 11 and 19, respectively, are considered to be “pure” growth episodes in which growth cannot be attributed to a concomitant monetary policy or devaluation of the exchange rate. Giudice, Turrini and Veld found that the size of the adjustment and the size of the initial debt (in percent of GDP) do not seem to play a significant role. By contrast, Giudice, Turrini and Veld found the composition of fiscal adjustment is of high importance. Fiscal consolidation programs based predominately or exclusively on government spending reductions are more likely to enhance growth than programs that involve significant tax increases.²⁸

Ahrend et al. (2006) found that both policy interest rates (e.g., the target federal funds rate in the United States) and long-term interest rates are more likely to decline when fiscal consolidations rely on government spending reductions rather than tax increases.²⁹ Using a dynamic general equilibrium model, Cournède and Gonand (2006) found that tax increases are a much more costly way, in terms of real GDP growth, to achieve fiscal sustainability than government spending reductions.³⁰

Alesina and Ardagna (2009) stressed that fiscal consolidation programs based predominately or entirely on government spending reductions may be expansionary even in the short term. Alesina and Ardagna defined expansionary fiscal adjustments as episodes in which the difference between (a) the average GDP growth rate in the first year of an episode and the following two years, and (b) the weighted average GDP growth rate for the G-7 countries is in the 75th percentile of all such differences. Using this definition, Alesina and Ardagna found 26 episodes of expansionary large fiscal adjustments in nine OECD member-countries: Finland (1973, 1996, 1998, 2000), Greece (1976, 2005, 2006), Ireland (1976, 1987, 1988, 1989, 2000), the Netherlands (1996), New Zealand (1993, 1994, 2000), Norway (1979, 1980, 1983, 1996), Portugal (1986, 1988, 1995), Spain (1986, 1987), and Sweden (2004).³¹

“Fiscal consolidation programs based predominately or entirely on government spending reductions may be expansionary even in the short term.”

The IMF (2010), however, claimed that Alesina and Ardagna (2009) suffered from methodological issues that may have caused them to overstate the expansionary effects of fiscal consolidations in the short term.³² Instead, the IMF used an “action-based” method to identify fiscal consolidations that relies on an examination of ex-ante

official plans with the goals of government budget deficit reduction and/or government debt stabilization. The IMF found that fiscal consolidations were contractionary overall, but that government spending reductions have much smaller contractionary effects. According to the IMF, a fiscal consolidation equal to 1% of GDP based on tax increases caused a 1.3% decrease in GDP and a 0.6 percentage point increase in the unemployment rate after two years, while a fiscal consolidation equal to 1% of GDP based on government spending reductions caused a 0.3% decrease in GDP and 0.2 percentage point increase in the unemployment rate after two years.³³

Among different kinds of government spending reductions, the IMF found that a reliance on reductions in transfer payments caused GDP to increase by 0.2% after two years, while reductions in government consumption and investment caused to GDP to decline by 0.4% and 0.6%, respectively, after two years. However, these results were within the margin of error.

While the IMF strikes a more cautionary note than Alesina and Ardagna (2009) or Giudice, Turrini, and Veld (2003) about the ability of expansionary “non-Keynesian” factors to offset contractionary Keynesian reductions in aggregate demand in the short term, the IMF and these other studies agree that fiscal consolidation programs based predominately or entirely on government spending reductions—especially in transfer payments to households and firms—are better for the economy in the short term than fiscal consolidation programs in which tax increases play a significant role.

Keys for success. Barrios, Langedijk, and Pench (2010) found that quick, decisive government spending reductions (called “cold showers”) are effective in achieving successful fiscal consolidations because they send a signal about “political will.”³⁴ This study examined financial crises in EU member-states and OECD member-countries from 1970 to 2008. Barrios, Langedijk, and Pench found that countries facing high levels of government debt or those at risk of slow GDP growth would be better off with sharp and sustained reductions in government spending because “cold shower” fiscal consolidations send convincing signals to financial markets about the political will of governments to achieve fiscal retrenchments. This approach is viewed as more effective than cuts phased-in or scheduled for the distant future.

