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Economic Effects of Reductions in Defense Outlays

by Benjamin Zycher

Executive Summary

This study examines the prospective economic effects of a reduction below the current baseline in defense outlays of \$100 billion per year over 10 years.

Several recent studies have attempted to estimate the supposedly adverse economic and employment effects of reductions in government spending generally, and defense outlays in particular. Such studies have tended to exaggerate the harmful effects of spending cuts and have ignored or understated the beneficial effects associated with redirecting resources to more productive uses.

A reduction in defense consumption and investment shifts resources among economic sectors and thus has economic effects analogous to those caused by changes in demand and supply in any industry. The unemployment (or underemployment) of labor and other resources during the adjustment process can be politically significant but has only temporary economic effects; however painful for some, this process of resource reallo-

cation is economically beneficial in the aggregate over time. Moreover, the data suggest strongly that the adverse effects of spending cuts would be small in the aggregate because defense spending is a small component of GDP (less than 5 percent), and because estimates of the multiplier effects of defense expenditures reported in the scholarly literature are relatively low.

The reduction in defense spending—and thus in federal spending in total—would reduce as well the economic costs of the excess burden that the tax system imposes upon the economy, in the form of distortions that reduce aggregate output. A conservative estimate of that effect is 35 percent of the reduction in defense spending. Accordingly, a reduction in defense outlays of \$100 billion per year can be predicted, conservatively, to reduce economic costs by a total of \$135 billion per year.

These potential savings in real resources are sufficiently large to justify a detailed analysis of U.S. national security needs and the outlays required to defend them.

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Introduction

In this second decade of the 21st century, two obvious realities characterize the prospective international security environment facing the United States. First, the Obama administration has implemented a significant reduction of U.S. military operations in the Middle East and southwestern Asia, and a reversal of that dynamic is not likely. Obviously, new contingencies are possible given the nature of the evolving security environment in the Middle East and southwestern Asia writ large, and future U.S. military deployments in those regions cannot be assumed away. But U.S. operations in Iraq have ended, and they are diminishing in the Afghan theatre. The domestic political effects of those wars make renewed ground operations in the Middle East highly unlikely.

Second, in the context of the longer-term security environment, the collapse of the Soviet Union and the attendant conventional threat in Europe has yielded a sharp reduction in the perceived need for U.S. conventional forces, including large pools of manpower and munitions stockpiles and heavy air, land, and sea force structures.¹ The end of the Soviet threat allowed a decline in U.S. active-duty manpower worldwide from about 2.1 million in 1990 to about 1.5 million in 1995 and about 1.4 million in 2000 and thereafter, which then increased again after 2001 to prosecute the wars in Iraq and Afghanistan.² The Obama administration has announced its intent to reduce active-duty Army and Marine Corps manpower levels over the next five years by 92,000, or about 12 percent: for the Army from 562,000 to 490,000 and for the Marine Corps from 202,000 to 182,000, but both forces will remain above their 2002 levels.³

In addition, current plans envision a U.S. military posture characterized by a continuing shift toward operations requiring smaller forces and a reduction (or a reduced growth rate) in defense outlays.⁴ This might yield a continuation of the downsizing of the force structure that began in the 1990s but was halt-

ed or reversed after 2001.⁵ In short, the changing long-term threat environment facing the United States, at least arguably, will yield an optimal force structure smaller than that currently supported.

The discussion above suggests that the demand for defense services as reflected in collective decisionmaking (a concept defined more fully below) may be declining. This is illustrated by the intensification of the public debate over the future of the defense budget, notwithstanding the reductions in the U.S. force structure that have been implemented since 1990. This paper does not offer an evaluation of the “correct” magnitude of U.S. defense outlays over the next 10 fiscal years, nor of the proper allocation of such outlays (or the allocation of reductions in spending) across the many dimensions of the defense budget. Instead, the focus here is on the aggregate economic effects of reductions in defense outlays assumed to be implemented. Accordingly, for purposes of analysis we take as given a reduction of \$1 trillion over the next 10 years, roughly consistent with the work by Benjamin H. Friedman and Christopher Preble, and other recent studies.⁶

Table 1 presents data on recent and projected new defense budget authority as requested in the Obama administration’s FY 2013 budget. An annual average reduction in defense outlays of about \$100 billion would have been about 17.9 percent of total defense spending (new budget authority) for fiscal year 2011; the respective figures for fiscal years 2012 through 2017, as estimated by the Office of Management and Budget in the FY 2013 budget, range from 17.8 to 18.5 percent.⁷ For the 10-year period FY 2013–2021, the Budget Control Act (BCA) imposes, ostensibly, a spending (budget authority) reduction of \$487 billion. Note, however, that this purported cut reflects the BCA spending limit relative to the FY 2012 budget proposal, which is not the same as an actual prior amount of spending (or budget authority).⁸ The FY 2013 budget proposal of the Obama administration comprises a mix

of cuts and increases in various defense functions: Active-duty ground manpower, fighter aircraft, Navy surface combatants, and perhaps domestic bases would be reduced, while unmanned aircraft, cyber security, special operations, and submarine cruise missile capacity would be increased.⁹ As noted above, the Friedman/Preble proposal would be a reduction in outlays of roughly 18 percent, yielding spending totals somewhat smaller than the BCA budget cap/sequestration figures shown in Table 1 if the FY 2013 baseline shown in the table is assumed to be unbiased as an estimate of future defense outlays before implementation of the BCA budget cap/sequestration limits.

In the next section, I discuss the nature of defense services as a good that protects human, physical, and social capital from external

threats. In brief, defense services are similar to most other goods and services in an analytic sense, so that the unemployment and other economic effects resulting from a decline in the need for (or value of) defense services are irrelevant in terms of the appropriate level of defense spending. After that, I discuss the recent evidence on the relationship between defense outlays and GDP growth and examine some peer-reviewed literature on the GDP growth effects of changes in government spending, whether for defense or nondefense. The central focus of the following section is the economic cost of the tax system needed to finance all federal outlays, including those for defense. Because of the tax system, the economic cost of federal spending is greater than the spending itself. The final section offers concluding observations.

The changing long-term threat environment facing the United States, at least arguably, will yield an optimal force structure smaller than that currently supported.

Table 1
Defense Budget Authority in FY 2013 Budget Proposal, Fiscal Years 2011–2017
(billions of nominal dollars)

	Fiscal Year						
	2011	2012	2013	2014	2015	2016	2017
Defense Total ^a	717.4	676.7	647.4	566.3	579.0	589.4	601.3
OCO ^b	158.8	115.1	88.5	26.2	39.5	42.5	43.4
Defense Baseline	558.6	561.6	558.9	540.1	539.5	546.9	557.9
Change from FY2012	-3.9	-62.6	-55.4	-102.4	-102.2	-104.8	n.a.
BCA budget cap/sequestration	n.a.	n.a.	472.0	482.0	491.0	502.0	515.0
Change from FY2013 baseline	n.a.	-86.9	-58.1	-48.5	-44.9	-42.9	n.a.

