BACKGROUNDER

Causes of the Federal Government's Unsustainable Spending

Paul Winfree

Abstract

Government spending is outpacing the economy at an unsustainable rate. By analyzing the long-run fiscal trends between spending and revenue, this paper examines the factors driving the federal budget's underlying unsustainability. The findings suggest that just 2 percent of all spending accounts within the federal government are unsustainable. But while the problem is contained, it is significant, as projected spending from those accounts is equivalent to 60 percent of gross spending over the next 10 years, with spending on public health care contributing the largest component to the fiscal imbalance. Unless the growth in spending on public health care programs slows, the federal budget will remain unsustainable, severely limiting future fiscal choices.

In all but five of the past 50 years, the budget of the United States has been in cash deficit.[1] For example, in 2015, the federal government ran a cash deficit of $438 billion—after collecting $3,250 billion in revenues and spending $3,688 billion.[2] The continuous level of deficit spending has increased public debt, which, during the same period, rose from 33.7 percent to 73.6 percent of the gross domestic product (GDP).

However, historical, or even current, levels of deficits and debt are insufficient measures of whether a government will spend beyond its means in the future. Whether a government's future fiscal path is sustainable is contingent on future growth in spending and revenues—not current debt. Even with no debt, a government's budget can be unsustainable; likewise, a budget could be sustainable even if the debt is immense.[3] Furthermore, short-term deficits based on

KEY POINTS

- Whether a government's future fiscal path is sustainable is contingent on future growth in spending and revenues—not only current debt.

- The U.S. fiscal situation has reached a point where it will be nearly impossible to increase economic growth to a level that will set the budget on a fiscally sustainable path.

- Only 2 percent of nearly 1,800 spending accounts funding all government activities drive the long-run unsustainability.

- While the problem is contained, it is large, as spending from those accounts is equivalent to 60 percent of gross spending over the next 10 years, with spending on public health care programs contributing the largest component to fiscal unsustainability.

- Reducing health care spending growth is a necessary, but not sufficient, condition to dealing with the federal budget's underlying unsustainability.

short-term policy changes, such as spending on war or fiscal stimulus, may add to the debt without necessarily changing a government's fiscal sustainability.[4] As economist Jeffery Miron points out: "The deficit is...an incomplete measure of fiscal imbalance because it fails to account for future expenditures and revenues implied by current policies."[5]

Measures of deficit and debt, however, are far from meaningless. The conventions of federal budgeting adopted by the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) require the government's financial position to reflect the standards of cash accounting. Expenditures are recorded when money is paid and revenues recorded as money comes into the U.S. Treasury. Measures of spending, revenues, deficit, and debt provide a snapshot into the government's current and past fiscal position. Yet, they do not provide a measure of the government's future financial position.

Determining whether the federal budget is sustainable presents a number of challenges. Economists can tell somewhat accurate stories of the past, but predicting the future is another matter altogether. Foresight—let alone foresight into the distant future—is not easy. That said, tools are available to provide some insight into a government's financial sustainability. For instance, methods of accrual budgeting convert projections of future cash flows into measures of fiscal sustainability.[6] The long-run

fiscal gap between spending and revenues is quantifiable as a net present value.[7] Recent estimates of the U.S. federal government's sustainability measured as future obligations minus revenues are around 10 percent of the net present value of GDP over an infinite time horizon.[8]

However, these methods have their disadvantages. First, they take present projections of cash budgeting at face value. There are reasons to believe that certain expenditure projections by the CBO, such as spending on public health care programs, are underestimated. Second, they are heavily dependent on discount rates that can result in differences of tens of trillions of dollars depending on the assumptions. Finally, these methods provide an estimate of the size of the problem, but rarely point to the cause.

In the real world, policy choices are relevant to the sustainability of the system. Not all revenue increases or spending reductions are equal. And as this paper will examine, all revenue increases, and almost all spending reductions, are insufficient to meaningfully change the long-term fiscal sustainability of the federal government.

In order to determine whether the fiscal condition of the federal government is sustainable, three questions must be answered. First, can government revenues keep up with government spending? The first part of this study will demonstrate that revenue growth cannot keep up with spending if spending increases at a rate faster than the economy is grow-

1. Congressional Budget Office, "Historical Budget Data Supplement to CBO's March 2016 Report Updated Budget Projections: 2016 to 2026," https://www.cbo.gov/about/products/budget_economic_data (accessed May 28, 2016).

2. All references to years are to fiscal years.

3. There is a point in time when a high level of debt is associated with slower growth, and this point is different for each country. Carmen M. Reinhart and Kenneth S. Rogoff, "Growth in a Time of Debt," *American Economic Review*, Vol. 100, No. 2 (May 2010), pp. 573–578.

4. Debt service payments for public debt are a large and growing portion of the U.S. federal budget. There may come a point, perhaps with a quick onset, where debt service payments will become increasingly more difficult to pay without crowding out other resources. This paper is interested in the underlying drivers of fiscal sustainability rather than only the legacy costs to high amounts of previous debt issuance. However, debt service payments likely also contribute to long-run fiscal sustainability, but are very much dependent on the underlying drivers of spending and revenues.

5. Jeffery Miron, "U.S. Fiscal Imbalance Over Time: This Time Is Different," CATO Institute, 2016, http://object.cato.org/sites/cato.org/files/pubs/pdf/us-fiscal-imbalance-time_3.pdf (accessed May, 28, 2016).

6. Donald B. Marron, "Measuring and Managing Federal Financial Risk: A View From the Hill," in *Measuring and Managing Federal Financial Risk* (Chicago, IL: University of Chicago Press, 2010).

7. One criticism of accrual accounting as a measure of long-run sustainability is that it ignores the government's power to collect more revenue. However, the same can be said for its power to reduce spending. The government always has the power to change current law. What the government does not have the power to do is generate revenues faster than the economy over a sustainable period of time as this paper demonstrates. That power, in fact, is governed by a higher law. Jón R. Blöndal, "Issues in Accrual Budgeting," *OECD Journal on Budgeting*, Vol. 4, No. 1 (2004).

8. Miron, "U.S. Fiscal Imbalance," p. 24.

ing in the long run. Second, will the growth in government spending slow down on its own? This study suggests that the answer will depend on the type of public spending. Third, what parts of the budget are unsustainable?

The sources and underlying causes of the unsustainability are fairly contained within the U.S. budget. This study estimates that only 2 percent of nearly 1,800 spending accounts funding all government activities drive the long-run unsustainability. But while the problem is contained, it is large, as spending from those accounts is equivalent to 60 percent of gross spending over the next 10 years, with spending on public health care programs contributing the largest component to fiscal unsustainability. This fact is particularly concerning given that, as this study will examine, the growth in spending on public health care programs is unlikely to slow to a sustainable rate without structural reforms.

Consequently, there are two options for dealing with the underlying fiscal unsustainability: Governments can either reduce the growth in public expenditures or devalue their currencies. However, if many large economies face the same fiscal outlook and are tempted down the latter road, the effectiveness of monetary policy will be significantly muted. Furthermore, unless the growth in spending is reduced, currency devaluation is only a short-term option—a fact that further emphasizes spending restraint as the most viable method of addressing fiscal sustainability.

The Limit of Revenue Growth

Governments collect revenue and issue debt to fund public expenditures. Over the long run, revenues will need to be raised, or currency devalued, to pay for current debt issuance. Therefore, issuing debt to pay for current expenditures is a tax on either future taxpayers or those saving money to spend in the future.

The focus of this section is on revenues (either current or in the future) as a source of financing spending rather than currency devaluation. It demonstrates that the level of spending on certain government programs is unsustainable if financed by revenues. This is true both in the United States and abroad. However, the main focus of this paper is on the U.S. and its budget.