Von Hagen, Hughes-Hallet, and Strauch (2002) found that the likelihood of sustaining a fiscal consolidation program increases when governments simultaneously address all politically sensitive budget reductions (e.g., transfer payments to households and firms, subsidies, and the number and compensation of government workers).³⁵ Additional empirical studies found that government spending reductions (especially in government employment and transfer payments) are also more likely to generate lasting fiscal consolidation and better economic performance—e.g., Ardagna (2004);³⁶ Hughes and McAdam (1999);³⁷ McDermott and Wescott (1996);³⁸ Von Hagen and Strauch (2001);³⁹ Alesina and Perotti (1996);⁴⁰ and Alesina and Bayoumi (1996).⁴¹ The OECD (2007) explains the prevalence of cuts to transfer programs in successful consolidations as due to several reasons:

*[A] greater weight on cuts in social spending tended to increase the chances of success. A reason for this could be that governments more committed to achieving fiscal sustainability may also be more likely to reform politically sensitive areas. As a by-product of doing so, they may at the same time bolster the credibility of the consolidation strategy, thereby improving its chances of success.*⁴²

Political consequences of fiscal consolidation. In general, Alesina and Ardagna (1998) found that successful fiscal consolidations were not politically fatal to the governments that enacted them. “[I]t is not the case that governments which engage in large fiscal adjustments are systematically kicked out of office. Just the opposite: in the vast majority of cases, the government that implemented the adjustment was reappointed. This result is consistent with the statistical results of Alesina, Perotti, and Tavares (1998).”⁴³

This appears to be true even when governments address transfer payments to households. In their fiscal consolidation programs, both Canada and Sweden reformed their government old-age pension systems to make

“‘Cold shower’ fiscal consolidations send convincing signals to financial markets about the political will of governments to achieve fiscal retrenchment.”

*“‘[A] greater weight on cuts in social spending tended to increase the chances of success.’
--OECD*

them financially sustainable over the long term. Yet the Canadian and Swedish governments that enacted these sweeping reforms were subsequently re-elected.

V. SUCCESS STORIES

Over the last four decades, a number of developed countries have successfully reduced government spending and government budget deficits, and stabilized the level of government debt through fiscal consolidation programs. The OECD and many economists have studied fiscal consolidation programs in developed countries. Below is a discussion of three large fiscal consolidations—in Canada, Sweden, and New Zealand—that both achieved their goals for government deficit reduction and government debt stabilization and boosted their real GDP growth rates by reducing government spending.⁴⁴

➤ **Canada: 1993–2006** [fig.7].⁴⁵ On October 25, 1993, the Liberal Party led by Jean Chrétien won a majority government, ousting the Progressive Conservative government. Upon taking office, Prime Minister Chrétien and his Finance Minister Paul Martin faced a deteriorating fiscal outlook. In eight years under the Progressive Conservative governments of Prime Ministers Brian Mulroney and Kim Campbell, general government spending had increased from 47.5% of GDP to 52.2% of GDP in 1993. General government spending refers to combined federal, provincial, and local government spending after eliminating the double counting of intergovernmental transfers. Federal spending rose nominally from C\$109.2

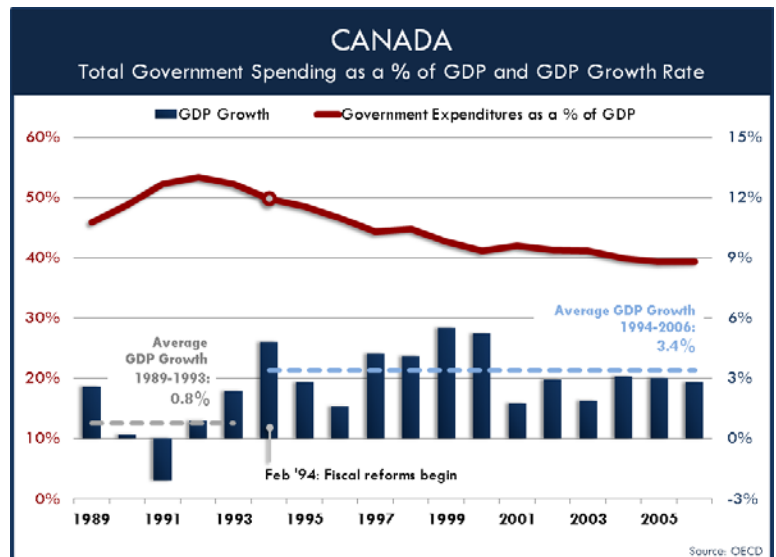


Figure 7

billion in the Canadian fiscal year (CFY) April 1, 1984 to March 31, 1985 to C\$162.4 billion CFY 1993–4, while declining slightly as a percentage of GDP from 24.3% in CFY 1984–5 to 22.3% in CFY 1993–4.