Sources: FY2013 Budget, Historical Tables, Table 5.1, <http://www.whitehouse.gov/sites/default/files/omb/budget/fy2013/assets/hist.pdf>; FY2012 Budget, Historical Tables, Table 5.1, <http://www.gpo.gov/fdsys/pkg/BUDGET-2012-TAB/pdf/BUDGET-2012-TAB.pdf>; FY2013 Budget, <http://www.whitehouse.gov/sites/default/files/omb/budget/fy2013/assets/defense.pdf>, pp. 83-84; Todd Harrison, “Strategy in a Year of Fiscal Uncertainty,” Center for Strategic and Budgetary Assessments, February 2012, <http://www.csbaonline.org/publications/2012/02/trategy-in-a-year-of-fiscal-uncertainty/>, Table 1; and author computations.

Notes: n.a.=not available or not applicable. ^aDefense total is outlay function 050 (total); FY2012–2017 are estimates. ^bOCO: Overseas Contingency Operations. Figures for 2014–2017 are placeholders from FY2013 budget.

To the extent that the defense sector is too large, aggregate resource use would be less productive than otherwise might be the case.

Defense Services as Economic Output

As a crude generalization, the ongoing debate over the size of the U.S. defense budget comprises two distinct focuses. The first is the nature and seriousness of the threat environment facing the United States prospectively, and thus the appropriate magnitude and allocation of resources for defense. To the extent that defense services protect human, physical, and social capital from destruction or confiscation by foreign aggressors, such services protect life, liberty, property, and the benefits of civil society and encourage investment and thus higher economic output (defined broadly) over the longer term.¹⁰ To the extent that the defense sector is too small or is allocated poorly across functions, or to the extent that the defense budget is implemented inefficiently, external threats may loom too large and investment and the economy writ large are likely to be too small.¹¹ To the extent that the defense sector is too large, aggregate resource use would be less productive than otherwise might be the case, and it is possible that the threat environment actually might grow as a foreign response to perceptions of an aggressive United States. The opposite effect also is possible: by maintaining an overwhelming force structure, potential aggressors might be discouraged from the military competition. That type of model lies outside the scope of this paper. The optimal size and composition of the defense sector are shunted aside here; again, we assume cuts of \$1 trillion or \$100 billion per year for purposes of economic analysis.¹²

The second focus of the public debate—the topic of this paper—is on the economic effects of reductions in defense spending; the usual parameters discussed are direct employment losses, and the indirect multiplier effects in related economic sectors.¹³ Except perhaps for purposes of short-run analysis of narrow economic shifts across sectors or industries, that general approach is problematic because it ignores the benefits of an economic system that reallocates resources

to more productive uses as economic conditions change. Consider the market for any familiar good; the demand and supply of private security services is a good analogue. If the threat of crime declines we would expect a decline in the demand for private security services. A reduction in the quantity of security services, and perhaps a decline in the market price of such services, would reflect this decline in demand.

This hypothetical reduction in the market size and price of private security services is a signal that such services have lost value. “Value” is the goods and services that a given demander (or the market as a whole) is willing to forgo to obtain security services. The declining value of security services means that the resources used in the production of those services—labor, buildings, vehicles, capital, and so on—now yield less (marginal) value when used in the production of security services relative to their value in the production of other goods and services.¹⁴ Imagine a continuum of such resources, including labor, previously used to produce security services: some would be relatively better (more efficient) than others in productive activities in alternative economic sectors. The decline in the market price of security services would induce those resources relatively more productive in alternative uses—and therefore relatively more costly to employ in the private security sector—to exit that sector and enter others earlier.

During the adjustment process, resources, including labor, become unemployed (or perhaps underemployed). Some resources might be highly specialized in the production of security services; it may be difficult and time-consuming for the owners of these inputs to find new employment. Other resources might be less specialized but difficult to move: they are specialized geographically, and therefore also may find it difficult to find new employment quickly. Some resources—labor is a good example—may be more mobile than others, but the process of changing locales also might take substantial time. Even given that some of these re-

sources might find alternative employment quickly, increased unemployment of labor and other resources previously occupied in the production of private security services is certain for some period of time.

This shift of resources, including labor, across economic sectors is an example of what economists call “structural unemployment.” It is the result of changes in the underlying economic conditions of demand and supply that yield shifts in the relative price signals inducing resources to flow toward and away from various sectors. In other words, as demand and supply conditions change, the “structure” of the economy changes as well: some industries grow while others decline, either absolutely or in a relative sense. Structural unemployment is a fundamental feature of any dynamic economy driven by constant changes in individual preferences, individual choices, technological shifts, and a myriad other factors.¹⁵ Any owner of an input, including workers suffering from unemployment caused by a change in market conditions, is worse off, at least temporarily. But the process of allowing market forces to redirect resource use increases aggregate output and wealth, thus making virtually all individuals better off over time on net. The movement of resources from less to more profitable sectors increases the aggregate productivity of the economy.¹⁶ Therefore, the increased unemployment and other adverse effects of the decline in the demand for private security services, however unpleasant for those bearing the brunt of the economic shifts, are not an adverse effect for the economy as a whole. To put it a bit differently, the short-term adverse effect of resources unemployed because of a shift in economic conditions is outweighed by the longer term benefit of a process in which resources are allocated and reallocated among alternative employments so as to increase the overall productivity or value of resource use, that is, aggregate wealth.¹⁷

There is one analytic difference between the simple example of a decline in the demand for private security services and a de-

cline in the demand for defense services: the latter is reflected in collective choices emerging from democratic institutions and political processes rather than prices determined by market processes. A change in the aggregate demand for defense services is more difficult to measure (or to perceive) than is the case for goods and services traded in the private sector—value in the public sector is a good deal murkier—and public decisionmakers may have weaker incentives to respond to such changes in demand conditions.¹⁸ Nonetheless, if the threat environment has changed in ways yielding a perceived decline in the value of defense services, it is appropriate for some resources previously employed in the production of defense to become unemployed temporarily as they search for their most valuable uses under changed circumstances.

Recent Research on Defense Outlays and the Economy

Only rarely, if ever, do we ask in a policy context about the unemployment effects of a decline in the rates of serious crimes, particularly with respect to such given sectors as private security services. Notwithstanding the straightforward standard analysis of structural economic shifts, a substantial body of literature has attempted to estimate the supposedly adverse economic and employment effects of reductions in government spending generally and defense outlays in particular. One recent estimate of the latter is presented by Stephen S. Fuller, professor of public policy with the Center for Regional Analysis at George Mason University.¹⁹ Fuller’s analysis projects that a reduction in procurement spending of \$45 billion in 2013 would yield the following impacts:

- About \$164 billion in direct and indirect lost sales;²⁰
- \$59.4 billion in wage and salary reductions;
- About \$27 billion in lost sales by subcontractors and other suppliers;

The movement of resources from less to more profitable sectors increases the aggregate productivity of the economy.