The definition of revenues is nearly universal. The Federal Accounting Standards Advisory Board (FASAB), an advisory committee in the U.S. charged with developing generally accepted accounting principles (GAAP) used by government agencies, defines revenues as "an inflow of resources that the government demands, earns, or receives by donations."[9] Revenues reported by the Organization for Economic Co-Operation and Development (OECD), including the U.S., follow definitions in the *System of National Accounts, 1993*, which include a series of revenue sources mostly from different types of taxation.[10] In the U.S., most federal revenues (80 percent in 2015) are derived from the individual income taxes and payroll taxes.[11] Revenues can also include money collected by the government through a tax on sales, duties, fines, or penalties.[12]

At a basic level, revenues amount to what a government collects from the private economy in order to fund activities. Government activities can include the compensation of employees, administration of programs, sending money to states and local governments, reimbursing doctors and hospitals for medical expenses, providing direct loans and loan guarantees, distributing cash assistance, subsidizing farmers, and maintaining a military in addition to many other activities. Together, private activities (consumption and investment) and government activities (consumption and investment), along with net imports, define gross domestic product or the size of the total economy.

9. Federal Accounting Standards Advisory Board, "Accounting for Revenue and Other Financing Sources and Concepts for Reconciling Budgetary and Financial Accounting," Statement of Recommended Accounting Standards Number 7, p. 12, http://www.fasab.gov/pdffiles/sffas-7.pdf (accessed May 28, 2016).

10. Organization for Economic Co-operation and Development, "The System of National Accounts, 1993- Glossary," https://www.oecd.org/std/na/2674296.pdf (accessed May 28, 2016).

11. Congressional Budget Office, "The Budget and Economic Outlook: 2016 to 2026," Table 3, p. 7, https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51384-MarchBaseline.pdf (accessed May 28, 2016).

12. U.S. Government Accountability Office, *A Glossary of Terms Used in the Federal Budget Process*, GAO–05–734SP, September 2005, http://www.gao.gov/new.items/d05734sp.pdf (accessed May 28, 2016).

When it comes to calculating government revenue, two broad metrics matter: (1) the total amount of revenues collected from the private economy to fund the government's activities, and (2) the rates at which revenues grow over time.

Each of these issues has a bearing on the question of how revenues (R) relate to the size of the GDP. There is significant literature on the relationship between the level of revenues collected and the size of the economy,[13] as well as how different types of tax systems can affect the size of the economy.[14] However, if one is considering the sustainability of government spending financed by revenues, the relationship between the change in revenues (△R) and the change in size of the economy (△GDP) is also important.

Specifically, how does ΔR grow relative to ΔGDP? Can ΔR grow faster than ΔGDP for any length of time? Presumably, since revenues amount to what is collected from the private economy, there is a natural limit to both R and ΔR. As R approaches GDP, ΔR must approach 0. But will ΔR slow much before R reaches GDP? In other words, is there a limit at which $\Delta R = \Delta GDP$ before R reaches GDP?

Simple logic can shed some light on this matter as revenue maximization is likely to occur at some point far before government taxation is equivalent to the entire potential private economy. Call this the law of the golden goose. If the government extracts too much, the private economy will shrink and the revenue source will dry up. In other words, under this scenario R = GDP = 0. Since $\Delta R > \Delta GDP$ is unsustainable in the long run under the law of the golden goose, the highest sustainable revenue growth scenario is one in which $\Delta R = \Delta GDP$.

But what is the "long run" in which $\Delta R > \Delta GDP$ is unsustainable? Surely, modern economies can absorb a few years of unsustainable growth rates while transitioning to a new tax level. Furthermore, do the inflows to government treasuries tend to hang in a steady state of $\Delta R = \Delta GDP$ in between transitions or do tax revenues grow indefinitely with the imposition of tax system changes?

These questions can be examined empirically. Table 1 answers the question of "how long is the long run?" using the OECD's databases that collect relevant financial data from 1965 until 2014.[15] For the average OECD country, the long run typically lasts about 2.5 years, but there are unusual times when $\Delta R > \Delta GDP$ for 10 years or more. For instance, during recessions or major fiscal changes, it is not unusual for one of the sample countries to experience longer periods in which $\Delta R > \Delta GDP$. Over the entire period of study (1965–2014), $\Delta R > \Delta GDP$ about 55 percent of the time. In other words, revenues may grow faster than the economy for a short period, but eventually they return back to $\Delta R = \Delta GDP$.[16]

There are implications to the sustainability of government spending financed through revenue if the steady state of revenue growth is equivalent to economic growth. For one, if government spending is designed to grow faster than the economy it is, by definition, unsustainable. In other words, the change in total government spending (ΔS_T, where "T" denotes total government spending) cannot exceed $\Delta R = \Delta GDP$ in the long run.

This relationship (i.e., $\Delta S_T \leq \Delta R \leq \Delta GDP$) holds true even for government investments in physical and human capital. Indeed, such investments can grow capital stock (and therefore GDP), but if $\Delta S_T > \Delta GDP$ the system becomes unsustainable as debt accumulates to pay for the difference between ΔS_T and ΔR.

This relationship is also true for government spending for any single program. For instance, if $\sum S_i = S_T$ (where "i" denotes a government program), in the long run $\Delta S_i \leq \Delta R$. However, long-run sustainability will differentiate significantly based on the size of the program and the rate of growth (or S_i / S_T and $\Delta S_i / \Delta S_T$). If S_i is small relative to S_T, but ΔS_i is relatively large, it may not have much of an effect on ΔS_T—especially if there are other programs of equal or larger size grow-

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13. Christina D. Romer and David H. Romer, "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks," *American Economic Review*, Vol. 100, No. 2 (June 2010), pp. 763–801.

14. Taxes on consumption are less distortionary than taxes on capital and labor. Therefore, moving to a consumption tax base is likely to increase the size of the economy while allowing for the same amount of revenue generation.

15. The data goes back to 1965 for most countries. For a small subset it goes back only to 1995.

16. Under the model presented in this study ΔR cannot exceed ΔGDP over the long run. In that $\Delta R > \Delta GDP$ about 55 percent of the time is most likely dependent on the time period under investigation (1965–2015). If more data was available, it is likely that $\Delta R = \Delta GDP$.

TABLE 1

Consecutive Years in Which Revenue Grew Faster than GDP

Country	Mean	Median	Maximum	Periods of Maximum Growth
Japan	5.3	4	14	1976-1989
Denmark	3.8	4	6	1983-1988, 2009-2014
United States	3	2	8	1993-2000
Portugal	3	3	5	1966-1970, 1988-1992
Spain	2.9	1.5	13	1977-1989
Greece	2.9	3	7	1981-1987, 1990-1996
Norway	2.9	2.5	6	1997-2002
France	2.8	2	7	1979-1985
Sweden	2.8	2	7	1994-2000
Iceland	2.8	2	5	2010-2014
Australia	2.8	3	4	1973-1976, 1979-1982, 1984-1987, 1993-1996
Chile	2.8	3	4	2004-2007
Italy	2.7	2	8	1986-1993
Belgium	2.7	2	7	1973-1979
Korea	2.7	2.5	6	1998-2003
United Kingdom	2.7	2	5	1966-1970, 1997-2001
Switzerland	2.6	2	6	1972-1977
Ireland	2.6	3	5	1980-1984
Luxembourg	2.5	1	8	1971-1978
Netherlands	2.4	2	6	1970-1975
Austria	2.4	2	5	1971-1975
Turkey	2.3	1.5	7	1995-2001
Slovenia	2.3	1.5	5	2001-2005
Germany	2.2	2	5	2005-2009
Czech Republic	2.2	1	4	2001-2004, 2010-2013
Finland	2.2	2	4	1970-1973, 2011-2014
Mexico	2	2	4	2010-2013
New Zealand	2	2	4	1992-1995
Canada	1.9	1	5	1966-1970
Poland	1.8	2	3	2005-2007
Estonia	1.6	1	4	2006-2009
Israel	1.6	2	2	2005-2006, 2010-2011, 2013-2014
Hungary	1.2	1	2	1999-2000
Slovak Republic	1	1	2	2013-2014
Total Average:	**2.5**	**2.1**	**5.7**	

SOURCE: Author's calculations using data reflecting total revenues collected from the OECD. The data for the United States includes revenues collected by state governments. Data are available for most countries from 1965 to 2014. Data for Korea are available beginning in 1972; for Mexico, data are available beginning in 1980; for Hungary and Poland, data are available beginning in 1991; for Israel, the Slovak Republic, and Slovenia data are available beginning in 1995.