In February 1994, Prime Minister Chrétien and Minister of Finance Martin embarked on a fiscal consolidation program. They thought that significant tax increases would slow Canada’s economic growth and weaken its international competitiveness. They were convinced that Canadian voters would accept tough, previously unacceptable federal spending cuts to avoid higher federal income and value-added taxes. Acting on these beliefs, Martin issued a specific fiscal consolidation program for federal spending reductions and guidelines on how the Liberal government would make other federal spending reductions in the future. The fiscal consolidation program created deadlines and objective benchmarks to judge the Liberal government’s performance.

The federal spending reductions and program reforms included:

1. **Reforming Canada’s Employment Insurance (EI) benefit program** by reducing the duration of benefits, increasing the amount of time people needed to be employed to qualify for the benefits, and reducing the maximum benefit from 60% to 55% of previous pay. As a result of these changes, EI benefit payments fell from C\$17.1 billion in CFY 1993–4, to C\$11.4 billion in CFY 1997–8;
2. **Reforming the Canadian Pension Plan (CPP) for the elderly** by moving from a “pay-as-you-go” system to a hybrid between a “pay-as-you-go” system and a fully funded plan. After extensive negotiations with the provinces, the combined employer-employee contribution rate was increased from 5.85% in 1997 to 9.9% in 2003. Under the management of an independent board, the CPP used the additional revenues to accumulate a diverse portfolio of financial assets—including stock—to make the CPP sustainably solvent over the next 75 years;

3. **Cancelling the EH-101 helicopter program.** Defense expenditures fell from C\$11.1 billion, equal to 1.5% of GDP, in CFY 1993–4 to \$9.0 billion, equal to 1.1% of GDP, in CFY 1997–8;
4. **Reducing transfer payments to Canadian provinces and private firms.** Transfers to the provinces fell from C\$26.9 billion, equal to 3.7% of GDP, in CFY 1993–4 to C\$20.5 billion, equal to 2.6 percent of GDP, in CFY 1997–8; and
5. **Substantially reducing the operating budgets of federal departments.**

In four years, Martin reduced nominal federal outlays from C\$164.2 billion, equal to 22.3% of GDP, in Canadian fiscal year 1993–4 to C\$157.9 billion, equal to 17.9% of GDP, in CFY 1997–8. Consequently, general government spending fell from 52.2% of GDP in 1993 to 44.3% of GDP in 1997. Martin’s federal spending reductions transformed a federal budget deficit of C\$38.5 billion in CFY 1993–4, equal to 5.3% of GDP, into a federal budget surplus of C\$3.0 billion, equal to 0.3% of GDP in CFY 1997–8.

Over the next nine Canadian fiscal years, nominal federal outlays grew at an average annual rate of 5.8% to C\$222.2 billion, equal to 15.3% of GDP, in CFY 2006–7. Because of strong economic growth, however, general government spending continued to decline from 44.3% of GDP in 1997 to 39.4% of GDP in 2006. And, Canada continued to enjoy federal budget surpluses throughout this period.

Federal spending reductions followed by years of restrained growth in federal spending helped to reduce Canada’s federal debt. Canada’s net federal debt (gross federal debt less federal financial assets) rose steadily both nominally and as a percent of GDP during the 1970s and 1980s. By end of calendar year 1993, net federal debt was C\$471 billion, equal to 64.8% of GDP. Net federal debt peaked nominally at C\$588 billion at the end of 1997 and at 69.1% of GDP at the end of 1996. By the end of 2006, net federal debt had fallen to \$508 billion, equal to 35.5% of GDP.

Canada’s fiscal consolidation program had a positive effect on economic growth. Canada’s real GDP growth rate, which had averaged a mere 0.8% in the five years (1989–1993) before fiscal consolidation began, rose to an average of 3.4% between 1994 and 2006.

This fiscal consolidation program proved popular with Canadian voters. The Chrétien-led Liberals won reelection with majority governments on June 2, 1997 and on November 27, 2000. After Martin became leader of the Liberal Party, he won a minority government in the June 28, 2004 election.

➤ **Sweden: 1994–2000** [fig. 8].⁴⁶ Sweden’s economy deteriorated severely in the early 1990s as a result of a bursting housing bubble and banking crisis reminiscent of the one the United States recently experienced. The unemployment rate skyrocketed from 2% in the first quarter of 1990 to over 11% in less than three years. The average GDP growth rate during the three years from 1991 to 1993 was -1.5%.

Sweden’s fiscal condition also deteriorated during the same period. General government expenditures rose from 58% of GDP in 1988 to 71% of GDP in 1993, and central government debt rose to approximately 76% of GDP. The Swedish government also made large transfer payments to recapitalize failing banks.