The use of labor (or any other resource) is a cost of economic activity, and the release of labor for more productive uses is a benefit for the economy as a whole.

- A decline of about \$86.5 billion in GDP for 2013; and
- A loss of over one million full-time equivalent jobs.²¹

This analysis suffers from several problems. At the outset, there is an obvious double-counting problem across the impact categories: The adverse effects of the purported loss of employment (the fifth impact) already are captured in the previous four categories; moreover, the Fuller summary discussion, while a bit unclear, nonetheless suggests strongly that the \$164 billion figure (the first impact) includes the three subsequent categories.

At a general level, the Fuller study fails to distinguish between economic costs—the consumption of valuable resources, including labor—and the dynamics of resource allocation shifts as a response to changes in relative prices. Lost employment is not a “cost” for the economy as a whole, notwithstanding the adverse effects suffered by the newly unemployed workers themselves. The unemployment of labor and other resources previously engaged in the production of defense services, however difficult for the owners of those inputs, is part of a process yielding improved productivity in the context of changing economic conditions.²² The use of labor (or any other resource) is a cost of economic activity, and the release of labor for more productive uses is a benefit for the economy as a whole. Jobs are not a benefit of defense spending or other policies; the use of labor (or, say, of any input, such as high-quality steel) in an economic activity is a cost of that activity because those resources no longer are available for other uses.

The Fuller analysis ignores the ancillary shifts attendant upon the assumed reduction in defense procurement. If the budget dollars previously spent on defense services are reallocated to other government agencies, that increase in spending will offset the decline in defense outlays; in the short term there may be increased structural unemployment, but the analysis of that effect is identical to that summarized above in the private sector context.²³ If government spending and borrow-

ing are reduced by the amount of the decline in defense procurement, those who otherwise would have lent to the government can lend to others instead, who in turn will consume (or invest in) some other set of goods and services. If taxation is reduced, taxpayers will have more to spend. The same general theme applies in each case: The decline in the government demand for defense goods and services will engender a shift of resources to other sectors, whether public or private, and under the assumption that the smaller defense sector reflects a lower value of (or need for) defense output, the structural unemployment that results is part of a process of resource reallocation that yields greater productivity for the economy as a whole.

The Fuller analysis summarized above suggests a GDP multiplier effect of 1.92 for 2013 as a result of a \$45 billion reduction in defense procurement.²⁴ The modern scholarly literature on the GDP effect of government spending growth casts significant doubt on any multiplier effect of that magnitude, even under the assumption that the concept of a multiplier effect is consistent with sound economic analysis. Cogan et al. estimate an effect of only about 0.65 in the quarter with the highest impact of a large government “stimulus” policy, which obviously differs from a change in defense spending alone.²⁵ Mountford and Uhlig, employing a different type of economic model, arrive at a very similar finding of 0.65 in the first quarter of a spending shock financed with debt.²⁶ Both analyses find GDP effects that decline rapidly over the course of only several quarters. Similarly, Barro and Redlick find a multiplier effect for real GDP of 0.6 to 0.7 over a two-year period as an effect of temporary increases in defense spending. The estimated multiplier increases by 0.1 to 0.2 for permanent changes in defense expenditures. They find a somewhat stronger effect as the unemployment rate rises.²⁷ Ramey finds a defense multiplier effect of 0.6 to 0.8 for the period after World War II.²⁸ Hall finds a GDP multiplier of 0.7 to 1.0 for all government purchases, with a significantly higher estimate of 1.7 when the nominal rate of in-

terest is at zero.²⁹ Parlow finds no effect of defense expenditures on the level or growth rate of GDP for the United States.³⁰ In a new paper, Ramey finds a GDP multiplier from all government spending of about 0.5.³¹

Note that a GDP multiplier from changes in defense spending of approximately 0.6 to 0.8 is in the range reported in most of the scholarly literature.³² Table 2 presents the empirical findings summarized above.

That most of the empirical estimates of the multiplier effect are less than 1.0 suggests strongly that increases in defense spending (and government spending more generally) have effects on GDP that are offset by reductions in other economic activity.

This conclusion is corroborated by comparisons of defense spending and GDP growth. Consider Figure 1, below, which displays quarterly data (at annual rates) on the defense contribution to GDP growth for 2000–2011.³³ The defense contribution is zero statistically: the mean figure for the 48 quarters is 0.15 percent, with a standard deviation of 0.45. Moreover, the mean in this case does not obscure

wide variation. The defense contribution to GDP growth is close to zero for virtually the entire period. This is not surprising. Defense spending as a proportion of GDP was 3 percent in fiscal year 2000, rising to 4.8 percent in FY2010, and then 4.7 percent in FY2011.³⁴ In other words, even shunting aside the correct analysis of structural shifts, the defense sector is too small a part of the economy for changes in defense spending to have large aggregate effects on GDP. A proposal to reduce defense outlays by \$100 billion annually would have amounted to only about 0.66 percent of GDP in 2011, a proportion that would decline each year thereafter as GDP grows.³⁵ It is not plausible that a cut of that magnitude would have large aggregate effects, and the adverse short-term effects felt by particular individuals and communities properly are viewed as short-run structural shifts, as discussed above. Moreover, even apart from the conceptual difficulties with the commonly assumed relation between GDP growth and shifts in defense spending, the simple correlation between quarterly (at annual rates) percent changes in real GDP and

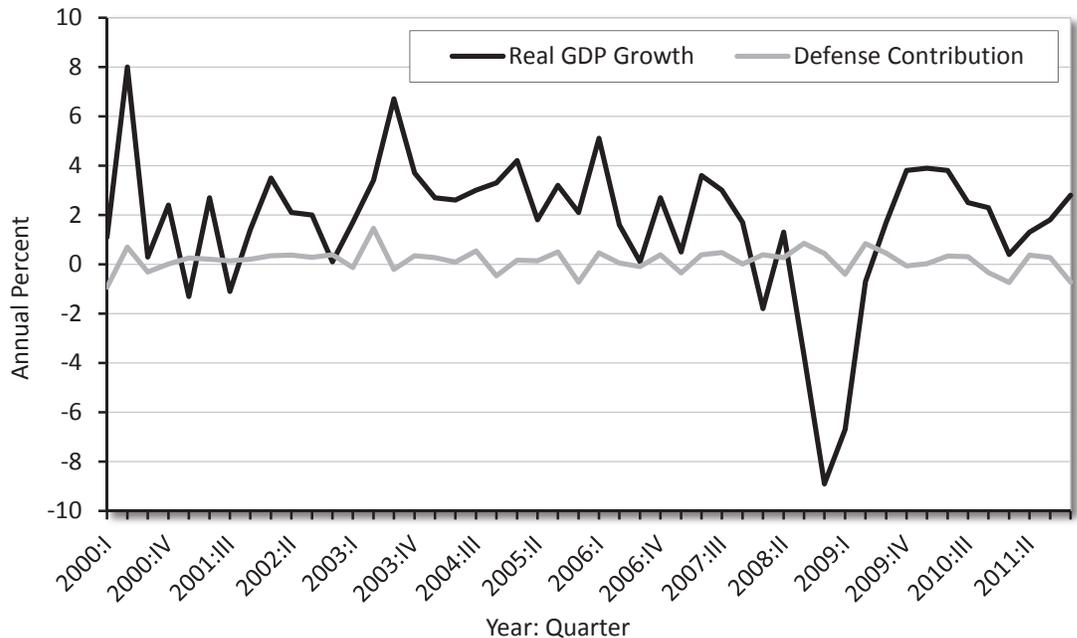
A multiplier effect less than 1.0 suggests strongly that increases in defense spending (and government spending more generally) have effects on GDP that are offset by reductions in other economic activity.