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ing at an offsetting rate. But as S_i / S_T approaches 1 (a program that consumes a relatively large proportion of total government spending), ΔS_i has a much larger effect on ΔS_T as well as the period of time in which government spending is sustainable.

Finally, the fiscal balance of the government is also critical to the sustainability of ΔS_T and ΔS_i. If the government is in fiscal budget surplus (that is

when $S_T < R$), $\Delta S_T > \Delta R$ will not result in an increase in debt in the short run. If the government is in fiscal budget deficit (when $S_T > R$), both $\Delta S_T > \Delta R$ *and* $\Delta S_i > \Delta R$ will result in an increase in debt.
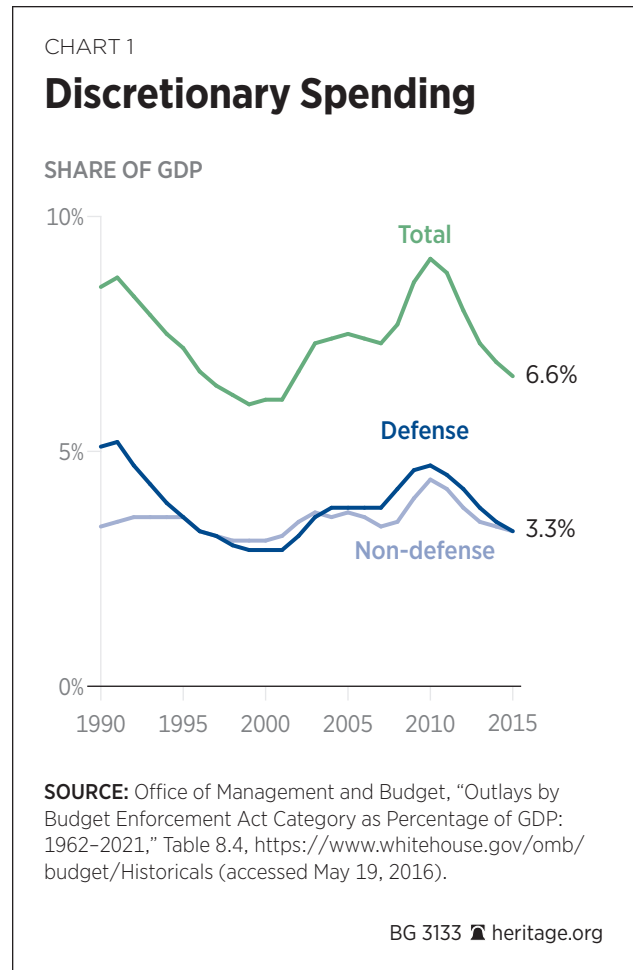
Implications for the U.S. Federal Budget

Neoclassical models of public-sector growth suggest that as an economy grows (and a popula-

tion becomes richer) the size of the government will grow as a percentage of the economy. This relationship was formalized by Wagner's law in the 1880s, but has since been expanded upon by Peacock and Wiseman (1961), Musgrave (1959), and many others.[17] Furthermore, an entire literature has grown over the past 40 years on the political drive to spend greater amounts. For example, Buchanan (1975) considered the public choice causes of higher spending, while Stigler (1970) considered the distribution of that spending.[18] Much of this literature is focused on an examination of the aggregate levels of government expenditure rather than the rate of government expenditure relative to economic growth. By definition these models imply that government spending will increase faster than the economy for some period of time. However, these models also acknowledge a limit on the growth of government spending.

The important question for the study considered here, however, is whether government spending growth will slow down relative to economic growth. One can assume a limit on growth, but what is enforcing such a limit? And furthermore, will spending growth slow prior to a point when high levels of debt and future deficit spending trigger significant increases in interest spending? Examining what the government spends money on will help answer these questions.

About one-third of the federal budget is appropriated on an annual basis. In essence, the government regularly revisits spending decisions for this portion of federal spending. Since the early 1990s, there have been periods of statutory limits applied to this part of the budget. Specifically, from fiscal years 1991 through 2002 and then again from 2011 through 2021, limits on total discretionary spending restrained (or are expected to restrain) growth over the period. Between 2002 and 2011, when limits

CHART 1

Discretionary Spending

SHARE OF GDP

SOURCE: Office of Management and Budget, "Outlays by Budget Enforcement Act Category as Percentage of GDP: 1962–2021," Table 8.4, https://www.whitehouse.gov/omb/budget/Historicals (accessed May 19, 2016).

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were not applied, total discretionary spending grew faster than the economy.

Spending limits and annual appropriations schedules do not automatically imply that the discretionary budget is always sustainable. As the chart demonstrates, the U.S. government has allowed fiscal rules to lapse. Anderson and Minarik (2006) note that "[s]cholars have considered the effectiveness of fiscal rules, and have concluded that countries that practice fiscal discipline without rules do not need

17. Alan T. Peacock and Jack Wiseman, "The Growth of Public Expenditure in the United Kingdom," National Bureau of Economic Research, No. 72, 1961, http://www.nber.org/chapters/c2302.pdf (accessed May 28, 2016), and Richard A. Musgrave, *The Theory of Public Finance: A Study in Public Economy* (New York: McGraw-Hill, 1959).

18. James Buchanan, *The Limits of Liberty: Between Anarchy and Leviathan* (Indianapolis, IN: Liberty Fund), p. 200. "Because taxes cannot readily be lowered in a differential manner, there is a public-goods barrier which inhibits independent politician initiative toward tax reduction. By contrast, because the benefits from government spending may be differentially directed toward particular subgroups in the community, politicians are motivated to initiate the formation of coalitions that will exploit these latent demand opportunities…. Because of the asymmetry in the effective fiscal constitution, aggregate spending will tend to be inefficiently large if the ultimate demands of the voters-taxpayers-beneficiaries could be accurately reflected in final outcomes." George J. Stigler, "Director's Law of Public Income Redistribution," *Journal of Law and Economics*, Vol. 13 No. 1 (1970), pp. 1–10.

them, and that countries that flout rules will not achieve fiscal discipline with them."[19] However, the U.S.'s experience with fiscal rules and discretionary spending limits has shown that the government can control the growth in discretionary spending—if there is the political will to do so.

A smaller portion of the federal budget, about 8 percent of total gross spending in 2015, operates from user charges and is essentially self-financing. For most programs, the federal government exercises its sovereign power granted by the Constitution to collect revenues. But some programs provide special benefits to a subset of the population. In these cases, the government collects a user charge that is typically associated with the cost of producing the good or service. According to the Office of Management and Budget, user fee programs do not have "special social or distributional benefits."[20] Spending is, therefore, self-contained to the amount of revenues collected from those interacting with the program.[21]

Two-thirds of the federal budget is neither annually appropriated nor subject to spending limits. The budget under this category is referred to as mandatory spending and it covers many of the public health care programs (including Medicare and Medicaid), Social Security benefits, federal retirement, many low-income support programs, and interest payments on the debt. These programs are, therefore, especially susceptible to becoming unsustainable.

There is a partial check on spending growth for a subset of mandatory spending including a portion of Medicare (Hospital Insurance) and Social Security. Specifically, programs that are funded through a trust fund, rather than general revenues, have built in constraints. When the trust fund balances become depleted, program payments cannot exceed revenues into the trust fund; for instance, in the case of Medicare (Hospital Insurance) and Social Security, payments cannot exceed payroll tax revenues.

Therefore, under current law $\Delta S_i \leq \Delta R_{\text{PAYROLL\_TAX}}$ once the trust fund is depleted.

However, for the purposes of estimating the cost of the program over the long run, ΔS_i can exceed $\Delta R_{\text{PAYROLL\_TAX}}$. Indeed, even though current law might seem to require $\Delta S_i \leq \Delta R_{\text{PAYROLL\_TAX}}$ it is still possible that $\Delta S_i \geq \Delta R_{\text{PAYROLL\_TAX}}$ for entitlement programs given that current law also requires benefits to be awarded. The rules establishing the current law baseline acknowledge this relationship by requiring the CBO and OMB to assume that "laws providing or creating direct spending and receipts are assumed to operate in the manner specified in those laws for each such year and funding for entitlement authority is assumed to be adequate to make all payments required by those laws."[22]

This structure provides a formula for assessing whether program spending, and therefore, the federal budget, is sustainable. Growth in program spending that exceeds growth in the economy over the long run is unsustainable, whereas spending that grows slower than the economy is sustainable. Furthermore, reductions in spending for programs that already grow at rates slower than the economy will not significantly affect the sustainability of the budget. Reductions in spending for slow-growing programs or tax increases to fund fast-growing programs do not increase the sustainability of the government's budget.

