



Report to the Ranking Member,
Committee on the Budget, U.S. Senate

January 2013

PATIENT PROTECTION AND AFFORDABLE CARE ACT

Effect on Long-Term
Federal Budget
Outlook Largely
Depends on Whether
Cost Containment
Sustained



G A O

Accountability * Integrity * Reliability

Highlights of [GAO-13-281](#), a report to the Ranking Member, Committee on the Budget, U.S. Senate

Why GAO Did This Study

GAO regularly prepares long-term federal budget simulations under different assumptions about broad fiscal policy decisions. GAO's Baseline Extended simulation illustrates the long-term outlook assuming current law at the time the simulation was run is generally continued, while the Alternative simulation illustrates the long-term outlook assuming historical trends and past policy preferences continue. Under either set of assumptions, these simulations show that the federal budget is on an unsustainable fiscal path driven on the spending side by rising health care costs and the aging of the population. PPACA provides for expanded eligibility for Medicaid and federal subsidies to help individuals obtain private health insurance and includes provisions designed to slow the growth of federal health care spending.

GAO was asked to describe the long-term effects of PPACA on the federal fiscal outlook under both its Baseline Extended and Alternative simulations; how changes in assumptions for federal health care cost growth might affect the outlook; and the key drivers of health care cost growth and how the uncertainty associated with each may influence future health care spending. To do this, GAO compared the results of its long-term fiscal simulations from before and after the enactment of PPACA and examined the key factors that contributed to changes in revenue and spending components; reviewed trends in health care cost growth and performed a sensitivity analysis varying rates of excess cost growth; and reviewed literature describing key drivers of health care cost growth and areas of uncertainty related to projections of federal health care costs.

View [GAO-13-281](#). For more information, contact Susan J. Irving at (202) 512-6806 or irvings@gao.gov, or James C. Cosgrove at (202) 512-7114 or cosgrovej@gao.gov

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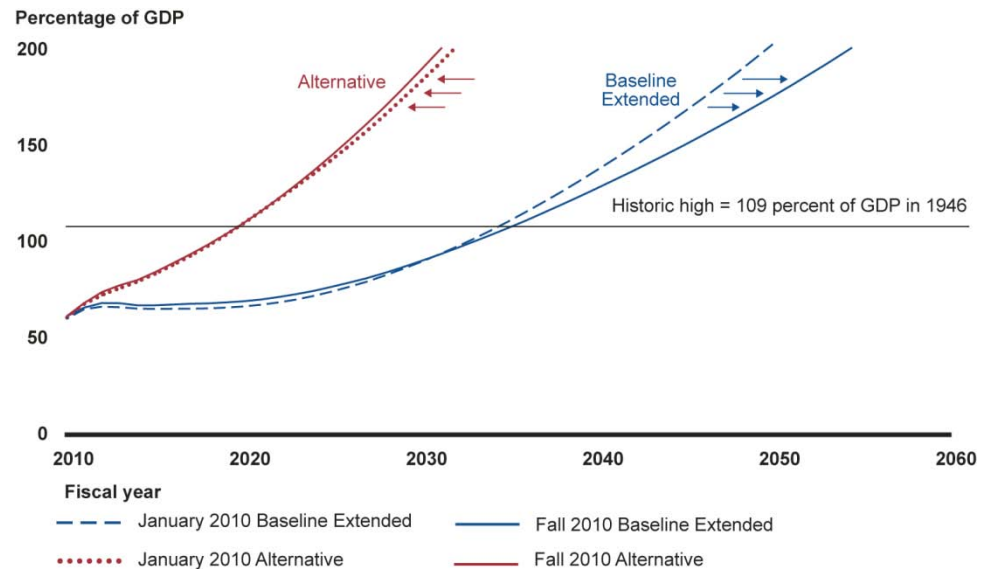
PATIENT PROTECTION AND AFFORDABLE CARE ACT

Effect on Long-Term Federal Budget Outlook Largely Depends on Whether Cost Containment Sustained

What GAO Found

The effect of the Patient Protection and Affordable Care Act (PPACA), enacted in March 2010, on the long-term fiscal outlook depends largely on whether elements in PPACA designed to control cost growth are sustained. As shown in the figure below, there was notable improvement in the longer-term outlook after the enactment of PPACA under GAO's Fall 2010 Baseline Extended simulation, which assumes both the expansion of health care coverage and the full implementation and effectiveness of the cost-containment provisions over the entire 75-year simulation period. However, the federal budget remains on an unsustainable path. Further, questions about the implementation and sustainability of these provisions have been raised by the Centers for Medicare & Medicaid Services' Office of the Actuary and others, due in part to challenges in sustaining increased health care productivity. The Fall 2010 Alternative simulation assumed cost containment mechanisms specified in PPACA were phased out over time while the additional costs associated with expanding federal health care coverage remained. Under these assumptions, the long-term outlook worsened slightly compared to the pre-PPACA January 2010 simulation.

Comparison of Debt Held by the Public in GAO's January 2010 and Fall 2010 Simulations



Source: GAO analysis.

Federal health care spending is expected to continue growing faster than the economy. In the near term, this is driven by increasing enrollment in federal health care programs due to the aging of the population and expanded eligibility. Over the longer term, excess cost growth (the extent to which growth of health care spending per capita exceeds growth of income per capita) is a key driver. Slowing the rate of health care cost growth would help put the budget on a more sustainable path. There is general agreement that technological advancement has been the key factor in health care cost growth in the past, along with the effects of expanding health insurance coverage and increasing income, but there is considerable uncertainty about the magnitude of the impact that the different factors will have on future health care cost growth.

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Abbreviations

CBO	Congressional Budget Office
CHIP	Children's Health Insurance Program
CMS	Centers for Medicare & Medicaid Services
FPL	federal poverty level
GDP	gross domestic product
OACT	Office of the Actuary
PPACA	Patient Protection and Affordable Care Act
Trustees	Social Security and Medicare Trustees

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United States Government Accountability Office
Washington, DC 20548

January 31, 2013

The Honorable Jeff Sessions
Ranking Member
Committee on the Budget
United States Senate

Dear Senator Sessions:

Our long-term federal budget simulations have shown federal debt as a share of gross domestic product (GDP) continuously increasing over the long term, which indicates that the budget is on an unsustainable path. The specific timing of the debt buildup, however, depends on the assumptions used. We run two simulations based on different assumptions about broad fiscal policy options. Our Baseline Extended simulation illustrates the long-term outlook assuming federal laws (applicable at the time the simulation was run) remain unchanged, while our Alternative simulation illustrates the long-term fiscal outlook assuming historical trends and policy preferences continue.¹

Our fiscal simulations and projections by the Congressional Budget Office (CBO) and others have shown that the key drivers of the federal government's long-term fiscal imbalance on the spending side are rising health care costs and the aging of the population. Although health care spending growth recently slowed, spending on federal health care programs, including Medicare and Medicaid,² is expected to continue growing faster than the overall economy as more members of the baby-boom generation become eligible for these federal health benefits and the cost of caring for each enrollee increases. The number of baby boomers turning 65 is projected to grow from an average of about 7,600 per day in 2011 to more than 11,000 per day in 2029.

¹For our most recent update, see *The Federal Government's Long-Term Fiscal Outlook: Fall 2012 Update*, [GAO-13-148SP](#) (Washington, D.C.: Dec. 3, 2012).

²Medicare is a federal health care program for the aged and disabled. Medicaid is a jointly funded federal-state health care program for certain categories of low-income individuals.

In March 2010, the Patient Protection and Affordable Care Act (PPACA) was enacted,³ which makes substantial changes to Medicare and Medicaid as well as other components of the federal budget that will have significant implications for the federal government's fiscal outlook in both the near and long term. For example, PPACA provides for the expansion of eligibility in the Medicaid program and federal subsidies to help individuals obtain private insurance coverage; it also includes provisions designed to slow the growth of federal health care spending, particularly for the Medicare program. There are, however, significant uncertainties surrounding the effects of PPACA on health care spending and other factors that influence future health care costs more generally, including how the development and deployment of medical technology, future policy decisions, and cost and availability of insurance affect growth in health care spending per capita.

Given the importance of health care spending for the federal government's long-term finances, you asked that we examine the long-term effects of the new, major changes to coverage included in PPACA on the federal budget under both our Baseline Extended and Alternative simulations. This report describes: (1) how the results of our long-term fiscal simulations changed between those run before the enactment of PPACA and after its enactment and the key factors that contributed to changes in revenue and spending components, including major federal health care programs,⁴ (2) how changes in assumptions for federal health care cost growth might affect the federal government's long-term fiscal outlook, and (3) the key drivers of health care cost growth and how the uncertainty associated with each may influence future health care spending estimates.

To describe how our federal budget simulations changed since the enactment of PPACA, we compared the results from our Baseline

³Pub. L. No. 111-148, 124 Stat. 119 (Mar. 23, 2010), as amended by the Health Care and Education Reconciliation Act of 2010, Pub. L. No. 111-152, 124 Stat. 1029 (Mar. 30, 2010). In this report, references to "PPACA" include amendments made by the Health Care and Education Reconciliation Act.

⁴For purposes of this report, major federal health care programs are defined as Medicare, Medicaid, and the subsidies available to assist individuals to purchase insurance coverage through the American Health Benefit Exchanges. Federal spending on the Children's Health Insurance Program is also included but is considerably lower than these other health care programs.

Extended and Alternative simulations in the *January 2010 Update* (released in March 2010 just before PPACA was enacted) to those in the *Fall 2010 Update* (released in November 2010 shortly after the law was enacted).⁵ We also compared the results to those in the *Fall 2012 Update* (released in December 2012), which incorporated both the estimates revised following the U.S. Supreme Court's June 2012 decision regarding the expansion of Medicaid to newly eligible populations and the Social Security and Medicare Trustees (Trustees) and the Centers for Medicare & Medicaid Services' (CMS) Office of the Actuary's (OACT) more recent estimates for Medicare spending.⁶ While we describe changes to federal health care spending when relevant to PPACA, we focus on the changes between our January 2010 and Fall 2010 simulations, since this minimizes the effects of other legislative or technical changes unrelated to PPACA on our long-term simulations and can provide a general estimate of the act's effects on the long-term fiscal outlook. We compared paths for the major federal health care programs identified previously as well as revenue and Social Security, other mandatory, discretionary, and net interest spending. Because of the aggregate nature of projections used in our simulations, we cannot completely isolate or quantify either the effects of PPACA or of specific provisions of the act on the long-term outlook. We reviewed the underlying data and assumptions from CBO, the Trustees, and OACT used in our simulations to understand the reasons for any differences.⁷ To assess the reliability of the data from CBO, the Trustees, and OACT used to develop these simulations, we examined whether the methodology used to create these projections is clear and transparent and whether the data are reasonable given the description of the methodology. We also examined whether the data were presented consistently in reports and supplementary data and, when possible, were consistent with others' reporting of similar data. We determined that the data were sufficiently reliable for our purposes of illustrating the potential fiscal outcomes under broad sets of different policy assumptions.