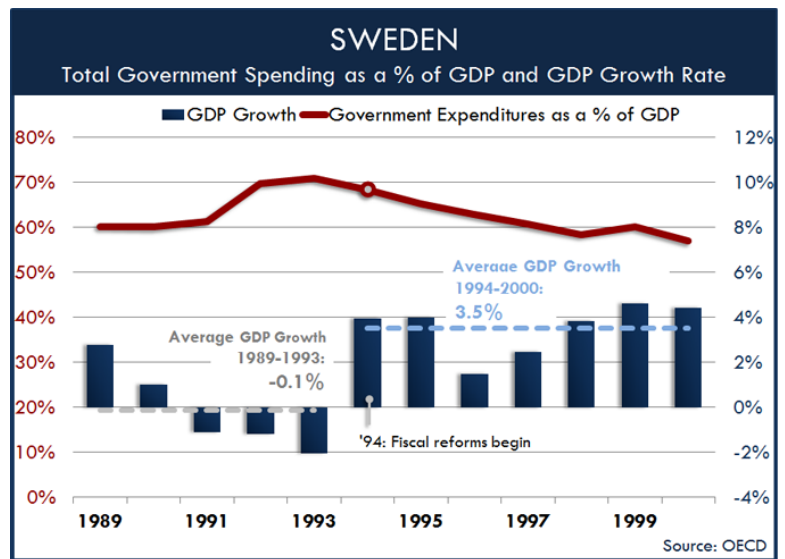


Figure 8

However, the fiscal deterioration was not solely a result of the bursting housing bubble and banking crisis. Similar to the U.S. experience, the Swedish central government had been on an unsustainable long-term fiscal trajectory for many years—the crisis exacerbated the problem.

From 1975 to 1994, Sweden's debt-to-GDP ratio grew at an average rate of 5.2%. In the early 1980s and the early 1990s, the country experienced rising deficits stemming from a rapidly increasing ratio of government spending to GDP. Revenues to GDP lagged during the same period, falling from an average of 61% during the period 1986–1990 to 57% in 1993. And, on top of that, Swedish demographics were placing the sustainability of the public pension system into grave doubt.

On October 7th, 1994, Ingvar Carlsson became Prime Minister of Sweden, backed by the Swedish Social Democratic Party. Over the next six years, his administration and that of his successor, Göran Persson, also of the Social Democratic Party, instituted a fiscal consolidation program focused on reforming the budget process, tightening transfer payments to businesses and households, and increasing certain taxes.

One particularly hard fought reform was an overhaul of the Swedish pension system, which was initially agreed to in 1994 and implemented beginning in 1998. Prior to the reform, Sweden's pension was much like the U.S. Social Security program—tax-financed, pay-as-you-go and facing sustainability issues due to an aging population. Swedish policymakers faced two choices: partially privatize the system or cut benefits and increase taxes. They chose a partially privatized reform package including four major features:

1. Workers were allowed to invest 2.5% of the total 18.5% mandatory set-aside of income;
2. Payroll taxes funded notional accounts with the remaining 16%, with beneficiaries receiving benefits based on the taxes paid during their working life rather than a defined benefit;
3. A minimum pension benefit was guaranteed to the poor, to be paid out of general revenues; and
4. Current and near-retirement workers remained under the old system.

As a result of these various reform efforts, Sweden's fiscal health shifted from a government budget deficit of over 11% of GDP in 1993 to a surplus of 3.6% of GDP in 2000 and the central government debt-to-GDP ratio was reduced from 71% in 1993 to 57% in 2000.

Once Sweden's fiscal condition improved after the adoption of a fiscal consolidation program, the government announced a medium-term target (a surplus of 2% of GDP over the cycle) in order to avoid repeating the same fiscal mistakes. Fiscal rules with embedded expenditure limits have proven to be associated with larger and longer adjustments, and with higher success rates.

Sweden's fiscal consolidation program boosted the Swedish economy. In the five years prior to the program's launch, real GDP contracted by an average of 0.1% per year. Between 1994 and 2000, Sweden enjoyed an average real GDP growth rate of 3.5% per year.