Table 3 lists federal programs that are currently spending at unsustainable rates. This determination was made by comparing the average annual estimated growth in spending for each spending account with the average annual estimated growth in GDP over the 2017 to 2026 period.[23] There are 1,788 spending accounts (defined as having a unique Treasury Identification Code or TID) that account for all federal spending in the CBO March 2016 baseline.[24] Of the total, there are 943 discre-

19. Barry Anderson and Joseph J. Minarik, "Design Choices for Fiscal Policy Rules," *OECD Journal on Budgeting*, Vol. 5, No. 4 (2006), http://www.oecd.org/gov/budgeting/43479409.pdf (accessed May 28, 2016).

20. U.S. Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2017: Analytical Perspectives* (Washington, DC: U.S. Government Publishing Office, 2016), p. 214, https://www.whitehouse.gov/sites/default/files/omb/budget/fy2017/assets/spec.pdf (accessed May 28, 2016).

21. This does not prevent agencies from charging user fees sufficient to pay for spending. Therefore, it is possible for user fees and spending to grow faster than inflation for some period of time.

22. 2 U.S. Code § 907.

23. The 10-year budget window provided by the CBO as part of the March 2016 baseline.

24. This includes accounts with "negative spending" from offsetting collections and receipts.

TABLE 2

What Makes a Program's Spending Sustainable?

AVERAGE ANNUAL GROWTH

FAST (Spending > GDP)	SLOW (Spending ≤ GDP)
UNSUSTAINABLE	SUSTAINABLE

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tionary spending accounts and 845 mandatory spending accounts. Out of the mandatory spending accounts, only 35—or about 2 percent of all spending accounts—are expected to grow faster than the GDP.[25] However, expected spending from these accounts is 60 percent of total gross outlays over the next 10 years.

Even though they are currently spending at unsustainable rates, not all of the programs listed in Table 3 are unsustainable. A handful of programs are linked to special payments associated with a fixed amount of revenues. The program payments represent the liquidation of those accounts, but once the money is gone it is unlikely to be replenished. For instance, spending from the Gulf Coast Restoration Trust Fund is expected to increase by an average of 17.7 percent per year over the next decade. That spending is tied to the penalties assessed on British Petroleum (BP) for their involvement in the Deepwater Horizon incident.[26] Another example is the risk-adjustment programs created by the Affordable Care Act of 2010, which collect money from some insurance companies to distribute it to others. These programs are, by design, intended to be budget neutral.[27] A third example is the Recreation Fee Permanent Appropriation for the Department of Interior, which

is limited by the park service fees collected and retained by the National Park Service.

There are also spending accounts listed in Table 3 where spending growth could be contained in the future. For instance, the Unemployment Trust Fund (UTF) receives revenues from the states collected through unemployment taxes on employers. A portion of the spending from the UTF is associated with states withdrawing from their accounts maintained within the UTF to pay for unemployment benefits. In addition, a federal unemployment tax on employers funds administrative costs. However, the UTF is also used to pay for the federal-state extended benefits program and the Emergency Unemployment Compensation program, both of which are not funded through state contributions or the federal unemployment tax. Spending from the UTF should remain on the list of programs to watch given the funding of the extended benefits and emergency compensation programs.

According to the definition presented in this paper, 24 spending accounts are unsustainable. This number excludes spending that will reduce automatically once the revolving funds are liquidated, spending that is funded through user charges or auction proceeds, or programs that are designed to be budget neutral. (See the accounts not highlighted in Table 3.) All other programs funded by the federal government either do not contribute to the fiscal unsustainability of the budget or the spending course could be reversed relatively easily (e.g., total discretionary spending could be contained to grow less than GDP over some period of time).

Not all high-growth programs affect the current level of fiscal sustainability in the same way. For instance, retirement pay and medical benefits for commissioned officers are expected to grow relativity quickly over the next 10 years (2.2 percentage points faster than the economy), but the federal government will spend only $8.2 billion over that period on the programs. Federal grants to states for Medicaid are expected to grow slower in comparison (only 0.5 percentage point faster than the economy), but the government will spend $5,013 billion over the next 10 years on the payments.

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25. The CBO's March 2016 baseline assumes that nominal GDP will grow by an average of 4.1 percent over the next 10 years.

26. Public Law 112–141 § 1604, the legislation establishing the Gulf Coast Restoration Trust Fund, explicitly states that the fund expires after all eligible civil and administrative penalties have been deposited and those funds have been expended.

27. Public Law 111–148 § 1341 and § 1343 create the temporary reinsurance programs and the permanent risk-adjustment program.

Chart 2 organizes each of the programs by the administering agency and then weighs the growth rates by program spending relative to total spending. The percentages included in Chart 2 represent the contribution of the programs by agency to the expected long-run deficit. The larger the percentage, the greater the contribution towards the budget's unsustainability.

The programs are aggregated by agency because many analysts prefer referring to reforms of agencies rather than programs. For instance, the fiscal year 2017 budget resolution adopted by the House Committee on the Budget recommended eliminating the Department of Commerce (DOC).[28] Chart 2 suggests that eliminating the DOC and activities administered by the department would not have an impact on the long-run sustainability of the government's expenditure portfolio.

While program spending under the Department of Defense (DOD) is not included, it should be further examined.[29] From 2000 through 2010, national defense spending grew faster than the economy; however, since then, such spending has since grown slower than GDP and therefore is considered sustainable by the definitions presented in this paper. However, in 57 of the 71 years—80 percent of the time—since the end of World War II, defense spending has grown more quickly than the economy.[30] That trend, if continued, is unsustainable. There are also programs within the DOD that will eventually limit the government's ability to stabilize the defense budget unless spending growth on those programs is reduced. Specifically, payments into the Medicare-eligible retiree health funds for each of the armed service branches are expected to grow on average 0.9 percentage point faster than GDP over the next 10 years.

The public health care programs administered by the Department of Health and Human Services, however, pose a serious threat to long-run fiscal sustainability. The next section examines a few of the reasons why public health care programs are of such concern.

Public Spending on Health: The Greatest Threat to Fiscal Sustainability

A healthy population will increase the productivity of the workforce, which, in turn, increases economic output. Health has, therefore, been shown to have a significant effect on the economic growth potential of a country.[31] Healthier people live longer, are more productive, work more, and are generally happier. In the *Theory of Moral Sentiments*, Adam Smith asked, "[W]hat can be added to the happiness of a man who is in health, out of debt, and has a clear conscience?"[32]

The key to a stable public health care policy is ensuring that good health and debt are not mutually exclusive. But how is good health achieved without going into debt? Or perhaps more important, how is poor health avoided? Public spending on medical technologies has played a critical role in both increasing health and public debt.

By preventing illness (and death), medical technologies can act as insurance against future poor health. Specifically, investments today prevent poor health tomorrow.[33] As such, the availability of new medicine (including a better understanding of general physiology and genetics) is critical to reducing the size of the left tail of the distribution of health.

The timing of the investment is critical in determining its effect on an individual's overall health. Analysis of historical data on the health of Civil War veterans (measured by the prevalence of chronic conditions, waist-hip ratio, and body-mass index) shows that conditions experienced at an early age

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28. U.S. House of Representatives Committee on the Budget, "Concurrent Resolution on the Budget – Fiscal Year 2017," Report 114-470, pp. 103–104, http://budget.house.gov/uploadedfiles/fy2017_budget_resolution.pdf (accessed June 3, 2016).

29. Such spending is not on the list because most of the DOD's spending is annually appropriated and aggregate growth can generally be limited on a year-by-year basis.

30. U.S Office of Management and Budget, Historical Tables, Table 3.1, https://www.whitehouse.gov/omb/budget/Historicals (accessed April 26, 2016).