⁵GAO, *The Federal Government's Long-Term Fiscal Outlook: January 2010 Update*, [GAO-10-468SP](#) (Washington, D.C.: Mar. 2, 2010) and *The Federal Government's Long-Term Fiscal Outlook: Fall 2010 Update*, [GAO-11-201SP](#) (Washington, D.C.: Nov. 15, 2010).

⁶For the results of our Fall 2012 simulations, see [GAO-13-148SP](#).

⁷To better isolate the effects of changes made to CBO and OACT projections rather than technical changes to our own model, we also adjusted our January 2010 and Fall 2010 simulations so that the same methods are followed for all simulations. Therefore, the results of our simulations in this report differ slightly from those published in 2010. See appendix I for the assumptions used in simulations in this report and description of the technical changes that were made.

To describe how changes in assumptions for federal health care cost growth might affect the federal government's long-term fiscal outlook, we examined the effect of two key assumptions on federal health care spending: (1) enrollment in the major federal health care programs and (2) excess cost growth—or the extent to which health care spending per capita grows faster than the GDP per capita. We performed a sensitivity analysis by varying assumptions for the rate of excess cost growth in our simulations. We did not analyze what particular changes to federal health care policies would produce specific rates of excess cost growth.

To identify the key drivers of health care cost growth and how the uncertainty associated with each may influence future health care spending estimates, we reviewed literature on key factors affecting health care costs, described how uncertainty associated with each factor may influence health care spending, and when possible, broadly outlined a range of potential outcomes associated with the uncertainty of each factor. We did not independently assess the validity of estimates of uncertainty discussed in the literature. The extent to which we could quantify the range of possible health care cost growth estimates resulting from this uncertainty was limited by the availability of existing studies.

We conducted our work from July 2012 to January 2013 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions in this report.

Background

PPACA provided for additional health care coverage options for millions of lower income individuals through the expansion of eligibility for the Medicaid program and the creation of health insurance exchanges where eligible individuals can qualify for federal subsidies to purchase private health insurance coverage.⁸

⁸There are other PPACA provisions that affect coverage such as the requirement that most uninsured U.S. citizens or legal residents obtain health insurance beginning in January 2014. In this report, however, we focus on changes in federal spending resulting from PPACA, including the availability of federal subsidies for individuals to purchase health insurance coverage, shown in the federal budget as an outlay.

-
- *Medicaid.* Medicaid is a joint federal-state program that provides health care coverage for certain low-income individuals. Under federal law, states historically have been required to cover certain categories of individuals under Medicaid (mandatory populations) with the flexibility to extend coverage to other defined groups (optional populations). PPACA provides for states to expand Medicaid coverage to most nonpregnant, nonelderly individuals with income that does not exceed 133 percent of the federal poverty level (FPL) beginning no later than January 1, 2014.⁹ The federal government will pay the full cost of covering newly eligible enrollees until 2017 at which point the federal share will begin to gradually decline to 90 percent by 2020.¹⁰
 - *American Health Benefit Exchanges.* These are marketplaces to be established by January 2014 to facilitate the purchase of private insurance coverage. Individuals obtaining insurance through the exchanges may qualify for federal subsidies (hereafter referred to as exchange subsidies) in the form of premium tax credits and cost sharing reductions. In order to qualify for the premium tax credit, individuals or families must meet certain criteria including income levels between 100 and 400 percent of the FPL and failing to qualify for other health care coverage, such as Medicare or Medicaid, or having access to affordable insurance of minimum value from an employer. The premium tax credit is refundable meaning that it can provide benefits to lower-income tax filers with little or no tax liability.¹¹

⁹PPACA also provides for a 5 percent income disregard when calculating modified adjusted gross income for determining Medicaid eligibility, which effectively increases this income level to 138 percent of the FPL. FPL refers to federal poverty guidelines issued by the Department of Health and Human Services each year in the Federal Register. These guidelines provide income thresholds that vary by family size and for certain states, and are updated using the Consumer Price Index. The FPL was \$30,700 for a family of four in 2012.

¹⁰Under PPACA, as enacted, states were required to cover this expansion population as a mandatory population. A failure by a state to cover mandatory populations may result in a termination of federal Medicaid matching funds for the entire program. However, the U.S. Supreme Court subsequently ruled that states that choose not to expand Medicaid eligibility to these newly eligible individuals are not subject to this potential penalty and instead will forgo only the enhanced federal matching funds associated with covering this population. See *National Federation of Independent Business, et al., vs. Sebelius, Sec. of Health and Human Services, et al.*, 132 S.Ct. 2566 (U.S., June 28, 2012).

¹¹The portion of the tax credit that reduces an individual's tax liability is categorized as a reduction in federal revenues and the portion of credits that exceed an individual's tax liability is categorized as an increase in outlays.

Individuals who enroll in an exchange plan may also be eligible for additional cost-sharing subsidies that further reduce the out-of-pocket amount they would otherwise have to pay when accessing covered health services.

While these changes, along with other PPACA provisions, are expected to increase federal health care spending, PPACA also included a number of provisions that aim to reduce the level of federal health care spending. For example, PPACA reduced payments both Medicare and Medicaid make to hospitals that serve a disproportionate share of low-income patients. This change reflects the expectation that PPACA's major coverage expansions will result in significantly fewer uninsured hospital patients. Also, PPACA reduced estimated Medicare spending through changes to rates paid to Medicare Advantage organizations—Medicare's private plan alternative to the original Medicare fee-for-service—to align Medicare Advantage payment rates more closely with spending on Medicare's fee-for-service program.¹²

In addition, PPACA created a number of cost containment mechanisms designed to slow future growth of health care spending, such as:

- *Productivity adjustments.* PPACA seeks to restrain health spending growth by reducing the payment updates for many Medicare services for productivity gains.¹³ This is intended to provide a strong financial incentive for health providers to enhance productivity, improve efficiency, or otherwise reduce their costs per service.
- *Independent Payment Advisory Board (IPAB).* PPACA called for the creation of a 15-member board to make recommendations, with certain restrictions, for reducing the costs of Medicare when per capita

¹²In March 2010, CBO projected that these changes would reduce Medicare payments to Medicare Advantage plans by \$136 billion from fiscal years 2010 to 2019. See CBO, *H.R. 4872, Reconciliation Act of 2010 (Final Health Care Legislation)*, March 20, 2010 (based on Medicare Advantage provisions in a combination of prior versions of PPACA and the Health Care and Education Reconciliation Act of 2010).

¹³Many Medicare provider categories that are reimbursed on a fee-for-service basis receive annual payment increases based on the Consumer Price Index or based on market basket updates, which measure the increase in prices that each provider category must pay for the goods and services in order to serve patients. PPACA required that payment updates for these provider categories be reduced by a productivity adjustment, defined as a 10-year average of changes in annual economy-wide private productivity.

Medicare growth exceeds specified targets beginning in 2015. These recommendations are automatically implemented unless overridden by lawmakers.¹⁴

PPACA also incorporated certain tax provisions designed to generate revenue. Beginning in January 2013, PPACA imposed an additional Medicare Hospital Insurance tax on wages, compensation, and self-employment income in excess of threshold amounts, defined as \$200,000 for individuals, \$250,000 for spouses filing jointly, and \$125,000 for spouses filing separate returns. PPACA also imposes an excise tax on high cost employer-sponsored health plans beginning in 2018. Employer-sponsored plans with a benefit value exceeding specified thresholds will generally be subject to a 40 percent excise tax.¹⁵ The excise tax will be levied on insurers but is expected eventually to be passed on to their customers. CBO, OACT, and other observers expect that the excise tax will create an incentive for employers to reduce the scope of their health benefits and, therefore, the demand for health care services.

Projections of the Effects of PPACA

The Trustees report annually to Congress on the financial operations and actuarial status of Medicare.¹⁶ The Trustees first incorporated the effects of PPACA on Medicare finances in their annual report released in August 2010.¹⁷ Similarly, CBO incorporated the estimated budgetary effects of the law in its 10-year current law baseline projections released in August 2010 and its 75-year long-term budget projections released in June

¹⁴Beginning in 2013, the Chief Actuary of CMS will determine the projected per capita growth rate for Medicare for a multi-year period ending in the implementation year. If the projection exceeds a targeted growth rate, the IPAB will submit a proposal to reduce Medicare spending for the implementation year. If the board fails to submit a proposal, the Department of Health and Human Services must submit a proposal which will be implemented unless Congress takes action to override it.

¹⁵These threshold levels are generally \$10,200 for individuals and \$27,500 for families in 2018, adjusted in 2019 by growth in the Consumer Price Index plus 1 percentage point and by growth in the Consumer Price Index thereafter.

¹⁶OACT prepares the report under the direction of the Trustees.

¹⁷Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, *The 2010 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds*, (Washington, D.C.: Aug. 5, 2010).

2010.¹⁸ In these reports, the Trustees, CBO, and OACT all expressed concerns about whether certain cost-containment mechanisms included in PPACA can be sustained over the long term. CBO and OACT both produced alternative projections that assume certain cost-containment mechanisms are not fully maintained over the long term.¹⁹

We first incorporated the Trustees', CBO's, and OACT's projections of the effects of PPACA on federal health care spending in our Fall 2010 update of the long-term fiscal outlook. The effects of PPACA are primarily seen through changes to assumptions for the following health care programs:

- **Medicare.** Medicare spending in our Baseline Extended simulation follows CBO's baseline projections for the first 10 years, which follow current law and assume that reductions in Medicare physician payment rates unrelated to PPACA occur as scheduled; thereafter, Medicare spending is based on the Trustees' intermediate projections.²⁰ Beginning in our Fall 2010 update, we assumed that certain cost-containment mechanisms intended to slow the growth of health care cost enacted in PPACA were sustained over the long term. In the Alternative simulation, Medicare spending is based on OACT's alternative scenario, which assumes that reductions in Medicare physician rates do not occur as scheduled under current law and, starting in our Fall 2010 update, that certain cost-containment

¹⁸CBO, *The Long-Term Budget Outlook* [Washington, D.C.: June 2010 (revised August 2010)] and *The Budget and Economic Outlook: An Update* (Washington, D.C.: August 2010).