Table 2
Estimated Multiplier Effects

Author	Estimate	Notes
Fuller	1.92	defense procurement
Cogan et al.	0.65	large stimulus
Mountford and Uhlig	0.65	spending “shock”
Barro and Redlick	0.6–0.9	increases in defense spending
Ramey (2011)	0.6–0.8	defense spending after WW2
Hall	0.7–1.0	all government purchases
Parlow	0	defense spending
Ramey (2012)	0.5	all government spending

Sources: See text above for sources.

Figure 1
Defense Contribution to Real U.S. GDP Growth, 2000–2011



Source: Bureau of Economic Analysis, http://www.bea.gov/iTable/index_nipa.cfm, Table 1.1.2.

percent changes in real defense spending is less than 0.09 for the period 2000–2011; that is, it is not far from zero economically, and in any event is not statistically significant at a 5 percent significance level.³⁶

As noted above, insufficient investment in defense services in a world with significant external threats might result in reduced investment in human and physical capital and thus might have a depressing effect on long-run GDP growth. But that is not the conceptual experiment offered in the literature typified by the Fuller analysis; instead, that analysis attempts to estimate the structural economic impacts of reductions in defense outlays, without consideration of the underlying economics of resource shifts.

Consider the years 1981 through 2000, a period during which real GDP growth was positive in all but two years (1982 and 1991). Real defense expenditures grew every year from 1981 through 1989 and then fell in 8 of the subsequent 11 years. These data for real GDP and real

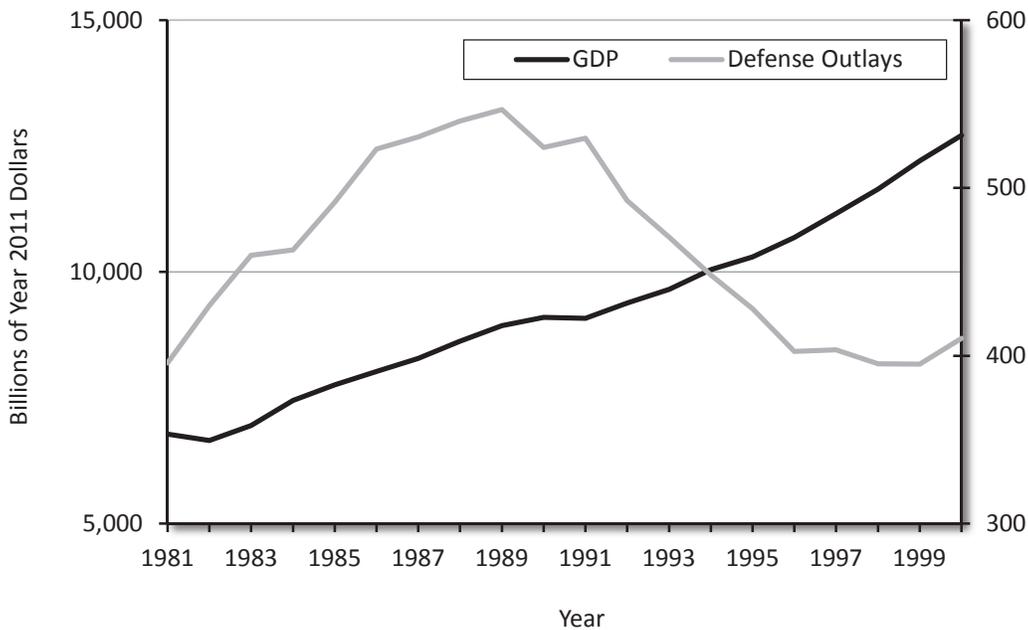
defense outlays are displayed in Figure 2.³⁷

Table 3 shows the average annual compound growth rates for real GDP and for defense outlays, for 1981–2000, for 1981–1989, and for 1990–2000. The compound growth in defense outlays differed by over 6.7 percentage points between the 1981–1989 and 1990–2000 periods, but GDP growth was effectively the same for the two periods. For the entire period, the simple correlation between real GDP and real defense outlays was -0.43. For 1981–1989, it was 0.95, while it was -0.87 for 1990–2000. These data do not control for the other myriad factors that determine GDP and GDP growth. But it is difficult to conclude from the data in Figures 1 and 2 and Table 1 that defense spending growth has a significant impact on GDP growth.

The same is true for Figure 3, which displays the percent changes in annual real GDP and real defense spending for 1981 through 2000. Real economic growth was greater than zero for all but two years (1982

The defense sector is too small a part of the economy for changes in defense spending to have large aggregate effects on GDP.

Figure 2
Real GDP and Defense Outlays, 1981–2000



Source: Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, Table 8.2

and 1991); the growth of real defense spending was greater than zero every year through 1989, and then was negative every year thereafter except 1991, 1997, and 2000. The simple correlation for the entire 20-year period between percent changes in GDP and percent changes in defense outlays was -0.17; for

1981–1989 it was -0.60, and for 1990–2000 it was 0.02.³⁸ None of these correlations is significant statistically at a 5 percent significance level. These data suggest strongly, again, that changes in the growth rate of real defense outlays have little or no effect on changes in GDP growth.