31. Philippe Aghion, Peter Howitt, and Fabrice Murtin, "The Relationship Between Health and Growth: When Lucas Meets Nelson-Phelps," *Review of Economics and Institutions*, Vol. 2, No. 1 (2010), pp. 1–24, and David E. Bloom, David Canning, and Jaypee Sevilla, "The Effect of Health on Economic Growth: A Production Function Approach," *World Development*, Vol. 32, No. 1 (2004), pp. 1–13.

32. Adam Smith, *The Theory of Moral Sentiments* (Indianapolis, IN: Liberty Fund Inc., 6th edition, 1976).

33. Thomas J. Philipson and George Zanjani, "Economic Analysis of Risk and Uncertainty Induced by Health Shocks: A Review and Extension," National Bureau of Economic Research *Working Paper* No. 19005, April 2013.

TABLE 3

Federal Programs with Unsustainable Spending Rates

FIGURES FROM 2017–2026, GROSS SPENDING IN MILLIONS OF NOMINAL DOLLARS

Spending Account Title by Agency	Gross Spending	Average Annual Growth
Department of Health and Human Services		
Substance Abuse and Mental Health Services	$417	9.4%
CDC-Wide Activities and Program Support	$14,123	8.3%
Medicare Prescription Drug Account	$1,358,900	7.6%
Federal Supplementary Medical Insurance Trust Fund	$4,323,076	6.6%
Retirement Pay and Medical Benefits for Commissioned Officers	$8,174	6.3%
Aging and Disability Services Programs	$369	6.0%
World Trade Center Health Program Fund	$4,226	5.3%
Federal Hospital Insurance Trust Fund	$3,918,051	5.3%
Risk Adjustment Program Payments*	$86,348	4.9%
Grants to States for Medicaid	$5,013,166	4.7%
TOTAL	$14,726,850	
Corporation for National and Community Service		
Gifts and Contributions	$205	46.6%
Department of the Treasury		
Gulf Coast Restoration Trust Fund*	$2,174	17.7%
Payment to Issuer of Qualified Energy Conservation Bonds	$1,123	8.0%
Capital Magnet Fund, Community Development Financial Institution	$1,490	7.6%
Refundable Premium Tax Credit and Cost Sharing Reductions	$760,977	6.9%
Payment to Issuer of New Clean Renewable Energy Bonds	$918	5.5%
TOTAL	$766,682	
Department of the Interior		
Reclamation Water Settlements Fund*	$719	12.1%
Abandoned Mine Reclamation Fund*	$676	6.0%
Permanent Operating Funds*	$1,483	4.8%
Natural Resource Damage Assessment Fund*	$843	4.4%
Recreation Fee Permanent Appropriations*	$2,269	4.1%
TOTAL	$5,990	
Department of Housing and Urban Development		
Housing Trust Fund*	$1,929	29.3%
Department of Justice		
Victims of State-Sponsored Terrorism Fund*	$2,523	23.2%
Office of Personnel Management		
Postal Service Retiree Health Benefits Fund	$53,974	7.3%
Government Payment for Annuitants, Employees Health Benefits	$165,883	5.4%
TOTAL	$219,857	
Department of Veterans Affairs		
Veterans Housing Benefit Program Fund*	$7,876	5.7%
Readjustment Benefits	$182,011	4.6%
TOTAL	$189,887	

Judicial Branch

Judicial Survivors' Annuities Fund	$374	4.4%
Judicial Officers' Retirement Fund	$1,106	4.3%
TOTAL	$1,480	

Department of Labor

Unemployment Trust Fund	$437,865	6.2%

Social Security Administration

Federal Old-Age and Survivors Insurance Trust Fund	$10,818,613	5.8%

Department of Education

TEACH Grant Program Account	$300	5.2%

Other Defense Civil Programs

Department of Defense Medicare-Eligible Retiree Health Care Fund	$129,870	4.8%

Electric Reliability Organization

Electric Reliability Organization*	$776	4.5%

Department of Transportation

Essential Air Service and Rural Airport Improvement Fund	$1,375	4.4%

* Program linked to special payments associated with a fixed amount of revenues.
SOURCE: Congressional Budget Office, "Updated Budget Projections: 2016 to 2026," https://www.cbo.gov/publication/51384
(accessed June 9, 2016).

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did not necessarily translate into significantly poorer health (relative to the age-adjusted mean) until later in life. Other studies have found that low birth weight can lead to increased risks of developing asthma, diabetes, and heart disease later in life.[34] From a macroeconomic perspective, differences in the life expectancy between countries can explain both differences in cross-country growth (higher life expectancy is correlated with a higher rate of economic growth) and the slowdown in economic growth among developed countries since 1960.[35]

There is a large body of literature on the correlation between medical technology and the growth in health expenditures—most of which focuses on the idea that health expenditures are increasing because the medical industry is using more technologies. In 1993, a seminal paper by Joseph Newhouse, using data from the RAND Health Insurance Experiment (HIE), determined that growth in health expenditures is driven largely by the growth in medical innovation, rather than the growth in insurance.[36] Others have shown that the large differences in the growth of health expenditures between developed countries can be explained not by changing demographics, but by a growth in medical services.[37]

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34. Rucker C. Johnson and Robert F. Schoeni, "The Influence of Early-Life Events on Human Capital, Health Status, and Labor Market Outcomes Over the Life Course," *The B.E. Journal of Economic Analysis & Policy*, Vol. 11, No. 3 (2011).

35. Aghion et al., "The Relationship Between Health and Growth," pp. 1–24.

36. Joseph Newhouse and the RAND Health Insurance Experiment Group, *Free for All? Lessons from the RAND Health Insurance Experiment* (Cambridge, MA: Harvard University Press, 1993).

37. Christian Hagist and Laurence Kotlikoff, "Who's Going Broke? Comparing Growth in Healthcare Costs in Ten OECD Countries," *Hacienda Publica Espanola / Revista de Economia Publica*, Vol. 188, No. 1 (2009), pp. 55–72.

Over the past decade, several important studies have demonstrated that health insurance has increased the diffusion of medical technology. For instance, Amy Finkelstein, writing in the *Quarterly Journal of Economics,* provides convincing evidence that the creation of Medicare (the federal health care program for the elderly) in 1965 resulted in the early adoption of cardiac care units in hospitals that served areas with a higher portion of elderly patients.[38] The paper also found that that the adoption of Medicare was associated with an increase in treatment intensity (measured as hospital expenditures per patient day). In other words, insurance seems to increase medical spending on the intensive margin and not just the extensive margin as the RAND HIE would suggest. And, as other researchers have observed, "it is not technology per se that causes growth in health expenditures—it's patients with full insurance coverage who demand the latest prosthetic hip."[39]

Medical innovation (including changes to public health conditions) has purchased substantial gains in health. Between 1900 and 2000, the average life expectancy increased by nearly 30 years.[40] And while Americans are living longer, they are also much healthier. Since 1950, the drop in deaths caused by cardiovascular conditions, cerebrovascular diseases, and injury (mainly the result of improved work environments) resulted in a 42 percent decline in the age-adjusted death rate.[41] Researchers David Cutler and Srikantha Kadiyala show that the development of pharmaceuticals is responsible for a third of the decline in cardiovascular disease over the last half century.[42] Likewise, heart attack patients in hospitals with rapid diffusion of medical technology experience lower mortality rates.[43]

The improvement in social welfare stemming from the changes in health is substantial.[44] However, similar to the discovery that some health investments pay off more than others, the cost of medical innovation for certain groups exceeds the social benefits associated with health improvements. Kevin M. Murphy and Robert H. Topel have done the most significant work to date on calculating the social value of aggregate medical improvements that have either extended or improved life.[45] They find that that the ratio of expenditures to economic gain is lower than 0.85 for the entire working population in the U.S. over the past century.[46] This data suggests that health expenditures have historically been extremely cost-effective even after accounting for moral hazard associated with health insurance.