¹⁹In its June 2010 Alternative scenario, CBO assumed that certain cost-containment mechanisms were not in effect after 2020. See CBO, *The Long-Term Budget Outlook* [Washington, D.C.: June 2010 (revised August 2010)]. In its August 2010 alternative projections, OACT assumed that productivity adjustments would be phased out over a 15-year period beginning in 2020. See OACT, *Projected Medicare Expenditures under an Illustrative Scenario with Alternative Payment Updates to Medicare Providers* (Washington, D.C.: Aug. 5, 2010).

²⁰In addition to the cost-containment mechanisms enacted in PPACA, Medicare spending is also affected by separate assumptions about Medicare physician payment updates. Since 1998, Medicare payment rates for physician services have been determined by the Sustainable Growth Rate system, which establishes spending targets to limit growth in spending on physician services to roughly the overall rate of economic growth. Under current law, if actual spending exceeds the target level, then future physician payment updates are reduced. Since 2003, Congress has taken a series of legislative actions to override scheduled reductions in physician payment rates that would otherwise occur under law. Physician fee updates set by Congress have averaged 0.9 percent per year over this period.

mechanisms enacted in PPACA intended to slow the growth of health care cost begin to phase out after 2019. Our Fall 2010 simulations also reflect changes in the level of Medicare spending resulting from other provisions of PPACA, such as reductions to payment rates for Medicare Advantage organizations.

- *Medicaid, Children's Health Insurance Program (CHIP), and exchange subsidies.* In both the January 2010 and Fall 2010 Baseline Extended simulations, spending for Medicaid and exchange subsidies follows CBO's baseline projections for the first 10 years and is then based on growth in spending for these programs consistent with CBO's long-term assumptions for the number and age composition of enrollees and the Medicare Trustees' intermediate assumptions for excess cost growth.²¹ Prior to Fall 2010, federal spending for CHIP was included in our simulations under other mandatory spending. Starting in Fall 2010, consistent with CBO, we include federal spending for CHIP along with subsidies for the newly created health insurance exchanges in a single category with Medicaid.²² Our Fall 2010 Alternative simulation assumes that provisions in current law designed to limit the growth in spending on exchange subsidies are not maintained over the long term.²³

Several provisions of PPACA affected federal revenue, including an excise tax on high cost employer-sponsored health plans and increase in the Medicare Hospital Insurance tax for higher income individuals and families. While the effects of these provisions are incorporated into our

²¹Only the refundable portion of premium tax credit subsidies shown in the federal budget as an outlay is captured in these estimates. Premium tax credits also reduce the amount of federal revenue collected. CBO projects this to be much smaller than the increase in outlays for the refundable portion of the subsidies. Consistent with our past practice, we did not make specific assumptions about the composition of revenue over the long term in our simulations.

²²In January 2010, CBO projected that spending on CHIP would total \$6 billion, or 0.03 percent of GDP, in 2020. See CBO, *The Budget and Economic Outlook: Fiscal Years 2010 to 2020* (Washington, D.C.: January 2010).

²³Under PPACA, federal spending on subsidies in the newly established insurance exchanges is capped after 2018 at 0.504 percent of GDP. As a result, the share of health insurance premiums paid by enrollees is scheduled to increase in years when spending exceeds this limit. Our Alternative follows CBO's alternative assumption that a policy that would slow the growth of per-participant subsidies for health insurance coverage is not in effect and eligibility thresholds are modified to maintain the share of the population eligible for subsidies.

simulations in the first 10 years, we do not make assumptions about the composition of revenue over the long term in our simulations. The Baseline Extended simulation follows CBO's baseline projections, which generally reflect current law, for the first 10 years and then holds revenue constant as a share of GDP. As a result, over the long term, revenue as a share of GDP is higher in the Baseline Extended than historical averages. In the Alternative simulation, expiring tax provisions are generally extended and the alternative minimum tax (AMT) amount is indexed to inflation. Revenue in the Alternative simulation is then held at the 40-year historical average. This assumption implies that, consistent with past experience, legislation will be enacted to offset some of the increases in revenue scheduled in current law.

Both simulations follow CBO's projections for Social Security for the first 10 years and the Trustees' intermediate projections thereafter. See appendix I for more information on the assumptions used in the simulations and a description of technical changes that were made for this report.

Effect of PPACA on the Long-Term Fiscal Outlook Depends on Whether Cost-Containment Mechanisms are Sustained

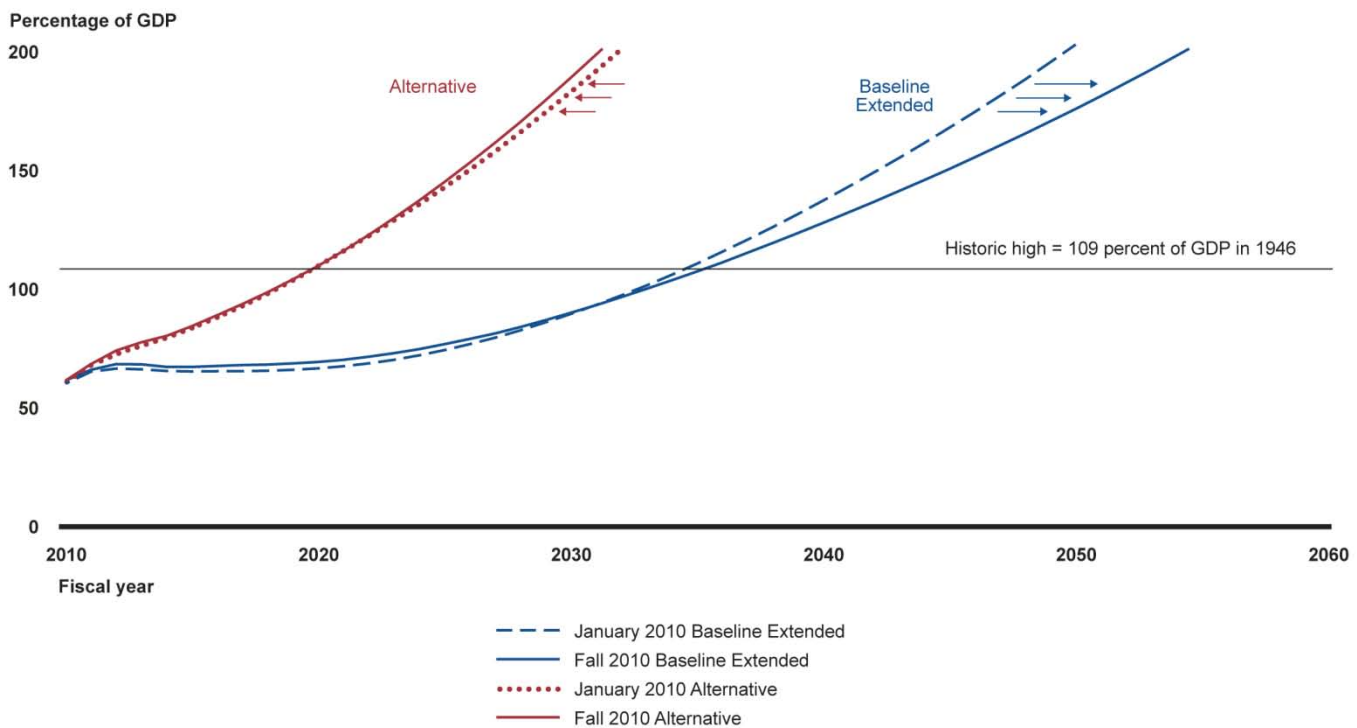
The effect of PPACA on the long-term fiscal outlook depends largely on whether elements designed to control cost growth are sustained. Overall, there was notable improvement in the longer-term outlook after the enactment of PPACA under our Fall 2010 Baseline Extended simulation, which, consistent with federal law at the time the simulation was run, assumed the full implementation and effectiveness of the cost-containment provisions over the entire 75-year simulation period. In contrast, the long-term outlook in the Fall 2010 Alternative simulation worsened slightly compared to our January 2010 simulation. This is largely due to the fact that cost-containment mechanisms specified in

PPACA are assumed to phase out over time while the additional costs associated with expanding federal health care coverage remain.²⁴

Figure 1 shows that while the steps taken in PPACA to restrain spending on the federal health programs were significant, they were not sufficient to prevent an unsustainable increase in debt held by the public even under the more optimistic assumptions in our Baseline Extended simulation. The net effect of changes to spending and revenue on the federal budget were relatively small in the first few decades in both simulations, and the improvements in the Baseline Extended simulations from January 2010 to Fall 2010 do not significantly slow the growth in debt held by the public until the outyears. Debt as a share of GDP still reached the historical high of 109 percent by 2036 in the Fall 2010 Baseline Extended simulation—just 1 year later than it did in the January 2010 Baseline Extended simulation. There was no change in the date when debt held by the public reached the historic high from the January 2010 Alternative simulation to the Fall 2010 Alternative simulation.

²⁴There were also technical changes to assumptions about Medicare payments to physicians unrelated to PPACA that accounted for some of the difference. In our Alternative simulation, Medicare physician payment rate updates are adjusted based on OACT's alternative projections to reflect the fact that in most years, Congress has acted to override reductions that would occur under current law. Our Fall 2010 Alternative assumed that physician payments rates would grow with inflation (using the Medicare Economic Index) beginning in 2010. This assumption resulted in higher Medicare spending on physician payments than our assumption in the January 2010 Alternative simulation that fees would remain at current levels (i.e., a physician fee schedule update of 0 percent).