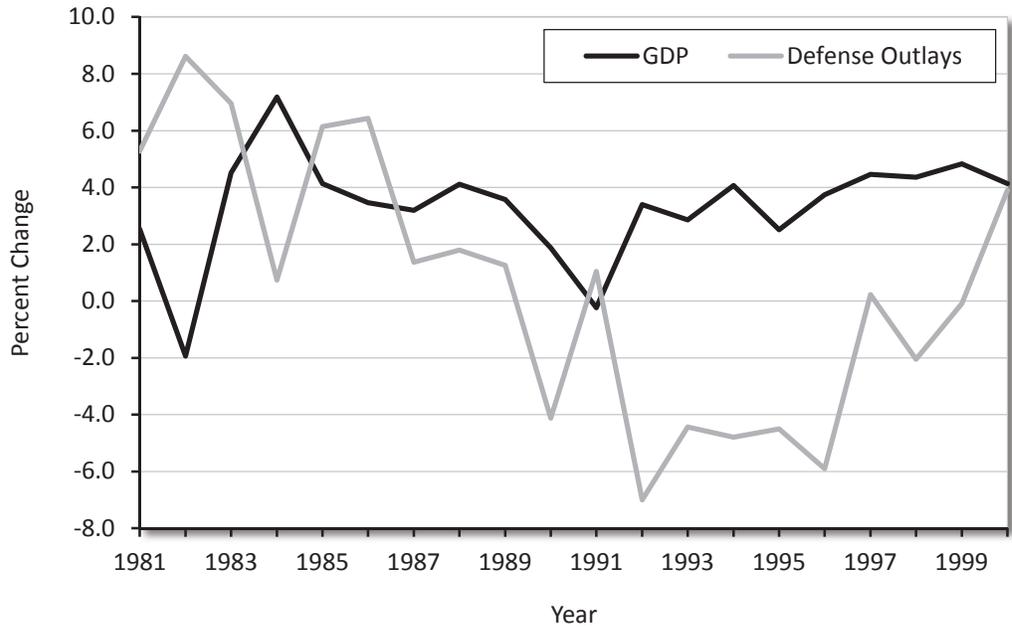
Changes in the growth rate of real defense outlays have little or no effect on changes in GDP growth.

Table 3
Real GDP and Real Defense Outlays:
Average Annual Compound Growth Rates (percent)

Period	GDP	Defense Outlays
1981–2000	3.32	0.43
1981–1989	3.40	4.25
1990–2000	3.26	-2.47

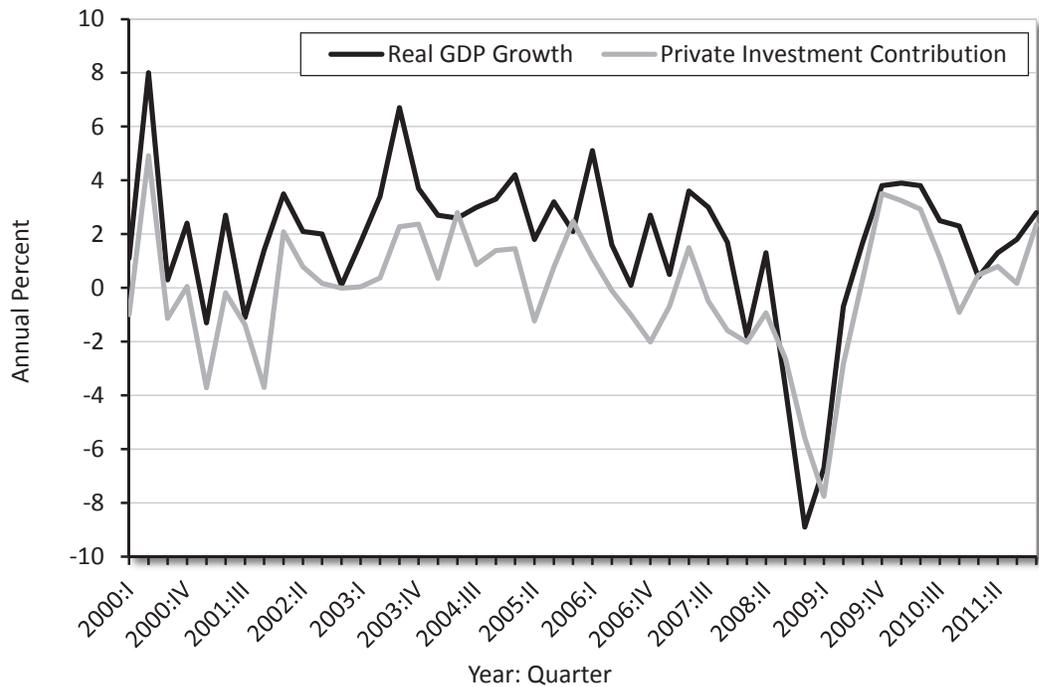
Source: Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, Table 8.2.

Figure 3
Percent Changes in Real GDP and Defense Outlays, 1981–2000



Source: Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, Table 8.2, plus author computations.

Figure 4
Private Investment Contribution to Real U.S. GDP Growth, 2000–2011



Source: Bureau of Economic Analysis, http://www.bea.gov/iTable/index_nipa.cfm, Table 1.1.2.

To reiterate, increases in government spending, including spending for defense, have economic effects that are offset by reductions elsewhere, private investment in particular.³⁹ Figure 4 illustrates why this effect is important.⁴⁰ GDP is the sum of private consumption, private investment, net exports, and government purchases (for which “value” is assumed in the GDP accounts to be equal to spending). Figure 4 shows a correlation between GDP growth and private investment contribution of 0.843. Table 4 presents these correlations, derived from the Bureau of Economic Analysis quarterly data for 2000 through 2011.⁴¹ It is obvious that gross domestic private investment is the most important contributor to GDP growth. Reductions in such investment engendered by increases in defense outlays would reduce the aggregate multiplier effect of the latter.

In short, the scholarly literature does not support a premise that a decline in defense outlays would create sustained or substantial downward pressures on U.S. GDP. The short-run structural shifts yield increased short-run unemployment of labor and other resources as part of a standard resource real-

location process, a process that is economically advantageous in the aggregate.

The Economic Cost of Financing Defense Expenditures

The federal government must acquire the resources needed for all of its spending programs through the tax system, either contemporaneously with spending or in the future as past debts are serviced or retired. The tax system imposes two classes of costs that are a real (but hidden) cost of defense and, indeed, of all federal programs. The first is the cost of operating the tax revenue system itself; these costs are captured in the general government functions reported by the Office of Management and Budget.⁴² This cost is largely fixed—that is, it does not vary greatly with changes in revenues or spending, whether in total or for such individual programs as defense—and relatively small.⁴³ Accordingly, it is ignored here. The second type of cost, however, appears nowhere in government budgets but is both substantial and unavoidable in the context of federal rev-

Gross domestic private investment is the most important contributor to GDP growth.

Table 4
Simple Correlations of Real GDP Growth and Contributions by Economic Sectors (quarterly, 2000–2011)

Sector	Correlation
Personal consumption expenditures	0.712
Gross private domestic investment	0.843
Net exports of goods and services	-0.227
Government consumption expenditures and gross investment	0.087
Federal	0.057
Defense	0.052
Non-defense	0.025
State and local	0.074

Source: Bureau of Economic Analysis, http://www.bea.gov/iTable/index_nipa.cfm, Table 1.1.2.