According to Murphy and Topel, "[R]eductions in mortality from 1970 to 2000 had an (uncounted) economic value to the U.S. population of about $3.2 trillion per year."[47] Over that same period, the contributions of medical innovation to improved and extended life raised per capita output by 10 percent to 50 percent. It seems clear, then, that the value of a reduction in the mortality rate associated with certain diseases has an enormous value to individuals (e.g., improved health and higher income) and society (e.g., GDP). For instance, the authors find that a 1 percent reduction in the mortality rate associated with heart disease is worth about $500 billion to current and future Americans.

However, public health expenditures in many U.S. counties are also increasing at a rate faster than the

38. Amy Finklestein, "The Aggregate Effects of Health Insurance: Evidence from the Introduction of Medicare," *Quarterly Journal of Economics*, Vol. 122, No. 1 (2007), pp. 1–37.

39. Amitabh Chandra and Jonathan S. Skinner, "Technology Growth and Expenditure in Health Care," *Journal of Economic Literature*, Vol. 50, No. 3 (2012), pp. 645–680.

40. Laura B. Shrestha, "Life Expectancy in the United States," Congressional Research Service *Report for Congress*, August 16, 2006.

41. Chandra and Skinner, "Technology Growth and Expenditure."

42. David Cutler and Srikantha Kadiyala, "The Return to Biomedical Research: Treatment and Behavioral Effects," in *Measuring the Gains from Medical Research* (Chicago, IL: University of Chicago Press, 2003).

43. Jonathan Skinner and Douglas Staiger, "Technology Diffusion and Productivity Growth in Health Care," National Bureau of Economic Research *Working Paper* No. 14865, April 2009.

44. Kevin M. Murphy and Robert H. Topel, "The Value of Health and Longevity," *Journal of Political Economy*, Vol. 114, No. 5 (2006), and Cutler and Kadiyala, "The Return to Biomedical Research."

45. Murphy and Topel, "The Value of Health and Longevity."

46. Ibid.

47. Ibid.

TABLE 4

Consecutive Years in Which Public Heath Care Expenditures Grew Faster than GDP

Country	Mean	Median	Maximum	Periods of Maximum Growth
United States	9.0	11.0	13	1971-1983
Australia	3.5	3.0	9	1994-2002
Denmark	2.3	1.5	9	2001-2009
Ireland	3.7	3.0	9	2001-2009
Japan	4.0	3.5	9	1997-2005
Korea	4.6	4.0	9	1977-1985
Norway	3.3	3.0	9	1971-1979
Switzerland	4.6	4.0	9	1991-1999
Italy	3.0	2.0	8	1999-2006
Portugal	3.1	2.0	8	1998-2004
Spain	5.6	7.0	8	1971-1978
Turkey	2.6	1.0	8	1996-2003, 2002-2009
Finland	3.9	4.0	7	1981-1987
Mexico	4.5	4.0	7	2007-2013
Chile	4.3	3.0	7	1996-2002
Germany	2.3	2.0	6	1971-1976
Netherlands	3.7	3.0	6	1977-1982
New Zealand	2.0	1.5	6	1986-1991, 2008-2013
United Kingdom	2.6	2.0	6	2001-2006
France	3.8	2.0	5	2001-2005
Austria	3.0	3.0	5	1990-1994, 2001-2005
Czech Republic	2.8	3.0	5	1991-1995
Greece	2.1	2.0	5	1992-1996
Luxembourg	2.8	2.0	5	1977-1981
Poland	1.8	1.0	5	2005-2009
Sweden	2.3	2.0	5	1974-1978
Israel	2.5	2.0	5	2007-2012
Belgium	2.1	2.0	4	1998-2001
Canada	2.6	3.0	4	1980-1983, 1989-1992, 2001-2004, 2006-2009
Iceland	2.3	2.0	4	1985-1988
Slovenia	2.0	1.0	4	1998-2001
Hungary	1.8	2.0	3	1992-1994
Slovak Republic	2.0	2.0	3	2007-2009
Estonia	2.3	2.0	3	2007-2009
Total Average:	**3.2**	**2.8**	**6.5**	

SOURCE: Author's calculations using data reflecting total health care spending collected from the OECD. Data are available for many countries from 1965 to 2014. Data for Germany, Belgium, Norway, Portugal are available beginning in 1970; for Denmark and the Netherlands data are available beginning in 1971 and 1972; for Israel data are available beginning in 1977; for Greece, data are available beginning in 1988; for Poland and Mexico, data are available beginning in 1990; for Hungry, data are available beginning in 1991; for Slovenia, data are available beginning in 1995; for the Slovak Republic, data are available beginning in 1997; for Estonia, data are available beginning in 1999.

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economy and have been for some time. In the U.S., the combination of spending on health and health insurance has led to an increasingly larger share of the economy being consumed by health expenditures. Specifically, total health expenditures are at approximately 18 percent of GDP, and, by 2024, will to increase to 19.6 percent.[48] In 2012, health consumption expenditures (hospital and physician care,

48. Centers for Medicare and Medicaid Services, "NHE Projections 2014–2024 - Forecast Summary," https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html (accessed May 28, 2016).

pharmaceuticals) totaled $2.7 trillion. In the same year, households and governments spent about $2.2 trillion on health insurance products (including private health insurance premiums, Medicare, and Medicaid) and $48 billion on direct government subsidies for health research.[49]

The concept of insuring against poor future health with investments in the present makes some sense given that after an illness, health is not recoverable, regardless of what is spent (e.g., an individual cannot buy his or her way back to life). This realization is captured in a feedback effect of the microeconomic relationship between health and growth where higher income leads to an even higher consumption of health care goods and services. Indeed, some research finds that as Americans get richer by a dollar, they buy even more than a dollar of health care.[50]

This raises the question as to how long public spending on health (S_{HEALTH}) will increase faster than the economy under a steady state. The first section of this paper shows that $\triangle S_{HEALTH} > \triangle R = \triangle GDP$ is unsustainable in the long run. Eventually, $\triangle S_{HEALTH}$ will revert to $\triangle R$ even if S_{HEALTH} collapses under its own weight. However, microeconomic pressures suggest that as a population gets healthier it also gets richer and will, in turn, buy more health care. This analysis is further complicated in the U.S. where S_{HEALTH} is linked directly to the cost of private health insurance, which tends to increase health spending without much effect on health.[51]

Furthermore, revenue growth is automatically constrained; no such limitation exists on public spending (when debt issuance is an option). Specifically, when revenue levels reach an unsustainable level, people stop working and investing, tax compliance rates drop, and additional resources are expended to reduce tax burdens without filling government treasuries. However, as spending becomes unsustainable, who will refuse to take the public benefit? Table 4 shows that ΔS_{HEALTH} in the average OECD country is higher than ΔGDP about 59.5 percent of the time. Furthermore, the average number of consecutive periods in which $\Delta S_{HEALTH} > \Delta GDP$ is 3.2 years – or 0.7 years more than $\Delta R > \Delta GDP$.

The unsustainable rates at which public health care expenditures have been growing relative to GDP are not unique to just one country. In fact, the problem is systemic across the OECD countries. Table 5 compares the average number of consecutive growth years relative to GDP divided by the total number of growth years relative to GDP for revenues ($Avg(Yrs\Delta R > \Delta GDP) / TotYrs(\Delta R > \Delta GDP)$) and public health care expenditures ($AvgYrs(\Delta S_{HEALTH} > \Delta GDP) / TotYrs(\Delta S_{HEALTH} > \Delta GDP)$). ΔS_{HEALTH} is unsustainable when ($AvgYrs(\Delta R > \Delta GDP) / TotYrs(\Delta R > \Delta GDP)$) < ($AvgYrs(\Delta S_{HEALTH} > \Delta GDP) / TotYrs(\Delta S_{HEALTH} > \Delta GDP)$). By this definition only 9 of the 34 countries have sustainable public health care expenditures—despite different public health care programs, economies, and demographics.

Questioning the sustainability of public health care spending is not new. Glenn Follette and Louise Sheiner recently evaluated the long-run sustainability of total health care in spending in the U.S. by asking at what point health consumption will crowd out non-health consumption.[52] Their subsequent research paper finds that per capita spending can continue to grow up to 1 percentage point faster than GDP over the next 75 years without significantly reducing non-health consumption. However, any level of excess cost growth would reduce investment or non-health consumption. The paper also assumes that a potential reduction in private consumption would be offset by public health care consumption. Finally, the paper "does not account for changes in taxes that will be required to finance the transfers

49. Centers for Medicare and Medicaid Services, "NHE Historical and Projections 1960–2024," https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html (accessed May 28, 2016).