Figure 1: Comparison of Debt Held by the Public in January 2010 and Fall 2010 Simulations

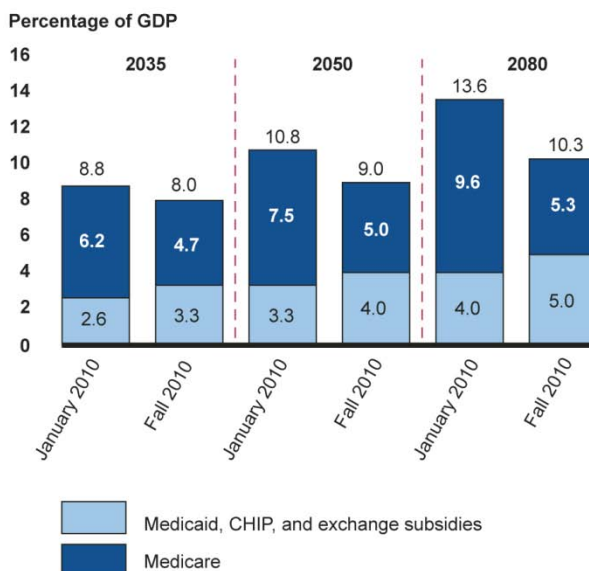


Source: GAO analysis.

The effect of PPACA on the long-term fiscal outlook is seen largely through changes in federal spending on major federal health care programs. Figure 2 shows that federal spending on Medicaid, CHIP, and exchange subsidies increased in the Baseline Extended simulation, reflecting expanded eligibility and coverage. By 2035, spending on Medicaid, CHIP, and exchange subsidies in the Fall 2010 Baseline Extended simulation equaled 3.3 percent of GDP—0.7 percentage points

higher than Medicaid spending in the January 2010 Baseline Extended simulation—and continued to grow thereafter.²⁵

Figure 2: Comparison of Spending on Major Federal Health Care Programs in the January 2010 and Fall 2010 Baseline Extended Simulations for Select Years



Source: GAO analysis.

Note: Prior to the Fall 2010 update, federal spending for CHIP was included in our simulations under other mandatory spending. Starting in Fall 2010, we include federal spending for CHIP along with exchange subsidies in a single category with Medicaid. In January 2010, CBO projected that spending on CHIP would total \$6 billion, or about 0.03 percent of GDP, in 2020. Including CHIP spending with Medicaid in the January 2010 Baseline Extended simulation would not materially affect the results shown in the figure.

²⁵Our Fall 2010 simulations predated the June 2012 decision by the U.S. Supreme Court regarding the expansion of Medicaid to newly eligible populations and therefore assumed that every state would expand Medicaid eligibility as originally required under PPACA. In our most recent simulations published in Fall 2012, which incorporate CBO's and the Joint Committee on Taxation's revised 10-year estimates for the coverage provisions following the Supreme Court's ruling, spending on Medicaid, CHIP, and exchange subsidies is not significantly different from those in our Fall 2010 simulations in part because the reduction in federal matching funds associated with covering fewer individuals in state Medicaid programs is partially offset by increased costs of the exchange subsidies as a result of larger numbers of low-income individuals enrolling in exchange plans. A discussion of uncertainty associated with these estimates is included later in this report.

Spending on Medicare declined substantially in our Fall 2010 Baseline Extended simulation, reflecting the assumption of full implementation and effectiveness of the cost-containment mechanisms in PPACA. Spending on Medicare, for example, decreased 1.5 percentage points from 6.2 percent of GDP in 2035 in the simulations run before PPACA was enacted to 4.7 percent in the simulations run immediately after enactment. The difference between our January 2010 and Fall 2010 simulations widens in subsequent decades as the effects of slower growth in Medicare spending compound over time. Given the large role of Medicare spending in the federal budget, slowing growth of spending on the program would reduce, though not eliminate, the pressure federal health care spending is expected to put on the rest of the federal budget in coming decades.

The Trustees, CBO, and OACT have questioned whether the cost-containment mechanisms enacted in PPACA can be sustained over the long term, due in part to the challenges in sustaining increases in health care productivity. Prior to PPACA, payment updates for many Medicare services were based on the prices of goods and services, such as medical equipment and labor, needed to serve patients. PPACA required that these payment updates be reduced by a productivity adjustment, defined as a 10-year average of changes in annual economy-wide private productivity. This is expected to provide a strong financial incentive for health providers to enhance productivity, improve efficiency, or otherwise reduce their costs per service. The lower payment rate updates to most categories of Medicare providers specified under PPACA have only begun to be implemented. It remains unclear what actions providers will take to improve their productivity and reduce unnecessary expenditures in response to these lower payment rate updates. According to OACT, however, health care productivity gains have historically been small due to such factors as the labor-intensive nature of the industry and the individual customization of treatments in many cases.²⁶ Consequently, OACT said this makes it unlikely that actual health provider productivity will be equal to the economy as a whole over sustained periods.

PPACA created a number of research and development initiatives—such as bundling Medicare payments for services that patients receive across

²⁶See CMS OACT, *Projected Medicare Expenditures under Illustrative Scenarios with Alternative Payment Updates to Medicare Providers* (Baltimore, MD: May 18, 2012).

a single episode of care and establishing the Medicare Shared Savings Program through which accountable care organizations can better manage and coordinate care across different settings—that have the potential to transform the health care payment and delivery system in ways that reduce federal health care spending consistent with the productivity adjustments. However, these initiatives are only just beginning to be tested. Accordingly, it is too early to know which will result in lasting changes and what effect they will have on future federal spending.

The role of IPAB in controlling cost growth is assumed to be limited under current law projections given that the productivity adjustments and other provisions contained in PPACA are estimated by the Trustees to keep Medicare spending below the targeted growth rate in all but 1 year.²⁷ Absent the full and effective implementation of productivity adjustments, IPAB's task would be more daunting. It is not possible to predict at this time, however, what changes IPAB will propose to keep Medicare spending within the specified target and what the disposition of the recommendations will be.

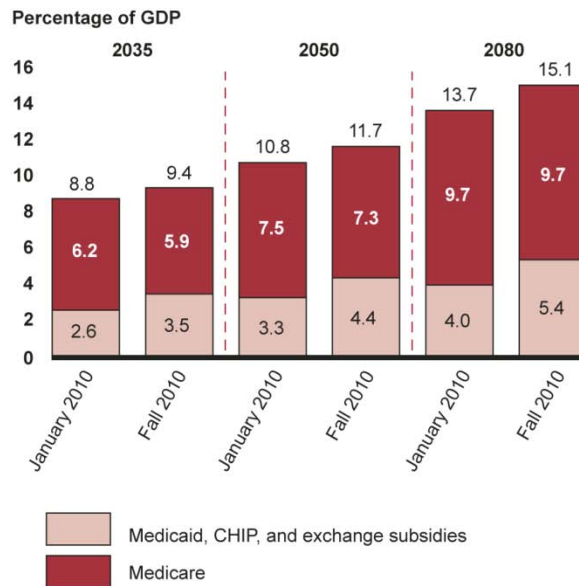
Reflecting these concerns, our Fall 2010 Alternative simulation assumed that cost-containment mechanisms described previously are fully implemented through 2019 and then begin to phase out; Medicare spending resumes its pre-PPACA growth rate by 2035. As a result, Medicare spending declined in most years compared to our January 2010 simulation but by much less than under the Baseline Extended simulation.²⁸ (See fig. 3.) The Fall 2010 Alternative simulation also assumed that spending on exchange subsidies is not constrained by a provision in current law that would otherwise limit growth of exchange

²⁷CMS OACT estimates that in 2019 Medicare spending will exceed the targeted growth rate by 0.1 percent. See CMS OACT, *Projected Medicare Expenditures under Illustrative Scenarios with Alternative Payment Updates to Medicare Providers* (Baltimore, MD: May 18, 2012).

²⁸In our Fall 2010 Alternative simulation based on the CMS OACT's alternative scenario, physician payment rates grew with inflation (using the Medicare Economic Index), as opposed to the 0 percent physician fee schedule update assumed in January 2010, which resulted in higher spending. This offset some of the reductions in spending resulting from the cost containment mechanisms enacted in PPACA.

subsidies.²⁹ In this simulation, spending on Medicaid, CHIP, and exchange subsidies equaled 3.5 percent of GDP in 2035—or roughly 0.9 percentage points higher than in the January 2010 Alternative simulation. As a result, total federal health care spending was higher in the Fall 2010 Alternative simulation than in the January 2010 simulation.

Figure 3: Comparison of Spending on Major Federal Health Care Programs in the January 2010 and Fall 2010 Alternative Simulations for Select Years



Source: GAO analysis.

Notes: Prior to the Fall 2010 update, federal spending for CHIP was included in our simulations under other mandatory spending. Starting in Fall 2010, we include federal spending for CHIP along with exchange subsidies in a single category with Medicaid. In January 2010, CBO projected that spending on CHIP would total \$6 billion, or about 0.03 percent of GDP, in 2020. Including CHIP spending with Medicaid in the January 2010 Alternative simulation would not materially affect the results shown in the figure.

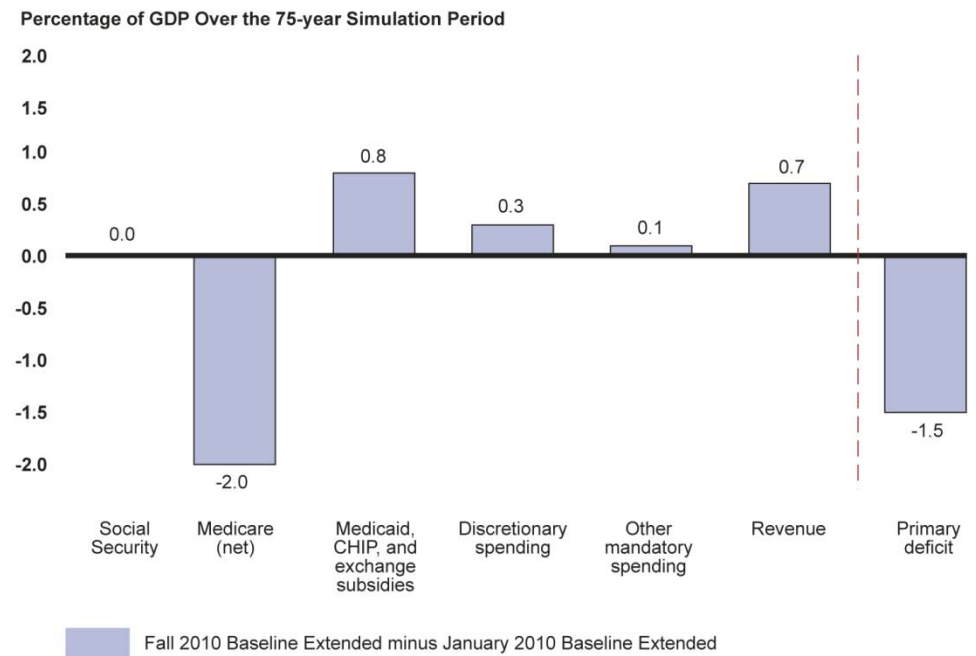
²⁹PPACA contains a provision intended to slow the growth of exchange subsidies after 2018. Initially, the percentages of income that enrollees must pay are indexed so that the subsidies will cover roughly the same share of the total premium over time. After 2018, however, an additional indexing factor will apply in any year in which the total costs of exchange subsidies exceed a specified percentage of GDP. In its 2010 estimates, CBO expected this condition would probably be met after 2018. Therefore the shares of income that enrollees have to pay will increase more rapidly, and the shares of the premium that the subsidies cover will decline.