The economic cost of financing defense takes the form of a GDP that is smaller than otherwise would be the case.

enue operations. It is the real economic cost of the distortions created by the tax system, or the excess burden of that system, which takes the form of a GDP that is smaller than otherwise would be the case.

Federal tax instruments are applied to income of various classifications, to transactions, to capital assets, and the like. Those who bear the economic burdens of such taxes attempt, *ceteris paribus*, to avoid them in whole or in part, and so, particularly in the long run, the taxes affect economic behavior—for example, work effort, saving and investment, and transactions. Such distortions have the effect of lowering aggregate output below levels that would prevail in the absence of the taxes; that reduction in aggregate output, however hidden, is termed the “excess burden” of taxation.⁴⁴

These actions have nothing to do with tax evasion. Instead, because of the tax system, some transactions that would yield net benefits for the economy—work, investment, and so forth—are avoided, so that the private sector bears a cost greater than a dollar to send a dollar to the federal government.

This adverse economic effect of various federal tax instruments has been recognized broadly for many years, although there is a range of estimates on the magnitude of the effect. Martin Feldstein has noted that

the traditional method of analyzing the distorting effects of the income tax greatly underestimates its total deadweight loss as well as the incremental deadweight loss of an increase in income tax rates. . . . The true deadweight losses are substantially greater than [prior] conventional estimates because the traditional framework ignores the effect of higher income tax rates on tax avoidance through changes in the form of compensation . . . and through changes in the patterns of consumption⁴⁵

That excess burden is a real economic cost of all federal spending, including that for defense, and therefore should be included as a

cost of defense programs (and, indeed, all federal spending).⁴⁶ Feldstein finds that higher marginal tax rates used to finance additional federal spending would impose upon the economy an excess burden of \$0.76 per dollar of revenue; that is, that it would cost the private sector \$1.76 (the dollar of tax payments plus \$0.76 of economic losses) to send an additional dollar to the federal government, other things held constant.

Because that is a measure of the incremental cost of federal spending, it is reasonable to assume that the average excess burden of existing spending is less than \$0.76, because the incremental distortion is very likely to rise as spending and tax rates increase.⁴⁷ In other words, the taxes needed to fund existing spending impose an excess burden smaller than the taxes needed to fund increased spending. Therefore, it is reasonable to assume an excess burden figure smaller than the Feldstein estimate as part of the true cost of defense services.

The lowest, barely plausible assumption about the excess burden of the federal tax system is 20 percent; that is, the economic cost of a dollar of federal spending is at least \$1.20 in terms of the resulting reduction in the size of the private sector.⁴⁸ A more reasonable estimate of 35 percent is still conservative given the scholarly estimates of the excess burden of the federal tax system available in the literature.⁴⁹ For all federal taxes across a number of studies, the mean weighted average is about 45–50 percent.

In short, the tax system imposes an excess burden on the economy by distorting the allocation of resources in ways that reduce aggregate output; accordingly, the private sector becomes smaller by more than a dollar when it is forced to send a dollar to Washington. The cost of federal spending, therefore, is greater than the spending itself. In the narrow context of the defense budget and the tax system required to fund it, a reduction in annual defense outlays of \$100 billion can be predicted with high confidence to increase the size of the private sector by at least \$135 billion per year.

Conclusions

There are good reasons to believe that the current and prospective security environment confronting the United States will justify a force structure less expensive than the current force, particularly given the end and reduction, respectively, of substantial ground operations in Iraq and Afghanistan. This issue of the proper size and composition of the U.S. armed forces should be determined by a detailed analysis and delineation of U.S. interests vital, important, desirable, and marginal, and analyses of the threats to those interests, the forces necessary to defend them, and the appropriate division of responsibilities among the United States and its allies. Such an analysis lies outside the scope of this study; but the discussion at the beginning of this paper suggests that there has been a decrease in the aggregate demand for (or marginal value of) defense services. Instead, this paper has assumed that a reduction in defense outlays of \$100 billion per year over 10 years is implemented and examines the economic effects of that spending reduction.

A reduction in defense spending along those lines—and, crucially, in federal spending in total—would also reduce the economic costs of the excess burden that the tax system imposes upon the economy. Accordingly, a reduction in defense outlays of \$100 billion per year can be predicted, conservatively, to reduce economic costs by a total of \$135 billion per year.

As the public debate proceeds on federal spending in general, and the defense budget in particular, these potential savings in real resources are sufficiently large to justify a detailed analysis of U.S. national security needs and the outlays needed to defend them.

Notes

The author is indebted to William R. Allen, Lawrence A. Dougharty, Benjamin H. Friedman, Christopher A. Preble, and Simon Serfaty for useful suggestions, but the views expressed are those of the author alone.

1. This shift in the perceived security environ-

ment in Europe is a parameter separate from the issue of the proper allocation of defense burdens, both physical and pecuniary, among the members of NATO. Even with a continued Soviet threat, it might have been appropriate to shift some part of the alliance defense burden (however measured) to the European allies, thus yielding a possible decline in the size and cost of the U.S. force structure. For a short summary of this view not limited to Europe, see Christopher Preble, “Why Does U.S. Pay to Protect Prosperous Allies?” at http://www.cnn.com/2012/02/03/opinion/preble-military-budget/index.html?hpt=hp_bn9. For discussions of analytic approaches to this problem of burden-sharing—and the pitfalls inherent in the use of spending measures alone—see Charles A. Cooper and Benjamin Zycher, *Perceptions of NATO Burden-Sharing*, RAND Corporation R-3750-FF/RC, June 1989; and Benjamin Zycher, *A Generalized Approach for Analysis of Alliance Burden-Sharing*, RAND Corporation N-3047-PCT, September 1990.

2. The annual data are available at <http://siadapp.dmdc.osd.mil/personnel/MMIDHOME.HTM>. Active-duty manpower increased slightly from 1.37 million at the end of 2006 to 1.43 million at the end of 2010, and then fell to 1.41 million at the end of 2011. This modest increase obscures the considerable increase in the ground forces (the Army and Marine Corps) at the expense of the Air Force, Navy, and Coast Guard.

3. See Department of Defense, “Defense Budget Priorities and Choices,” January 2012, http://www.defense.gov/news/Defense_Budget_Priorities.pdf; and Jim Garamone, “Panetta Announces Fiscal 2013 Budget Priorities,” American Forces Press Service, U.S. Department of Defense, January 26, 2012, <http://www.defense.gov/news/newsarticle.aspx?id=66940>. The Army and Marine Corps had 480,801 and 172,934 active-duty personnel, respectively, as of September 30, 2001; see <http://siadapp.dmdc.osd.mil/personnel/MILITARY/history/milstr02.pdf>.