50. Robert Fogel, *Escape from Hunger and Premature Death, 1700-2100: Europe, America, and the Third World* (New York: Cambridge University Press, 2004). Fogel finds that the long-run income elasticity of demand for health care is 1.64 in the United States between 1875 and 1995. This was higher than the income elasticity of demand for food, clothing, shelter, education, leisure, or all other consumption goods measured.

51. In the U.S., many Medicaid plans, a large portion of Medicare, and a large portion of the Affordable Care Act's coverage expansion is a provision of a subsidy for private health insurance. For more on the relationship between health insurance, spending, and health, see Willard G. Manning, Joseph P. Newhouse, Naihua Duan, Emmett B. Keeler, and Arleen Leibowitz, "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment," *American Economic Review*, Vol. 77, No. 3 (June 1987), pp. 251–277, https://www.rand.org/content/dam/rand/pubs/reports/2005/R3476.pdf (accessed May 28, 2016).

52. Glenn Follette and Louise Sheiner, "The Sustainability of Health Spending Growth," Federal Reserve Finance and Economics Discussion Series, No. 2005-60 (September 26, 2005), http://www.federalreserve.gov/pubs/feds/2005/200560/200560pap.pdf (accessed May 28, 2016).

TABLE 5

Only Nine of 34 Countries Practice Sustainable Health Care Spending

Public health care spending is only sustainable when it does not outpace a country's revenue growth. Very few OECD countries have been on a path to long-term sustainable spending.

AVERAGE CONSECUTIVE GROWTH YEARS RELATIVE TO GDP DIVIDED BY TOTAL GDP GROWTH YEARS

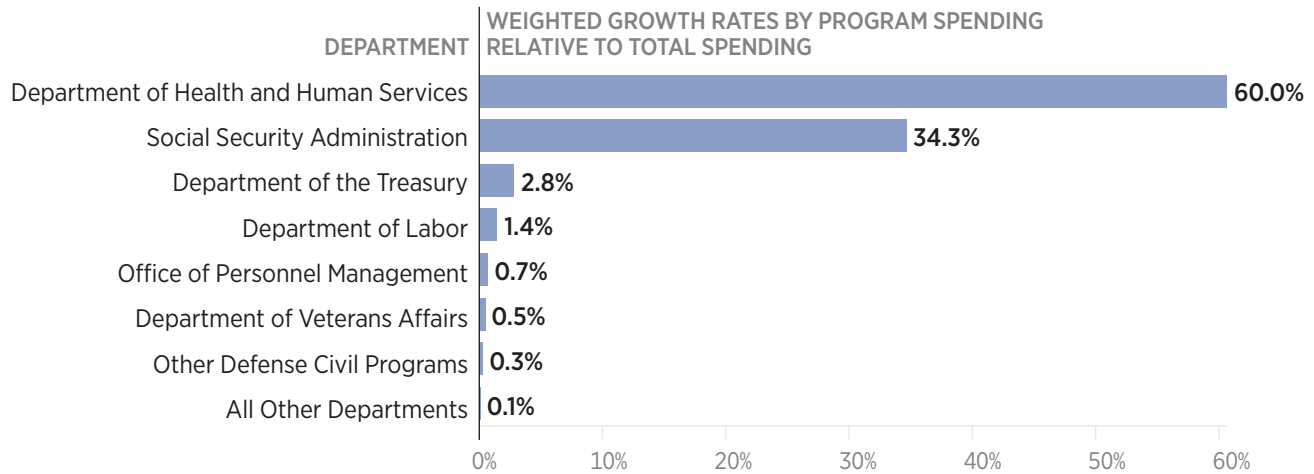|	Revenue*	Public Health Care Expenditures**	Sustainable Spending
Australia	0.09	0.13	No
Austria	0.08	0.11	No
Belgium	0.08	0.14	No
Canada	0.09	0.13	No
Chile	0.20	0.33	No
Czech Republic	0.20	0.20	**YES**
Denmark	0.12	0.10	**YES**
Estonia	0.18	0.33	No
Finland	0.08	0.14	No
France	0.09	0.20	No
Germany	0.07	0.08	No
Greece	0.09	0.14	No
Hungary	0.20	0.20	**YES**
Iceland	0.11	0.09	**YES**
Ireland	0.09	0.17	No
Israel	0.20	0.25	No
Italy	0.09	0.20	No
Japan	0.14	0.13	**YES**
Korea	0.10	0.14	No
Luxembourg	0.08	0.20	No
Mexico	0.10	0.25	No
Netherlands	0.08	0.14	No
New Zealand	0.07	0.08	No
Norway	0.10	0.13	No
Poland	0.20	0.17	**YES**
Portugal	0.09	0.11	No
Slovak Republic	0.25	0.25	**YES**
Slovenia	0.26	0.20	**YES**
Spain	0.08	0.20	No
Sweden	0.09	0.09	No
Switzerland	0.09	0.20	No
Turkey	0.07	0.11	No
United Kingdom	0.11	0.09	**YES**
United States	0.09	0.25	No

* Calculation: AvgYrs (ΔR > ΔGDP) / TotYrs (ΔR > ΔGDP)
** Calculation: AvgYrs (ΔSHEALTH > ΔGDP) / TotYrs (ΔSHEALTH > ΔGDP)
SOURCE: Author's calculation's using data from the OECD.

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CHART 2

Department of Health and Human Services Threatens Long-Term Fiscal Sustainability

DEPARTMENT	WEIGHTED GROWTH RATES BY PROGRAM SPENDING RELATIVE TO TOTAL SPENDING
Department of Health and Human Services	60.0%
Social Security Administration	34.3%
Department of the Treasury	2.8%
Department of Labor	1.4%
Office of Personnel Management	0.7%
Department of Veterans Affairs	0.5%
Other Defense Civil Programs	0.3%
All Other Departments	0.1%

SOURCE: Author's calculations using data from the Congressional Budget Office.

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implied" in the projections of public health care financing. This is a serious shortcoming.

In another paper, Michael E. Chernew, Richard A. Hirth, and David Cutler ask a similar question regarding the sustainability of total health spending in the U.S. as applied to the crowding out of non-health consumption.[53] This paper also finds similar results in that a 1 percentage point increase is "affordable" over the period from 2007–2083, but more than half of all real income growth would go to health consumption. Furthermore, this paper also ignores the financing needed to fund public health care expenditures over that period.

There is another way to interpret whether health spending is "affordable" or "sustainable" as the question is advanced by this literature. Rather than asking whether health spending is affordable, these studies imply that the crowding out of non-health consumption will not put pressure on health consumption over the long run. In other words, health spending will likely continue growing faster than the economy—as long as public spending continues to cover a larger share of total health spending and the growth in out-of-pocket health costs remains relatively low (out-of-pocket health spending has actually fallen as a percent of total private health expenditures since the mid-1990s).[54] As such, the sustainability of public health care expenditures is vital when considering whether government spending is sustainable.

In 2011, Katherine Baicker and Jonathan Skinner investigated this financing question, proceeding on the assumption that that excess spending growth in Medicare and Medicaid would be funded through tax increases.[55] They found that if spending growth is completely funded through tax increases, by 2060

53. Michael E. Chernew, Richard A. Hirth, and David Cutler, "Increased Spending on Health Care: Long-Term Implications for the Nation," *Health Affairs*, Vol. 28 No. 5 (September/October 2009), http://content.healthaffairs.org/content/28/5/1253.abstract (accessed June 3, 2016), and Michael E. Chernew, Richard A. Hirth, and David M. Cutler, "Increased Spending on Health Care: How Much Can the United States Afford?" *Health Affairs*, Vol. 22, No. 4 (July/August, 2003), pp. 15–25.

54. The World Bank, World Development Indicators, Out-of-Pocket Health Expenditure (% of Private Expenditure on Health), http://data.worldbank.org/indicator/SH.XPD.OOPC.ZS?page=3 (accessed May 28, 2016).