Figures 4 and 5 show that changes in other budgetary components between the January 2010 and Fall 2010 simulations had a smaller effect on the long-term fiscal outlook. As shown in these figures, increases in spending increase the primary deficit—or the difference between revenue and noninterest spending—and decreases in spending reduce the primary deficit. Increases in revenue also reduce the primary deficit. In August 2010, CBO projected that PPACA would increase federal revenue by \$643 billion—or 0.3 percent of GDP—over the 10-year period from 2011 through 2020.³⁰ This included an excise tax on certain high cost employer-sponsored health plans and increased Medicare Hospital Insurance tax for higher income individuals and families. These changes accounted for some but not all of the increase in revenue in the first 10 years in both of our Fall 2010 simulations. They also affected the long-term revenue assumption in the Baseline Extended simulation, which assumed that revenue remains constant as a share of the economy after 2020. However, we did not make specific assumptions about the particular tax policies and provisions that underlie the aggregate revenue assumption. Increases in revenue related to PPACA did not affect the long-term assumption for revenue in the Alternative simulation, which assumes that revenues return to the historical average after 2020.

Overall, between January 2010 and Fall 2010, the long-term fiscal outlook improved in our Baseline Extended simulation. The primary deficit declined 1.5 percentage points as a share of GDP over the 75-year period in this simulation. (See fig. 4.) On the spending side, about 1.2 percent of GDP of this improvement was attributable to PPACA. In contrast, as figure 5 shows, the primary deficit under our Alternative simulation increased by 0.7 percent of GDP during this time period, due largely to increased spending on Medicaid, CHIP, and exchange subsidies.

³⁰CBO incorporates the effects of certain provisions of PPACA on federal revenue in its long-term projections. In *The 2012 Long-Term Fiscal Outlook*, CBO estimated that implementing several provisions of the PPACA will raise revenues as a share of GDP by 0.8 percentage points by 2037.

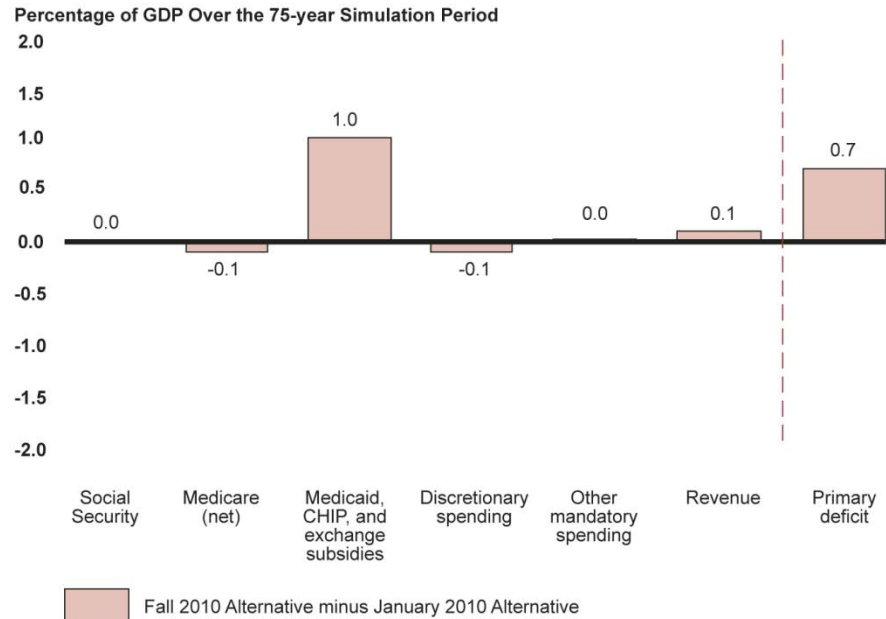
Figure 4: Changes in Noninterest Spending, Revenue, and the Primary Deficit in the Baseline Extended Simulation



Source: GAO analysis.

Note: Increases in spending increase the primary deficit—or the difference between revenue and noninterest spending—and decreases in spending reduce the primary deficit. Increases in revenue also reduce the primary deficit.

Figure 5: Changes in Noninterest Spending, Revenue, and the Primary Deficit in the Alternative Simulation



Source: GAO analysis.

Note: Increases in spending increase the primary deficit—or the difference between revenue and noninterest spending—and decreases in spending reduce the primary deficit. Increases in revenue also reduce the primary deficit.

Health Care Spending in Our Long-Term Simulations Largely Depends on Assumptions about Enrollment and Excess Cost Growth

Our simulations provided two scenarios based on broad sets of assumptions about health care spending and other components of federal spending and revenue. Long-term projections, however, are inherently uncertain and future health care costs in particular are difficult to estimate. This uncertainty, which predates the enactment of PPACA, increases the further the model looks out into the future. While some of this uncertainty is related to the implementation and effectiveness of provisions of PPACA, there is also broader uncertainty about the future underlying rate of health care cost growth before cost-containment mechanisms are applied. The projected rate of growth largely depends on the assumptions used. To examine these assumptions, we divided spending growth into two types of drivers: (1) enrollment in the major federal health care programs and (2) growth in health care spending per capita. While both have contributed to the growth in federal health care

spending over the past several decades, their relative role in explaining rising future federal health care spending differs over time.

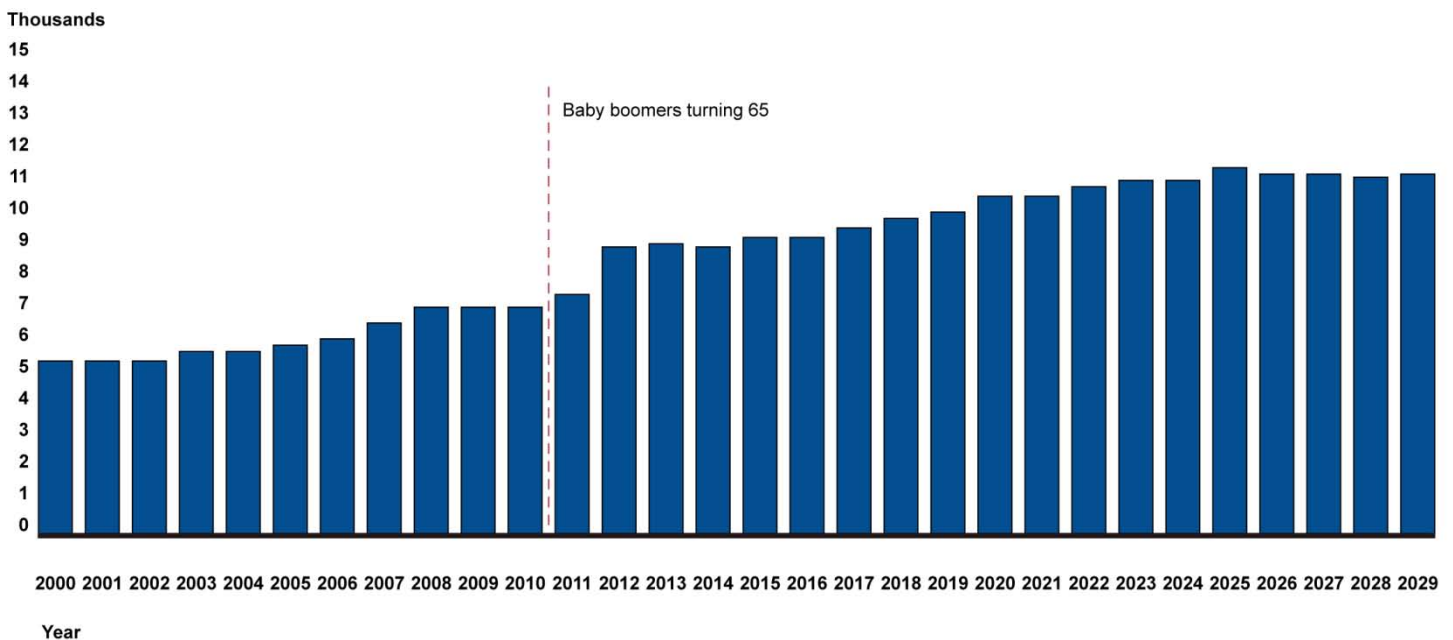
Enrollment is a Key Driver of Federal Health Care Spending Growth in the Near Term

Spending on both Medicare and Medicaid has increased in the past several decades due in part to a steady increase in the number of enrollees. In calendar year 1970, approximately 9 percent of the U.S. population was enrolled in Medicare. As the U.S. population has aged and more people have enrolled in the program, this increased to approximately 15 percent in calendar year 2011. Medicaid enrollment, while more volatile than Medicare enrollment, has also generally increased as states have decided to expand eligibility and economic recessions have increased the number of people eligible. For example, in fiscal year 1970, approximately 7 percent of the U.S. population was enrolled in Medicaid. This increased to approximately 17 percent in fiscal year 2010 (the most recent year historical data is available). However, there have been periods when enrollment did not grow. For example, in the 1990's, strong economic growth and the move from Aid to Families With Dependent Children to the Temporary Assistance for Needy Families block grant, which was designed to help needy families reduce their dependence on federal assistance, helped keep enrollment steady at approximately 12 percent of the population between fiscal years 1995 and 2000.