4. Note that counterinsurgency operations can be manpower-intensive in cases in which large land areas must be occupied, pacified, and made safe for civilians and allied forces for extended periods. Whether any given counterinsurgency operation would defend a vital U.S. interest, again, is a topic outside the focus of this paper. See Joint Chiefs of Staff, *Counterinsurgency Operations*, October 5, 2009, http://www.dtic.mil/doctrine/new_pubs/jp3_24.pdf; and *The U.S. Army/Marine Corps Counterinsurgency Field Manual* (Chicago: University of Chicago Press, 2007).

5. For useful discussions of the spending projections over the budget horizon, see Russell Rumbaugh, “The Reality of the Defense Builddown,”

Because of the tax system, the private sector bears a cost greater than a dollar to send a dollar to the federal government.

Stimson Center, http://stimson.org/images/uploads/builddown_one_pager.pdf; Todd Harrison, “Strategy in a Year of Fiscal Uncertainty,” Center for Strategic and Budgetary Assessments, February 2012, <http://www.csbaonline.org/publications/2012/02/trategy-in-a-year-of-fiscal-uncertainty/>; and Mackenzie Eaglen and Diem Nguyen, “Super Committee Failure and Sequestration Put at Risk Ever More Military Plans and Programs,” Heritage Foundation Backgrounder 2625, December 5, 2011, <http://www.heritage.org/research/reports/2011/12/debt-ceiling-deal-puts-at-risk-ever-more-military-plans-and-programs>. See also Christopher Preble, “Being a Global Power on \$469 bn a Year,” <http://www.cato-at-liberty.org/being-a-global-power-on-469-bn-a-year/print/>. For a brief discussion of the ongoing debate over the defense budget, see Elisabeth Bumiller and Thom Shanker, “Panetta to Offer Strategy for Cutting Military Budget,” *New York Times*, January 2, 2012, <http://www.nytimes.com/2012/01/03/us/pentagon-to-present-vision-of-reduced-military.html?pagewanted=all>. Because nondefense spending lies outside the topic at hand, it is ignored here; but the focus in this paper on defense outlays should not be interpreted to imply a view that nondefense spending should be immune from very substantial reductions.

6. Note that current budget proposals for fiscal year 2013 reflect some of the reductions in defense outlays that Friedman and Preble recommended in 2010, totaling \$1.2 billion over 10 years. Accordingly, for the purposes of this study, the savings against the new baseline are assumed to be \$1 trillion, or \$100 billion per year. See Benjamin H. Friedman and Christopher Preble, “Budgetary Savings from Military Restraint,” Cato Institute Policy Analysis no. 667, September 23, 2010, http://www.cato.org/pub_display.php?pub_id=12151.

7. The dollar figures are nominal (unadjusted for expected inflation). See FY 2013 Budget, Historical Tables, Table 5.1, <http://www.whitehouse.gov/sites/default/files/omb/budget/fy2013/assets/hist.pdf>.

8. See Department of Defense, “Fact Sheet: The Defense Budget,” http://www.defense.gov/news/Fact_Sheet_Budget.pdf.

9. See Department of Defense, “Defense Budget Priorities and Choices.”

10. The term “social capital” is used here in a broad sense to comprise the large benefits of civil society and its institutions, individual freedom, democratic processes, the rule of law, and the other protections and benefits of U.S. constitutional and political institutions. For an analysis of the economic effects of differences in the level of social

capital, see Stephen Knack and Philip Keefer, “Does Social Capital Have an Economic Payoff? A Cross-Country Investigation,” *Quarterly Journal of Economics* 112, no. 4 (November 1997): 1251–88, https://hec.unil.ch/docs/files/21/280/knack_keefer_1997.pdf.

11. If society deems a certain level of defense services (or outlays) to be necessary, those services might not be obtained even with the corresponding defense budget if there is inefficiency in the allocation of defense spending or in the implementation of defense programs. One second-best mechanism with which to compensate for this, if the inefficiencies cannot be corrected, say, because of institutional constraints, would be a defense budget larger than the efficient one. This possibility is ignored here.

12. See Friedman and Preble.

13. A substantial body of literature is available, with a wide range of findings of economic effects negative, positive, and insignificant attributable to (changes in) defense spending. See, e.g., Michael P. Gerace, “U.S. Military Expenditures and Economic Growth: Some Evidence from Spectral Methods,” *Defence and Peace Economics* 13, no. 1 (2002): 1–11; Uk Heo, “The Relationship between Defense Spending and Economic Growth in the United States,” *Political Research Quarterly* 63, no. 4 (2010): 760–70; H. Sonmez Atesoglu, “Defense Spending Promotes Aggregate Output in the United States—Evidence from Cointegration Analysis,” *Defence and Peace Economics* 13, no. 1 (2002): 55–60; Jesus Crespo Cuaresma and Gerhard Reitschuler, “A Non-Linear Defence-Growth Nexus? Evidence from the US Economy,” *Defence and Peace Economics* 15, no. 1 (2004): 71–82; John Dunne, Ronald Patrick Smith, and Dirk Willenbockel, “Models of Military Expenditure and Growth: A Critical Review,” *Defence and Peace Economics* 16, no. 6 (2005): 449–61; and Uk Heo and Robert J. Eger III, “Paying for Security: The Security-Prosperity Dilemma in the United States,” *Journal of Conflict Resolution* 49, no. 5 (October 2005): 792–817.

14. Note that the decline in the demand for security services must be accompanied by an increase in the demand for other goods and services, other factors held constant.

15. Note the implicit value judgment inherent in this brief analysis: The productivity or value of a given resource in a particular employment is determined by the aggregated preferences of individuals, as reflected in market prices. Shifts in such preferences determine shifts in those values. The structural unemployment resulting from these shifts, therefore, is an effect of the freedom of individuals to change their consumption decisions.

16. In other words, a given individual may be worse off as a result of a particular economic shift; but that individual is very likely to be better off in the broader context as a result of an economy that is larger, and because of the freedom to make choices in a competitive market.

17. Again, the fundamental normative judgment is that “value” is determined by individual preferences.

18. Note that because most government services are not traded in markets—typically, Congress offers agencies a lump-sum budget in exchange for a lump-sum basket of outputs—it is difficult to place a value on government services. Accordingly, the value of government services in the national income accounts usually is assumed to be the number of dollars spent on them respectively. This is a longstanding methodology fraught with problems, the analysis of which lies outside the scope of the issues addressed here.

19. Stephen S. Fuller, “The U.S. Economic Impact of Approved and Projected DOD Spending Reductions on Equipment in 2013: Summary of Research Findings,” http://armedservices.house.gov/index.cfm/files/serve?File_id=33a3bd4e-fcaa-4eef-bea6-12bd39265f9a. In an e-mail dated January 4, 2012, Fuller stated that only the summary paper has been distributed, in that the remainder of the analysis comprises the respective discussions of over 700 economic sectors analyzed in an input/output model. I criticize the Fuller analysis here not because it is necessarily more flawed than most such analyses, but instead because it is quite typical of that body of literature, and is the most recent that I have found. See, e.g., Atesoglu, pp. 55-60.