- **New Zealand: 1986–1996** [fig. 9].⁴⁷ For several decades before David Lange led the Labour Party to win a majority government in the July 16, 1984 election, successive National Party and Labour Party governments had steadily expanded the crown's (i.e., central government's) role in New Zealand's economy. The period was characterized by persistent and heavy intervention into the economy, including (1) the institution of protectionist policies (e.g., import tariffs and licensing fees, foreign exchange controls, and foreign direct investment restrictions); (2) strict internal regulations; and (3) major agricultural subsidy programs. New Zealand's government controlled a vast web of crown departments and crown-owned enterprises operating in the communications, energy, manufacturing, and transportation industries. By 1984, crown spending was 36.1% of GDP.

As a result, productivity and income growth rates in New Zealand fell relative to other developed countries. For example, from 1960 to 1984, real GDP per capita increased by an annual average of only 1.4% in New Zealand, approximately half that of other OECD member-countries. Inflation, as measured by the annual CPI rate, rose to 17 percent in June 1982. New Zealand ran persistent government budget deficits that escalated to NZ\$2.3 billion, equal to 6.3% of GDP, in the New Zealand fiscal year ending on March 31, 1984. Consequently, New Zealand accumulated an unsustainable level of crown debt of \$21.9 billion, equal to 60.7% of GDP in NZ FY1984.

In 1984, Prime Minister David Lange and Minister of Finance Roger Douglas launched a comprehensive reform program focused on reducing government intervention in the economy. Among the program's features were steep reductions in personal income tax rates (the top rate was reduced from 66% to 33% in October 1986) and the corporate tax rate (reduced from 48% to a flat 33% in October 1986), the removal of the great majority of agriculture subsidies, and substantial deregulation of virtually all industries.

The Labour government was re-elected on August 15, 1987. By the New Zealand fiscal year ending on June 30, 1991, crown spending had slightly risen to NZ\$30.3 billion, equal to 40.7% of GDP.⁴⁸ Although the crown budget deficit was NZ\$2.6 billion, equal to 3.4% of GDP, the crown debt had been stabilized at NZ\$43.9 billion, equal to 59.1% of GDP.

After the National Party won the October 22, 1990 election, Prime Minister Jim Bolger and Minister of Finance Ruth Richardson slashed crown spending and expanded upon Labour's reforms to liberalize the labor market. Over the next three New Zealand fiscal years, crown spending fell to NZ\$28.5 billion, equal to 33.8% of GDP. For the first time since 1978, the crown recorded a budget surplus of NZ\$679 million, equal to 0.8% of GDP, in NZ FY 1994. The National government was re-elected on November 6, 1993. By NZ FY 1996, crown spending had been slashed to NZ\$30.5 billion, equal to 31.8% of GDP, while budget surpluses reduced crown debt to NZ\$41.9 billion, equal to 43.7% of GDP.

Both Labour and National governments made fundamental reforms in crown operations. Whole ministries were eliminated or consolidated, and the overall structure of the government was simplified. Using a corporatize-then-privatize model, major state-owned monopoly enterprises were introduced to market forces. Senior employees were given efficiency-based incentives. Several fiscal accountability and transparency initiatives were enacted during the period. The number of government employees was cut from approximately 88,000 in 1984 to approximately 36,000 in 1996—a nearly 60% reduction.

Fiscal consolidation took much longer in New Zealand than in Canada and Sweden to accelerate economic growth because most of the spending cuts did not occur until 1991. The real GDP growth rate accelerated to 4.7% in 1993 after a decade of sluggish growth.