Enrollment in the major federal health care programs is expected to continue to increase in the near term due both to the aging of the U.S. population and to expanded eligibility. Consequently, increasing enrollment is expected to be the most important driver of federal health care spending over the next couple of decades. Future enrollment trends for Medicare, particularly in the near term, are reasonably clear. The Trustees expect a large increase in enrollment in Medicare between 2010 and 2030 as the baby boom generation reaches age 65 and are eligible to receive benefits.³¹ As figure 6 shows, the number of baby boomers turning 65 is projected to grow in coming years from an average of about 7,600 per day in 2011 to more than 11,000 per day in 2029.

³¹The "baby boom" generation are people born between 1946 and 1965.

Figure 6: Daily Average Number of People Turning 65



Source: GAO analysis of U.S. Census Bureau data.

Note: Data are from the U.S. Census Bureau's National Population Projections. For this analysis, we used data from the low net international migration series.

Future enrollment patterns for Medicaid and the exchange subsidies are less clear due both to the uncertainty about future policy changes and to other factors such as income growth that affect individuals' eligibility.

- *Medicaid.* In its March 2012 projections, which assumed states will expand Medicaid coverage to all eligible individuals as provided in PPACA, CBO estimated that enrollment in Medicaid would increase from roughly 54 million people in fiscal year 2011 (or roughly 17 percent of the population) to 75 million by fiscal year 2022 (or roughly 22 percent of the population). This includes roughly 17 million nonelderly people projected to be enrolled in the program in 2022 as a result of expanded coverage provided by PPACA.³² The people who

³²This estimate also includes a small number of people projected to be enrolled in CHIP in 2022 as a result of expanded coverage provided by PPACA. For more information on PPACA's effects on coverage, see CBO *Updated Estimates for the Insurance Coverage Provisions of the Affordable Care Act* (Washington, D.C.: March 2012).

will be newly eligible for Medicaid under PPACA consist primarily of nonelderly adults with low income along with a smaller number of children from low income households. According to OACT, both groups are expected to be less costly to cover on a per enrollee basis than current enrollees. In March 2012, CBO estimated that expanding Medicaid coverage and CHIP coverage as provided for in PPACA would increase federal spending by \$136 billion in 2022.

CBO has since updated its estimates to reflect the June 2012 U.S. Supreme Court decision on PPACA.³³ PPACA, as enacted, required states to extend Medicaid to most nonpregnant nonelderly individuals up to 133 percent of the FPL and provided states with an enhanced federal match for this newly eligible population.³⁴ States that fail to cover mandatory Medicaid populations are at risk of losing federal match for their entire Medicaid program. The Supreme Court subsequently ruled that states that choose not to expand Medicaid eligibility to these newly eligible individuals will only be subject to a penalty of forgoing the enhanced federal matching funds associated with covering this population rather than foregoing federal matching funds for their entire program. States therefore have the option of deciding whether to expand Medicaid coverage to newly eligible populations as provided by PPACA.³⁵ CBO notes that what states will decide to do regarding the Medicaid expansion under PPACA is highly uncertain. States face both financial incentives and disincentives to participate in the Medicaid expansion. On the one hand, the federal government will cover a large share of the costs of the expansion. On the other hand, states would ultimately have to bear some costs during a period when their budgets are already under pressure, in part from the rising costs of the existing Medicaid program.

³³See CBO, *Estimates for the Insurance Coverage Provisions of the Affordable Care Act Updated for the Recent Supreme Court Decision* (Washington, D.C.: July 2012).

³⁴PPACA also provides for a 5 percent income disregard when calculating modified adjusted gross income for determining Medicaid eligibility, which effectively increases this income level to 138 percent of the FPL. States will receive a 100 percent federal match for newly eligible individuals from 2014 through 2016, with this match slowly decreasing to 90 percent by 2020.

³⁵Since CBO's estimate was prepared, CMS issued guidance indicating that from 2014 through 2016 states that do not expand to all eligible individuals with income at or below 133 percent of FPL will not be eligible for the 100 percent enhanced federal matching rate.

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- *Exchange subsidies.* In projections prepared prior to the Supreme Court ruling, CBO estimated the exchanges would subsidize health insurance coverage for 22 million nonelderly people by fiscal year 2022 and increase federal spending by \$127 billion in that year.³⁶ Following the Supreme Court ruling, CBO revised this estimate anticipating that a portion of the people will not be eligible for Medicaid as a result of states choosing not to expand their Medicaid programs and will instead be eligible for federal subsidies for coverage offered through the exchanges.³⁷ As a result, CBO increased its estimates of the cost of exchange subsidies. However, as noted earlier, it remains uncertain how the states will respond to the Supreme Court's ruling. Further, CBO notes some people will find the exchange subsidies less attractive than Medicaid because of the higher out-of-pocket costs they will face in the exchanges. There is also uncertainty about the extent to which private employers might choose to drop health insurance coverage and shift workers to the exchanges.³⁸

Spending on major federal health programs is affected not just by the number of enrollees but also by the age composition and health status of the enrollees. Elderly individuals, for example, typically have higher health care costs than younger individuals and very elderly individuals, those 85 or older, typically have the highest costs. For Medicare enrollees 85 or older, spending in 2008 was more than \$13,000 per enrollee compared to about \$7,600 for enrollees ages 65 to 74. Similarly, Medicaid's spending varies considerably among different type of enrollees. Children and adults under the age of 65 account for almost 75 percent of Medicaid's enrollees, but have much lower per capita costs than the aged (those 65 or older) or disabled. For example, in fiscal year 2010, Medicaid spent approximately \$3,000 per child and \$4,000 per adult under age 65,

³⁶CBO, *Updated Estimates for the Insurance Coverage Provisions of the Affordable Care Act* (Washington, D.C.: March 2012).

³⁷In particular, individuals with income between 100 percent and 138 percent of the FPL who live in a state that chooses not to expand Medicaid coverage or to defer such an expansion and who meet certain other criteria would be eligible for such subsidies. For more information, see CBO, *Estimates for the Insurance Coverage Provisions of the Affordable Care Act Updated for the Recent Supreme Court Decision* (Washington, D.C.: July 2012).

³⁸We recently issued a report that examined estimates of the effect of PPACA on the extent of employer-sponsored coverage. See, GAO, *Patient Protection and Affordable Care Act: Estimates of the Effect on the Prevalence of Employer-Sponsored Health Coverage*, [GAO-12-768](#) (Washington, D.C.: July 13, 2012).

compared to approximately \$15,000 and \$17,000, for each aged beneficiary and each disabled beneficiary, respectively. Medicaid already has a large role in funding long-term care, such as nursing homes, for aged persons. The increase in the number of people 85 or older in the next 10 years is expected to have a major effect on long-term care spending for Medicaid. As such, a key driver of federal spending for both Medicare and Medicaid is the aging of the population. Enrollment from this population did not change as a result of PPACA.

Growth in Health Care Spending Per Capita is a Key Driver of Federal Health Care Spending Over the Long Term

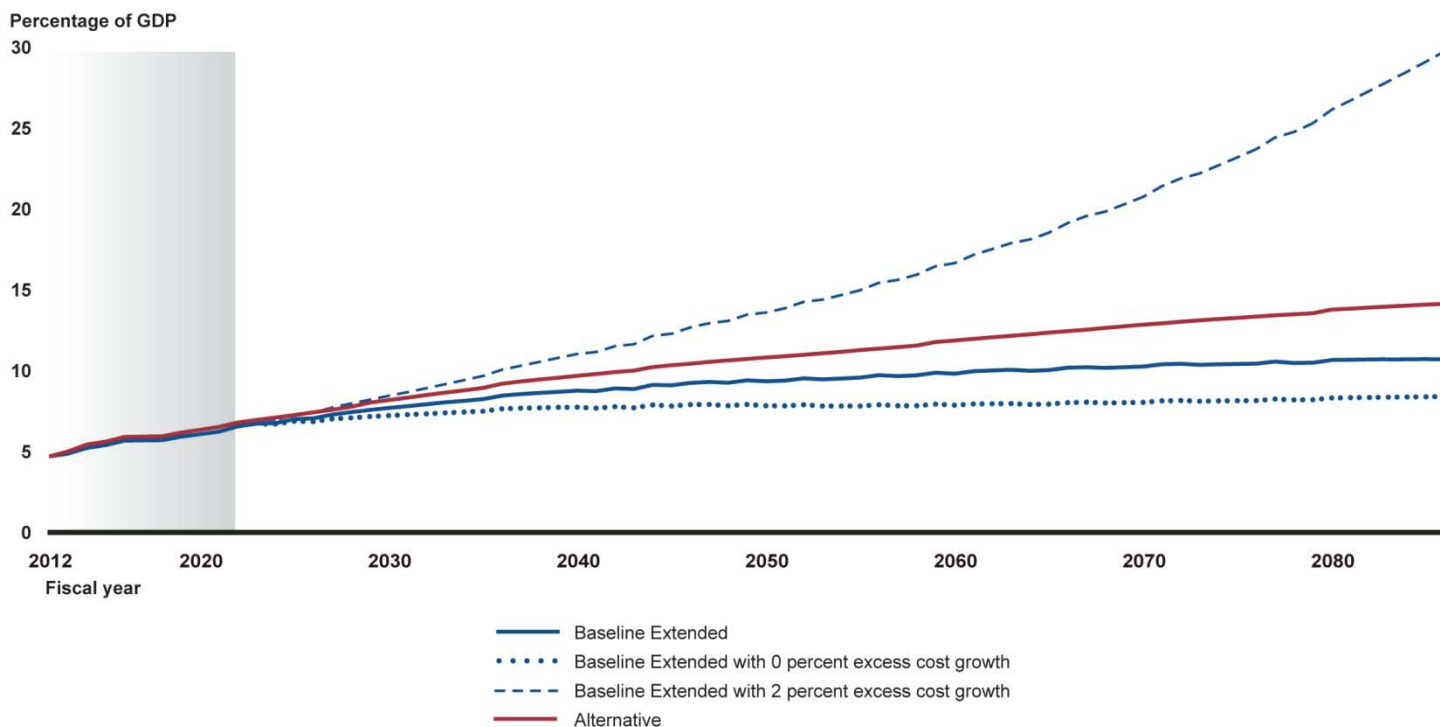
The share of the federal budget devoted to Medicare and Medicaid has increased over the past several decades due not only to increases in enrollment but also due to increases in health care spending per enrollee. The extent to which the annual growth rate of health care spending per capita exceeds the annual growth rate of potential GDP per capita adjusted for demographic characteristics, is referred to as excess cost growth. Over the last 35 years, excess cost growth averaged around 2 percent but has fluctuated during this time period. Excess cost growth slowed for Medicare, for example, after the introduction of a prospective payment system in fiscal year 1984 in which Medicare pays a predetermined rate for each hospital admission—rather than simply reimbursing providers for costs, which provides little incentive for efficiency. Excess cost growth also slowed in the 1990s as enrollment increased in managed care plans. However, it is not clear to what extent these slowdowns represent one-time downward shifts in health care costs or more permanent changes in the underlying growth rate. Overall excess cost growth in the United States is thought to have returned closer to the historical average in the 2000s.