20. These are “losses in sales throughout the supply chain and . . . through the broader economy . . . [substantially] as a result of decreased consumer spending by workers directly and indirectly affected by these DOD spending reductions.”

21. Fuller argues in a separate interview that a “ten year defense budget cut will be felt in terms of layoffs starting in 2012, escalate and conclude by 2014.” See PR Newswire, “Analysis Projects One Million Jobs at Risk from Defense Cuts,” October 25, 2011, <http://www.prnewswire.com/news-releases/analysis-projects-one-million-jobs-at-risk-from-defense-cuts-132545243.html>. That essentially is a description of a structural shift in which labor is reallocated from the defense sector to other unspecified sectors, over some adjustment time period difficult to predict. Fuller does not delve into the larger productivity implications of this structural shift.

22. Perhaps a bit more rigorously, the lost productivity of the resources idled during the adjustment process is an economic cost of that process itself,

one that is productive for the economy as a whole.

23. Any such shift would imply a decline in the value of defense services relative to that of other government services, as determined by competition under political and democratic institutions.

24. The Fuller analysis yields an estimate of \$86.5 billion in reduced GDP for 2013.

25. John F. Cogan et al., “New Keynesian versus Old Keynesian Government Spending Multipliers,” *Journal of Economic Dynamics and Control* 34, no. 3 (March 2010): 281–95.

26. Andrew Mountford and Harald Uhlig, “What Are the Effects of Fiscal Policy Shocks?” *Journal of Applied Econometrics* 24, no. 6 (September/October 2009): 960–92.

27. See Robert J. Barro and Charles J. Redlick, “Macroeconomic Effects from Government Purchases and Taxes,” National Bureau of Economic Research Working Paper no. 15369, rev. December 5, 2011, <http://www.nber.org/papers/w15369>.

28. Valerie A. Ramey, “Identifying Government Spending Shocks: It’s All in the Timing,” *Quarterly Journal of Economics* 126, no. 1 (February 2011): 1–50.

29. Robert E. Hall, “By How Much Does GDP Rise If the Government Buys More Output?” *Brookings Papers on Economic Activity*, Fall 2009, pp. 183–231.

30. Anton Parlow, “Economic Growth, Defense Spending and Conflict: A Case Study of the U.S.,” working paper, Department of Economics, University of Wisconsin, Milwaukee, https://pantherfile.uwm.edu/aparlow/www/papers/conflict_1.pdf.

31. Valerie A. Ramey, “Government Spending and Private Activity,” National Bureau of Economic Research Working Paper no. 17787, January 2012, <http://www.nber.org/papers/w17787>.

32. See Valerie A. Ramey, “Can Government Purchases Stimulate the Economy?” *Journal of Economic Literature* 49, no. 3 (September 2011): 673–85.

33. See Bureau of Economic Analysis, http://www.bea.gov/iTable/index_nipa.cfm, at Table 1.1.2.

34. See Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, Table 8.4.

35. See FY 2013 Budget, Historical Tables.

36. See Bureau of Economic Analysis, http://www.bea.gov/iTable/index_nipa.cfm at Table 1.1.6. This correlation means that a 1 percent change in

one of the parameters is associated statistically (but not necessarily in a causal sense) with less than a 0.09 percent change in the other, in the same direction. The correlations for 1981–2000 are discussed below.

37. See Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, at Table 8.2.

38. Recall from the discussion above that the correlation for 2000–2011, based upon the quarterly data, was less than 0.09. See the discussion of Figure 1.

39. Barro and Redlick, fn. 51.

40. See Bureau of Economic Analysis, http://www.bea.gov/iTable/index_nipa.cfm, Table 1.1.2.

41. Ibid. Obviously, expected GDP growth drives private investment also; but the contributions data belie the assertion that shifts in defense spending growth are an important source of shifts in GDP growth.

42. See Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, Table 3.2.

43. The total general government function estimated for fiscal year 2012 is \$31.8 billion, out of total federal outlays of about \$3.8 trillion. The budget proposed for the Internal Revenue Service for fiscal year 2013 is about \$12.8 billion. See, respectively, Office of Management and Budget, <http://www.whitehouse.gov/omb/budget/Historicals>, Table 3.2, and the Internal Revenue Service at <http://www.irs.gov/newsroom/article/0,,id=254281,00.html>.

44. Strictly speaking, the excess burden (or “deadweight loss”) is the difference between aggregate output under the existing tax system and aggregate output under a different system of “lump-sum” taxes that would yield the same revenues without distorting economic activity. Because government output is not worthless, a zero-tax, zero-outlay, zero-excess burden environment in principle might yield aggregate output

lower than that observed under the existing tax system even though, again, the excess burden of taxation would be zero. See also Jonathan Gruber, *Public Finance and Public Policy* (New York: Worth Publishers, 2005), p. 547.

45. Martin Feldstein, “Tax Avoidance and the Deadweight Loss of the Income Tax,” *Review of Economics and Statistics* 81, no. 4 (November 1999): 674. See also Jon Gruber and Emmanuel Saez, “The Elasticity of Taxable Income: Evidence and Implications,” *Journal of Public Economics* 84, no. 1 (April 2002): 1–32.

46. Martin Feldstein, “The Effect of Taxes on Efficiency and Growth,” National Bureau of Economic Research Working Paper no. 12201, May 2006; Martin A. Feldstein, “The Effect of Taxes on Efficiency and Growth,” *Tax Notes*, May 8, 2006, pp. 679–684; and Christopher J. Conover, “Congress Should Account for the Excess Burden of Taxation,” Cato Institute Policy Analysis no. 669, October 13, 2010. See also William A. Niskanen, “The Economic Burden of Taxation,” in Mark Wynne, Harvey Rosenblum, and Robert Formaini, eds., *The Legacy of Milton and Rose Friedman’s Free to Choose: Economic Liberalism at the Turn of the 21st Century*, Dallas: Federal Reserve Bank of Dallas, 2004; and the Report of the President’s Advisory Panel on Federal Tax Reform, November 1, 2005, p. 36, www.taxreformpanel.gov/final-report/. See also Benjamin Zycher, “A Preliminary Benefit/Cost Framework for Counterterrorism Public Expenditures,” Rand Corporation MR-1693-RC, May 2003.

47. A crude rule of thumb is that the excess burden of a tax increases as the square of the tax rate.

48. The Office of Management and Budget since 1992 has directed federal agencies to include a 25 percent adjustment for the excess burden of the federal tax system in benefit/cost analyses of public investment. See Office of Management and Budget Circular no. A-94 rev., “Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs,” October 29, 1992, http://www.whitehouse.gov/omb/circulars_a094#11.

49. For a good summary of the various excess burden estimates for several federal tax instruments, see Conover, Table 1.