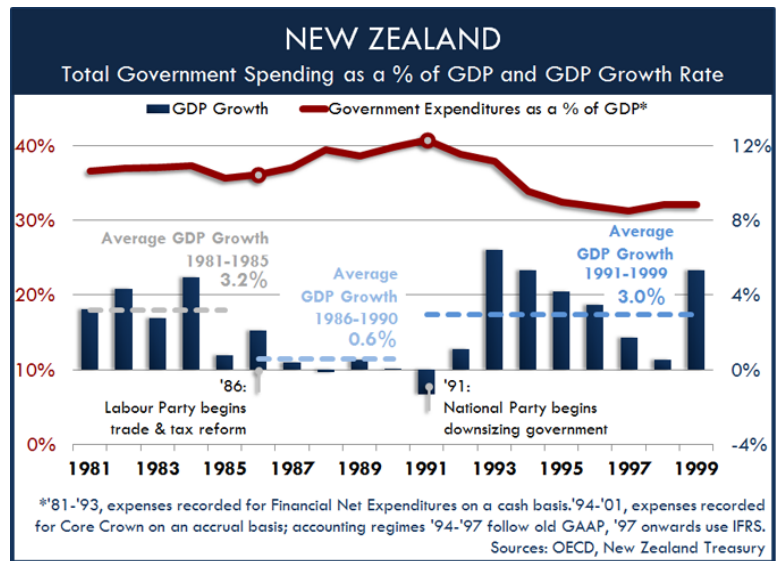


Figure 9

VI. IS THIS THE WRONG TIME TO DO THE RIGHT THING?

According to the Business Cycle Dating Committee of the National Bureau of Economic Research, the latest U.S. recession ended in June 2009. Although the economy has been recovering for 20 months, payroll job growth remains exceedingly weak by historical standards. Against this backdrop, the fiscal policy debate in Washington rages on. Keynesian economists who backed President Obama's more than \$800 billion stimulus plan in February 2009 now oppose significant federal spending reductions. Now is no time for austerity, they say.⁴⁹ However, economist John Taylor of Stanford University and of the Hoover Institute rebutted these Keynesian claims in recent testimony before the House Committee on Financial Services:

"...the surest way to reduce unemployment is to increase private investment as a share of GDP."

--John Taylor

Some say we need to wait to start reducing government purchases because of the high unemployment and the fragile recovery. Some even say we need to increase spending before we start reducing it. But there is no convincing evidence that a gradual and credible reduction in government purchases as a share of GDP will increase unemployment. Indeed, the history of the past two decades shows that lower levels of government purchases as a share of GDP are associated with lower unemployment rates. The same history suggests that the surest way to reduce unemployment is to increase private investment as a share of GDP: Over the past two decades, when investment increased as a share of GDP, unemployment fell. In other words, unemployment is inversely correlated with private investment. . . . So reducing the share of government spending and focusing on increasing the share of private spending . . . is a proven way to create jobs and reduce unemployment.⁵⁰

VII. CONCLUSION

The current fiscal condition of the U.S. government is perilous. During fiscal year 2011, the CBO projects that federal spending will be 24.7% of GDP, well above the average of 19.4% of GDP for fiscal years 1947–2007, and will remain far above its post World War II average for the next decade. Moreover, the CBO projects that federal spending will increase to 35.2% of GDP by 2035 in the alternative fiscal scenario under current policies. The United States cannot maintain this level of federal spending—let alone allow it to escalate—without seriously damaging its economy.

The abundant empirical evidence is clear and irrefutable; increasing federal spending as a percentage of GDP will slow economic growth in the long term. Therefore, U.S. policymakers should embark on a fiscal consolidation program based on reducing federal spending as a percentage of GDP.

Keynesians warn that significant federal spending reductions now would weaken the current economic recovery. During the last two decades, however, numerous studies have identified expansionary “non-Keynesian” effects from government spending reductions that offset at least some and possibly all of the contractionary “Keynesian” effects on aggregate demand. In some cases, these “non-Keynesian” effects may be strong enough to make fiscal consolidation programs expansionary in the short term as well the long term.

According to empirical studies, fiscal consolidation programs that (1) eliminate government agencies and programs; (2) cut the number and compensation of government workers; and (3) reduce transfer payments to households and firms have strong expansionary “non-Keynesian” effects. Fiscal consolidation programs that reform government pension and health insurance programs for the elderly to make them sustainably solvent in the long term may also have strong positive “non-Keynesian” factors even if reforms are phased in slowly, do not affect current beneficiaries, and do not significantly reduce outlays in the short term.

Obama Administration officials have emphasized the risk of starting a fiscal consolidation program now while ignoring the risk of delay. There are significant external risk factors to the U.S. economy in both the short run and the long run that cannot be foreseen, such as: (1) resurging price inflation, (2) loss of confidence in the U.S. dollar as the world’s reserve currency, (3) euro-zone sovereign debt defaults, and (4) war in the Middle East. But, the many examples cited in this commentary show that the United States will be in a better position to respond to any of these challenges by reducing federal spending sooner rather than later.

¹ “Navigating the Fiscal Challenges Ahead,” International Monetary Fund, Fiscal Monitor, May 14, 2010, p. 5, available at <http://www.imf.org/external/pubs/ft/fm/2010/fm1001.pdf>.

² Reinhart, C. M. and Rogoff, K.S., “Growth in a Time of Debt,” *American Economic Review*, V. 100(2), p. 577, May 2010.

³ *Ibid.*

⁴ Testimony of Federal Reserve Chairman Ben Bernanke, Committee on Financial Services, Hearing Transcript, Feb. 24, 2010, pp. 15–6, available at <http://financialservices.house.gov/Media/file/hearings/111/Printed%20Hearings/111-102.pdf>.