Excess cost growth leads to an ever-growing share of the nation's income being spent on health care, crowding out spending on all other goods and services. Going forward, CBO and the Trustees both assume that excess cost growth will decrease over time because of the financial pressure health care spending is putting on the federal government, states, businesses, and households. How and when this transition takes place, however, is highly uncertain. Figure 7 shows that varying the excess cost growth assumption in our simulations dramatically alters the share of national income needed to fund federal health care spending. Under the standard set of assumptions for health care spending in the Baseline Extended simulation, excess cost growth averages 0.2 percentage points for Medicare and 0.8 percentage points for Medicaid, CHIP, and exchange subsidies over the long term. Under these assumptions, spending on these programs would rise from less than 5 percent of GDP

in 2012 to more than 9 percent in 2050. If excess cost growth averaged 2 percent per year after 2022—the average rate between 1975 and 2010—federal health spending in our Baseline Extended simulation would rise quickly and would account for more than 13 percent of the entire U.S. economy by 2050.

Even with lower assumptions about excess cost growth, a growing share of national income would be needed to fund federal health programs. Under the 0-percent excess cost growth scenario, spending on Medicare, Medicaid, CHIP, and exchange subsidies would continue to grow as a share of GDP due to the aging of the population and other enrollment and demographic trends described earlier. In 2050, spending on the major federal health care programs would be 8 percent of GDP and gradually increase thereafter. At the end of the 75-year simulation period, spending on Medicare, Medicaid, CHIP, and exchange subsidies in the 0-percent excess cost growth scenario would be higher than at the beginning of the scenario in fiscal year 2022, but still below the levels shown in our standard Baseline Extended and Alternative simulations.

Figure 7: Federal Health Care Spending under Different Excess Cost Growth Scenarios

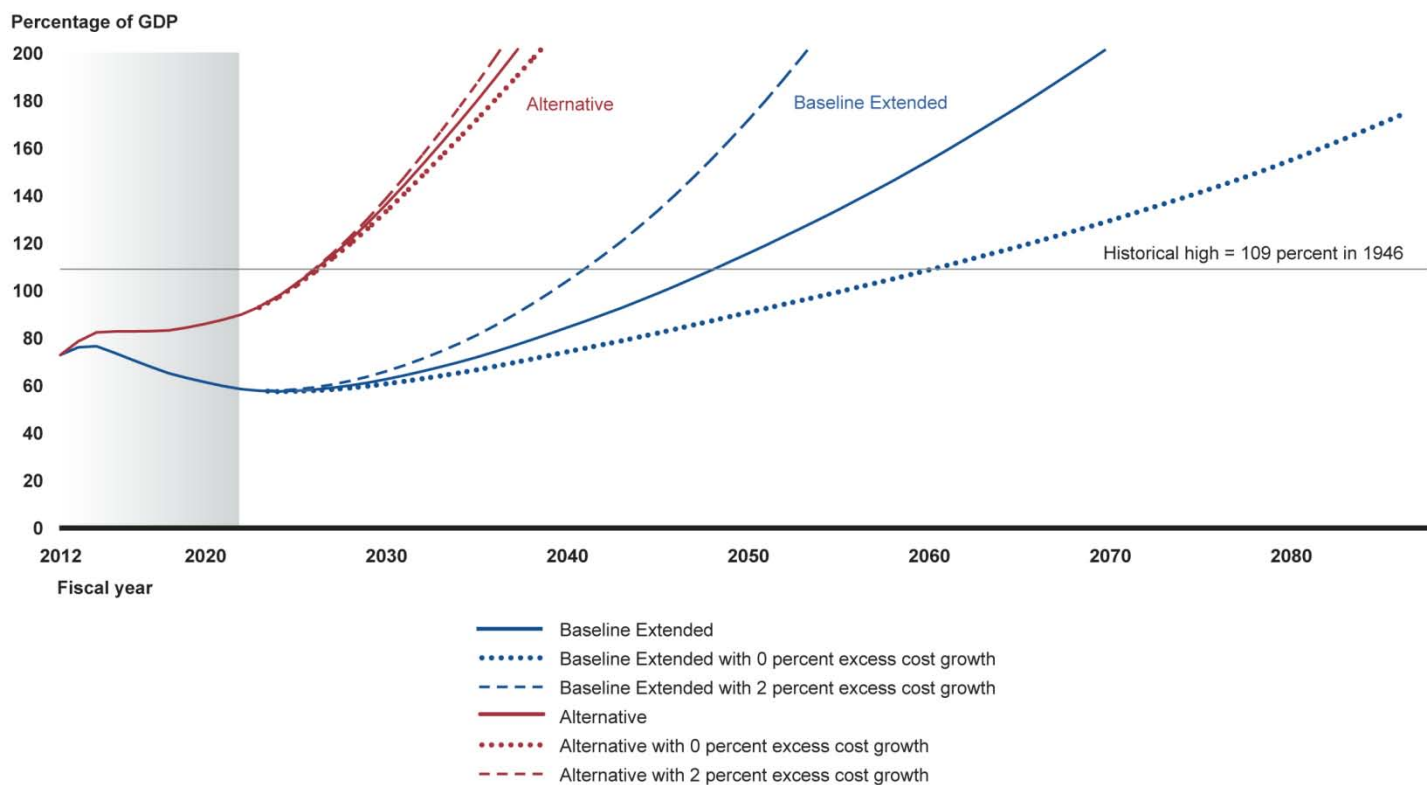


Source: GAO analysis.

Notes: Excess cost growth changes begin in fiscal year 2023. In the Fall 2012 Baseline Extended simulation, excess cost growth averages 0.2 percentage points for Medicare and 0.8 percentage points for Medicaid, CHIP, and exchange subsidies over the long term. In the Fall 2012 Alternative simulation, excess cost growth averages 0.8 percentage points for Medicare, Medicaid, CHIP, and exchange subsidies over the long term.

Figure 8 shows that slowing the rate of excess cost growth could slow the buildup of debt held by the public considerably and help put the budget on a more sustainable path. Assuming revenue and nonhealth spending follow the assumptions in the Baseline Extended simulation and excess cost growth for health care averages 2 percentage points each year, debt held by the public would be more than 170 percent of GDP in 2050. Assuming 0 percent excess cost growth after 2022—an outcome that has not been sustained for any extended length of time over the past several decades—debt held by the public would be roughly 91 percent of GDP in 2050 in the Baseline Extended simulation. Debt held by the public would continue to slowly increase thereafter largely because of the interest costs of financing the federal government’s accumulated debt and increasing enrollment in federal health programs.

Figure 8: Debt Held by the Public in the Baseline Extended and Alternative Simulations with Different Assumptions for Excess Cost Growth



Source: GAO analysis.

Notes: Federal revenue and nonhealth spending in the 0 and 2 percent excess cost growth scenarios are based on our Fall 2012 simulations. Excess cost growth changes begin in fiscal year 2023. In the Baseline Extended simulation, excess cost growth averages 0.2 percentage points for Medicare and 0.8 percentage points for Medicaid, CHIP, and exchange subsidies over the long term. In the Alternative simulation, excess cost growth averages 0.8 percentage points for Medicare, Medicaid, CHIP, and exchange subsidies over the long term.

Figure 8 also shows that slowing health care cost growth is insufficient to close the imbalance between spending and revenue in the Alternative simulation in the next few decades. In this simulation, revenue and spending follow historic trends and past policy preferences. Even assuming 0 percent excess cost growth after 2022, debt held by the public rises steeply in the Alternative simulation, reaching more than 100 percent of GDP (or the size of the total economy) by 2025, and continuing to grow at a rapid rate thereafter. This demonstrates that significant policy changes beyond those designed to control health care cost growth would need to be taken in the near term to put federal debt on a more sustainable path.

Simulations based on broad assumptions about future excess cost growth such as these are helpful for illustrating how different rates of growth in spending per capita would affect future federal spending on health care. However, the simulations do not provide insight into the underlying factors driving growth in health care cost per capita. The major federal health care programs are highly integrated with the rest of the health care system and influenced not only by policies and laws, but also by future demographic and economic trends; the development and deployment of medical technology; the cost and availability of insurance; and the responses of health care providers, consumers, and policymakers to these trends. As policymakers consider how to put the federal government on a more sustainable path, it will be important to understand what the specific factors driving cost growth are, how they are interrelated, and how changes in these factors could affect federal health care spending.