55. Katherine Baicker and Jonathan Skinner, "Health Care Spending Growth and the Future of U.S. Tax Rates," *Tax Policy and the Economy*, Vol. 25, No. 1 (2011), pp. 39–68.

CBO Projects Health Care Spending Growth to Slow

The Congressional Budget Office assumes that per capita growth of federal health care programs will regress to GDP growth for Medicaid and GDP growth plus 1 percent for Medicare. The projected date of decline, however, is continually being adjusted to occur further in the future.

Projection year ━ 2012 ━ 2013 ━ 2014 ━ 2015

PER CAPITA GROWTH
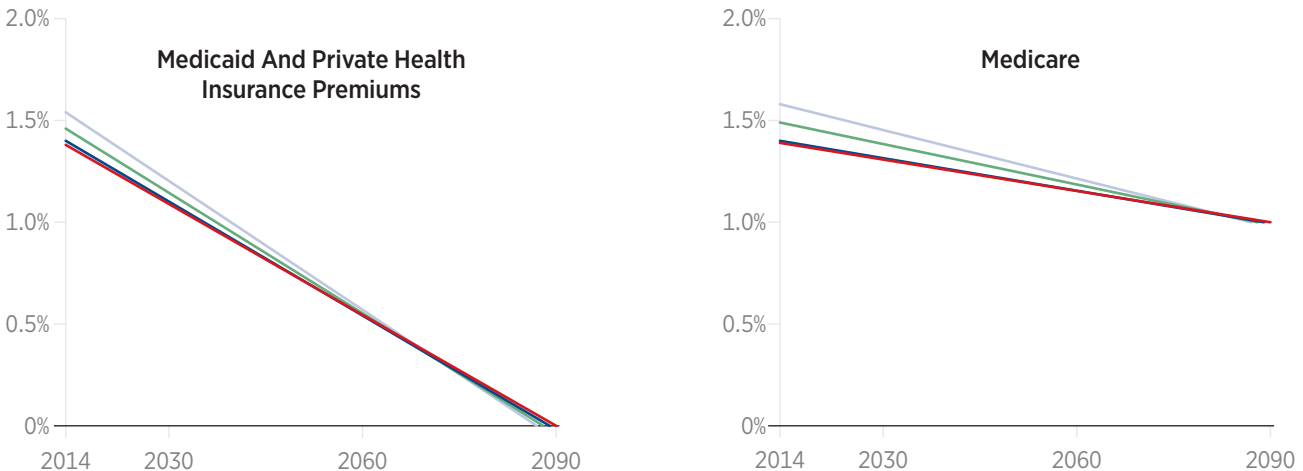
NOTE: Private health insurance premiums affect premium subsidies, the tax exclusion for employer-sponsored health insurance, and certain taxes.
SOURCE: Congressional Budget Office, "The Long-Term Budget Outlook," https://www.cbo.gov/publication/50250 (accessed May 19, 2016).

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GDP would be reduced by between 5 percent and 11 percent, depending on the future tax changes. Baicker and Skinner also suggest that the higher tax burden could slow spending growth in health care. In other words, higher taxes to finance public health care spending reduces income, which, consequently, reduces what people can spend on health consumption. The ultimate result is, therefore, a reduction in health expenditure growth. If true, the same result may occur if an excessive level of public debt crowds out private investment, which may also slow economic growth. However, it is still not clear whether either effect will slow public health care expenditure growth to a sustainable level. For instance, even though economic growth has fluctuated over the past 40 years, the growth in health spending has remained high.

This research also implies that certain projections of future spending on public health care programs in the U.S. may be underestimated. For instance, the CBO assumes that over the long run per capita cost growth on federal health care programs will regress to GDP plus 1 percentage point for Medicare and GDP for Medicaid and federally subsidized private health insurance premiums.[56] This assumption implies for Medicare that the long-run spending growth will be 1.2 percentage points lower than its historical average relative to GDP growth. For Medicaid and private health insurance, the assumption implies long-run spending will be 1.7 percentage

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56. Specifically, the CBO defines excess cost growth as "the extent to which the annual growth rate of nominal Medicare or Medicaid spending per beneficiary, or of all other health care spending per capita or overall health care spending per capita—adjusted for demographic characteristics of the relevant populations—outpaced the annual growth rate of potential gross domestic product (GDP) per capita, on average. (Potential GDP is CBO's estimate of the maximum sustainable output of the economy.)" Congressional Budget Office, "Long-Term Baseline Update Supplemental Data" Sheet 10, June 2015, https://www.cbo.gov/about/products/budget_economic_data#3 (accessed April 29, 2016).

CHART 4

CBO's Medicare Cost Growth Projections Do Not Reflect Historic Patterns

PER CAPITA GROWTH, JULY 2015 PROJECTION
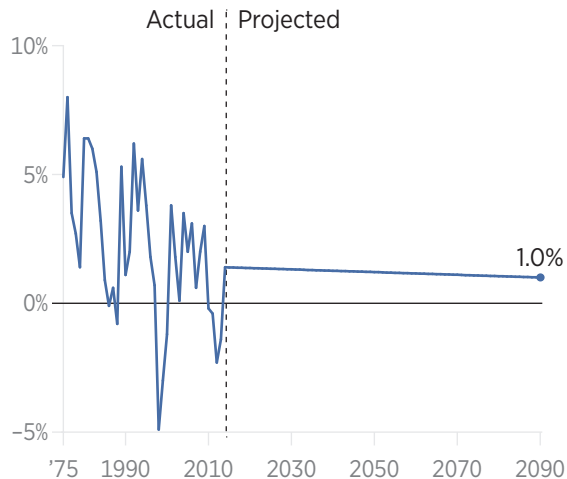
SOURCE: Congressional Budget Office, "The Long-Term Budget Outlook," https://www.cbo.gov/publication/50250 (accessed May 19, 2016).

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points lower than their historical average relative to GDP growth.

Public spending on health programs cannot continue to increase faster than GDP indefinitely; such a pace is unsustainable. However, assuming that spending growth will begin to slow immediately and regress to what, for Medicare, would be a long-run unsustainable rate, is at best an assumption based on faith, rather than fact. Unless the growth in spending on public health care programs slows considerably, which is unlikely to happen without significant structural reforms, the federal budget will remain unsustainable.

Conclusion

The federal budget is unsustainable. This unsustainability is driven by 2 percent of all spending accounts—primarily public health care programs administered by the Department of Health and Human Services and benefit payments for Social Security's Old-Age and Survivors Insurance (OASI) Trust Fund. Given historical trends reflecting microeconomic pressures that are difficult to reverse, current projections of spending on U.S. public health care programs are likely too optimistic.

Furthermore, the U.S. is not an outlier. A number of other large economies also have unsustainable public health care programs. This fact complements related findings that the budgets of the U.S. and many European countries have large and growing fiscal imbalances.[57] As economist Alberto Alesina noted in a recent interview, "[As for] OECD countries with taxes over GDP ratio in the order of 50 percent, if you don't stop the growth of social entitlements, we will always be running after a moving target that is always increasing."[58] The grim outlook has serious implications for the sustainability of government budgets over the long run, with delay in dealing with the underlying unsustainability severely limiting future fiscal choices.

Most spending reductions and tax increases will not significantly alter the U.S. government's long-run fiscal unsustainability. This is especially true with regard to federal health care spending. In 2009, Peter Orszag, the director of the Office of Management and Budget, stated that "the path to fiscal responsibility must run directly through health care."[59] He was mostly correct. Reducing health care spending growth is a necessary, but not sufficient, condition to dealing with the federal budget's underlying unsustainability.

57. Miron, "U.S. Fiscal Imbalance," 2015, p. 24.

58. Alberto Alesina, "Alberto Alesina on Fiscal Policy and Austerity," Remarks to Econtalk podcast, April 25, 2016, http://www.econtalk.org/archives/2016/04/alberto_alesina.html (accessed May 28, 2016).

59. Peter Orszag, "Opening Remarks at White House Fiscal Responsibility Summit," transcript in *The New York Times: The Caucus*, February 23, 2009, http://www.nytimes.com/2009/02/23/us/politics/23text-summit.html?_r=1&pagewanted=all (accessed May 28, 2016).