⁵ “News Hub: S&P & Moody’s Warn on U.S. Credit Rating,” *Wall Street Journal*, Jan. 13, 2011, available at <http://online.wsj.com/video/news-hub-sp--moody-s-warn-on-us-credit-rating/85C0D4F1-4786-44ED-8C62-E9DF52108C2A.html?KEYWORDS=moody%27>.

⁶ Barley, R., "The Triple-A Debt Threat," *Wall Street Journal*, Jan. 14, 2011, available at <http://online.wsj.com/article/SB10001424052748703583404576079862342374014.html?KEYWORDS=moody%27s>.

⁷ Nominal interest rates are composed of three parts: (1) the real interest rate that reflects the supply and demand for funds in the credit market, (2) an inflation factor that reflects expectations about price inflation in the future, and (3) a credit-specific default risk factor.

⁸ Engen, E. and Hubbard, R. G., "Federal Government Debt and Interest Rates," *National Bureau of Economic Research*, Working Paper No. w10681, Aug. 2004, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=579211.

⁹ Laubach, T., "New Evidence on the Interest Rate Effects of Budget Deficits and Debt," *Journal of the European Economic Association*, V. 7(4)(Jun. 2009), pp. 858–885.

¹⁰ Traum, N. and Yang, S., "Does Government Debt Crowd Out Investment? A Bayesian DSGE Approach," Congressional Budget Office, Working Paper Series, April 2010, available at <http://www.cbo.gov/ftpdocs/114xx/doc11430/04-2010-Working-Paper-Crowding-Out.pdf>.

¹¹ *Ibid.*

¹² Vedder, R. K. and Gallaway, L. E., "Government Size and Economic Growth," *Joint Economic Committee*, Dec. 1998, available at <http://www.house.gov/jec/growth/govtsize/govtsize.pdf>.

¹³ Landau, D., "Government Expenditure and Economic Growth: A Cross-Country Study," *Southern Economic Journal*, V. 49, Jan. 1983, pp. 783–92; Landau, D., "Government and Economic Growth in the Less Developed Countries: An Empirical Study for 1960–1980," *Economic Development and Cultural Change*, 1986, pp. 35–75; Grier, K. and Tullock, G., "An Empirical Analysis of Cross-National Economic Growth: 1951–1980," *Journal of Monetary Economics*, V. 24, pp. 259–76; Barro, R. J., "A Cross-Country Study of Growth, Saving, and Government," in *National Saving and Economic Performance*, University of Chicago Press and National Bureau of Economic Research, Chicago, IL, 1991.

¹⁴ Afonso, A. and Fuceri, D., "Government Size, Composition, Volatility and Economic Growth," *European Central Bank*, Directorate General Economics, Working Paper No. 849, Jan. 2008, available at <http://www.ecb.int/pub/pdf/scpwps/ecbwp849.pdf>.

¹⁵ *Ibid.*

¹⁶ Engen, E. M., and Skinner, J., "Fiscal Policy and Economic Growth," *National Bureau of Economic Research*, Working Paper No. 4223, available at <http://www.nber.org/papers/w4223>.

¹⁷ For classic articles on private versus public sector provision, see Alchian, A.A., *Some Economics of Property Rights*, Rand Corporation, Santa Monica, CA, 1961; Borcherding, T.E., Bush, W., and Spann, R., "The Effects on Public Spending of the Divisibility of Public Outputs in Consumption, Bureaucratic Power and the Size of the Tax-Sharing Group," in *Budgets and Bureaucrats: The Sources of Government Growth*, Duke University Press, Durham, NC, 1977, pp. 211–28; De Alessi, L., "An Economic Analysis of Government Ownership and Regulation: Theory and the Evidence from the Electric Power Industry," *Public Choice*, V. 19(1), 1974, pp. 1–42; Niskanen, W.A., "Bureaucrats and Politicians," *Journal of Law and Economics*, V. 18(4), 1975, pp. 617–43.

¹⁸ Explanations for the superior performance of the private sector over the public sector have been examined from a variety of perspectives, but a central theme is the idea that public ownership leads to the pursuit of objectives that detract from economic welfare maximization. The principal-agent, property rights and public choice theories conclude that enterprises operating under public ownership will be less efficient compared to their private sector counterparts. See e.g., Boardman, A. E. and Vining, A. R., "Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-Owned Enterprises," *Journal of Law and Economics*, V. 32(1), 1989, pp. 1–33; Vining, A.R. and Boardman, A.E., "Ownership versus competition: Efficiency in Public Enterprise," *Public Choice*, V. 73(2), 1992, pp. 205–39.

¹⁹ See Giavazzi F. and Pagano M., "Can Severe Fiscal Constraints be Expansionary? Tales of Two Small European Countries," *National Bureau of Economic Research*, Macroeconomics Annual, 1990, available at <http://www.nber.org/papers/w337>; Perotti, R., "Fiscal Policy in Good Times and Bad," *Quarterly Journal of Economics*, V. 114(4), Nov. 1999, 1399–1436; and Giavazzi, F., Jappelli, T., and Pagano, M., "Searching for Non-Linear Effects of Fiscal Policy: Evidence from Industrial and Developing Countries," *European Economic Review*, V. 44(7), 2000, 1259–89.

²⁰ Alesina, A., Ardagna, S., Perotti, R., and Schiantarelli, F., "Fiscal Policy, Profits, and Investment," *American Economic Review*, V. 92(2), Jun. 2002, pp. 571–589.

²¹ *Ibid.*

²² *Ibid.*

²³ Lilico, A., Holmes, E., and Sameen, H., "Controlling Spending and Government Deficits: Lessons from History and International Experience", *Policy Exchange*, Nov. 2009, available at http://www.policyexchange.org.uk/images/publications/pdfs/Controlling_Public_Spending_-_Nov_09.pdf.

²⁴ Alesina, A. and Ardagna, S., "Large Changes in Fiscal Policy: Taxes Versus Spending," *National Bureau of Economic Research*, Working Paper No. 15438, Oct. 2009, p. 3, 7, available at <http://www.nber.org/papers/w15438>.

²⁵ Biggs, A., Hassett, K., and Jensen, M., "A Guide for Deficit Reduction in the United States Based on Historical Consolidations That Worked," *American Enterprise Institute*, Economic Policy Working Paper No. 2010-04, Dec. 27, 2010, available at <http://www.aei.org/paper/100179>.

²⁶ Giavazzi, F. and Pagano, M., *supra* note 19.

²⁷ See also Alesina, A. and Ardagna, S., "Tales of Fiscal Adjustments," *Economic Policy*, V. 13(27), Oct. 1998, pp. 489-545.

²⁸ Giudice, G., Turrini, A., and in 't Veld, J., "Can Fiscal Consolidations be Expansionary in the EU? Ex-post Evidence and Ex-ante Analysis," *European Commission*, Directorate-General for Economic and Financial Affairs, Economic Paper No. 195, Dec. 2003, available at http://ec.europa.eu/economy_finance/publications/publication_summary6930_en.htm.

²⁹ Ahrend, R., Catte, P. and Price, R., "Factors Behind Low Long-Term Interest Rates," *Organization for Economic Co-Operation and Development*, *Financial Market Trends*, Financial Market Trends No. 92, Vol. 2007(1), pp. 99-141.

³⁰ Cournède, B. and Gonand, F., "Restoring Fiscal Sustainability in the Euro Area: Raise Taxes or Curb Spending?," *Organization for Economic Co-operation and Development*, Economics Department Working Papers, No. 520, Oct. 30, 2006, available at [http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=ECO/WKP\(2006\)48&doclanguage=en](http://www.oecd.org/officialdocuments/displaydocumentpdf/?cote=ECO/WKP(2006)48&doclanguage=en).

³¹ Alesina, A. and Ardagna, S., "Large Changes in Fiscal Policy: Taxes Versus Spending," *National Bureau of Economic Research*, Working Paper No. 15438, Oct. 2009, p. 3, 7, available at <http://www.nber.org/papers/w15438>.

³² In particular, the IMF cited the issue of endogeneity—i.e., that certain factors within the model were unaccounted for yet influenced their measurement. Leigh, D. et al., "Will It Hurt? Macroeconomic Effects of Fiscal Consolidation," in "World Economic Outlook: Recovery, Risk, and Rebalancing," *International Monetary Fund*, Oct. 2010, available at <http://www.imf.org/external/pubs/ft/weo/2010/02/pdf/c3.pdf>.

³³ "Regional Economic Outlook: Europe—Building Confidence," *International Monetary Fund*, World Economic and Financial Survey, Oct. 2010, available at <http://www.imf.org/external/pubs/ft/reo/2010/eur/eng/ereo1010.htm>.

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³⁹ Von Hagen, J. and Strauch, R., "Fiscal Consolidation: Quality, Economic Conditions and Success," *Public Choice*, V. 109, 2001, pp. 327-46.

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