**Technological Change
Has Been the Largest
Driver of Health Care
Cost Growth, and
with Health Insurance
Coverage and
Increasing Income, is
Likely the Largest
Source of Uncertainty
for Health Care Cost
Projections**

Technological Change Accounts for about 50 Percent of Health Care Cost Growth

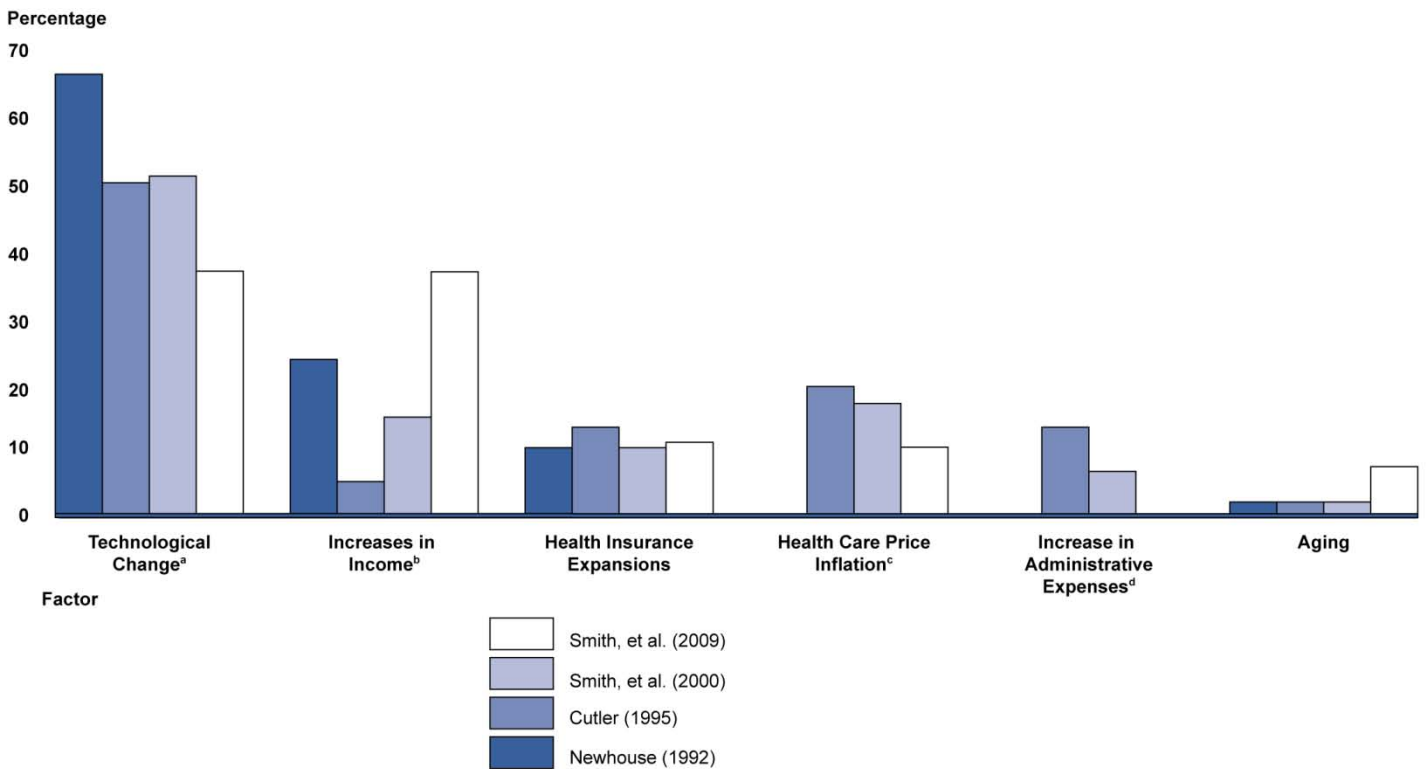
A growing U.S. population directly increases overall health care spending; however, the causes of rising health care cost per capita are more difficult to identify.³⁹ Per capita health care spending grew at an average of 4.9 percent per year between 1965 and 2005, while per capita GDP grew at an average of 2.1 percent per year.⁴⁰ There is general agreement among researchers about the factors that drive health care cost growth and the relative size of influence of this growth, although each factor has a unique mechanism to affect health care costs, and therefore, a different relative influence on health care cost growth (see fig. 9).⁴¹

³⁹This finding focuses on the drivers of health care spending growth, which can be used to help understand drivers of excess cost growth; however, there are important differences. Health care spending growth describes the increase in overall health care spending over time, while excess cost growth, measures the extent to which health care spending per capita grows faster than the GDP per capita.

⁴⁰CBO, *Technological Change and the Growth of Health Care Spending* (Washington, D.C.: January 2008).

⁴¹CBO, *Technological Change and the Growth of Health Care Spending* (Washington, D.C.: January 2008) presents similar findings based on Newhouse (1992), Cutler (1995), and Smith et al. (2000). Additional information is presented here from Smith et al. (2009), which improves upon earlier studies by using an expanded model of causal factors and multi-national information on the influence of income on health care spending. Also, a CBO analysis from 2009 provides new information on the influence of defensive medicine, which was not included in any of the study models.

Figure 9: Estimates of the Percentage of Past Real Health Care Cost Growth Per Capita Explained by Different Factors



Sources: *Health Affairs*, Centers for Medicare & Medicaid Services, Harvard University and the National Bureau of Economic Research, and *Journal of Economic Perspectives*.

Notes: Presentation of information from Sheila Smith, Joseph P. Newhouse, and Mark S. Freeland, "Income, Insurance, and Technology: Why Does Health Spending Outpace Economic Growth," *Health Affairs*, vol. 28, no. 5 (2009); Sheila D. Smith, Stephen K. Heffler, and Mark S. Freeland, Ph.D., "The Impact of Technological Change on Health Care Cost Spending: An Evaluation of the Literature," working paper, 2000; David M. Cutler, "Technology, Health Costs, and the NIH," Harvard University and the National Bureau of Economic Research, (paper prepared for the National Institutes of Health Economics Roundtable on Biomedical Research, September 1995); and J. P. Newhouse, "Medical Care Costs: How Much Welfare Loss?," *Journal of Economic Perspectives*, vol. 6, no. 3 (Summer 1992).

The sum of percentage explained for all factors may not equal 100 percent due to rounding, or due to a range of percentages being reported for certain factors when different assumptions of price elasticity and medical productivity were tested. Newhouse (1992) analyzes data from 1940 to 1990 for income, data from 1950 to 1987 for demographics, and data from 1950 to 1980 for health insurance. Cutler (1995) and Smith et al. (2000) analyze data from 1940 to 1990. Smith et al. (2009) analyzes data from 1960 to 2007.

^aSmith et al. (2000) attributed between 38 and 62 percent of growth in health care cost per capita to technological change. Smith et al. (2009) attributed between 27.4 and 48.3 percent of growth in health care cost per capita to technological change.

^bSmith et al. (2000) estimated the effect of increases in income to be between 11 and 18 percent based on different assumptions of income elasticity (between 0.5 and 0.8). Smith et al. (2009) estimated the effect of increases in income to be between 28.7 and 43.1 percent based on different

assumptions of income elasticity (between 0.6 and 0.9).

^cHealth care price inflation was not estimated by Newhouse (1992). Smith et al. (2000) estimated the effect of health care price inflation to be between 11 and 22 percent based on different assumptions of productivity growth (between 0 percent and half the economy-wide rate) and of the proportion of price inflation attributable to rising rents (between 25 and 75 percent). Smith et al. (2009) estimated the effect of health care price inflation to be between 5 and 18.8 percent based on different assumptions of medical care productivity (between 0 percent and economy average) and of income elasticity (between 0.6 and 0.9).

^dIncrease in administrative expenses was not estimated by Newhouse (1992) nor Smith et al. (2009). Smith et al. (2000) estimated the effect of avoidable administrative expense to be between 3 and 10 percent based on the assumption that 25 to 75 percent of avoidable administrative expense represents growth between 1940 and 1990.

Technological change (36 to 65 percent): Technological change affecting health care cost growth may take many forms. CBO defines technological advances as changes in clinical practice that enhance the ability of providers to diagnose, treat, or prevent health problems. Examples of technological advances include new drugs, devices, procedures, and therapies, as well as new applications of existing technologies.⁴² While not all new technologies increase health care costs, technological change as a whole has been the dominant cause of increases in health care spending.⁴³

The effect of technological change on health care costs may depend, in part, on the type of treatment to which the new technology is applied. Cutler describes the following classes of treatment and their relative costs:⁴⁴

⁴²CBO, *Technological Change and the Growth of Health Care Spending*, 12.

⁴³It should be noted that all four studies presented in figure 9 modeled the influence of the non-technology factors on health care cost growth, and assigned the residual influence to technological change. This method is primarily employed because there is no direct measure of technological change over time. To address the interactive effects of other factors in the model, Smith et al. (2009) used a more nuanced method than the other studies which had the effect of attributing relatively more health care cost growth to increases in income and aging, thereby reducing the amount attributed to technological change. Rather than using the residual approach, Okunade and Murthy found that health care research and design spending, used as a proxy for technological change in health care, is a long-run driver of rising health care expenditures. See Albert A. Okunade and Vasudeva N. R. Murthy, "Technology as a 'major driver' of health care costs: a cointegration analysis of the Newhouse conjecture," *Journal of Health Economics*, vol. 21, issue 1 (2002).

⁴⁴David M. Cutler, "Technology, Health Costs, and the NIH," Harvard University and the National Bureau of Economic Research, (paper prepared for the National Institutes of Health Economics Roundtable on Biomedical Research, 1995).

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- Nontreatment applies to diseases that cannot be treated, such as end-stage cancers, and thus have a relatively low cost of medical care.
 - Disease management refers to halfway technologies that can improve quality of life when cure or prevention is not possible. Disease management, such as dialysis for end-stage renal disease, is often very expensive.
 - Prevention and cures for disease may have low marginal costs when they are available; however, preventative therapies are often provided to an entire population, and to the extent that new cures are more effective and cheaper than older treatments, demand for new cures may increase significantly. Thus, even when the unit price of new preventative therapies and cures are low, large quantities provided may increase overall spending for these treatments.

In general, a technological change that enables providers to treat a previously untreatable disease will increase health care spending, while expanding disease management or shifting disease management to prevention or cure can lead to either increased or decreased health care spending. However, the introduction of new treatments and technologies may result in increased health care spending due to the possibility that health complications may arise from a new treatment, or that patients survive one disease long enough and eventually are diagnosed with an additional disease with additional treatment cost.

It should be noted that a complete assessment of health care spending for new technologies should also consider the value, often measured by improved health functioning; increased life expectancy; or improved economic productivity produced by those technologies. For example, Cutler and McClellan found that increases in health care costs due to technological changes in the treatments for heart attacks, low-birthweight infants, depression, and cataracts was more than offset by increased life expectancy and improved productivity made possible by improved health.⁴⁵ They also concluded that the value of increased longevity per

⁴⁵David M. Cutler and Mark McClellan, "Is Technological Change in Medicine Worth It?," *Health Affairs*, vol. 20, no. 5 (2001). In this paper, Cutler and McClellan measure increases in health and life expectancy using quality-adjusted life years and a commonly used assumption that the value of a year of life in the absence of disease is \$100,000.

person between 1950 and 1990 was larger than the increase in per capita health care spending over the same period.

Chandra and Skinner assess technological change by categorizing innovations based on their health care productivity, or the improvement in health outcomes, such as longevity or health functioning, per dollar increase in cost.⁴⁶ The first category includes highly productive treatments, which may be inexpensive, such as aspirin and beta-blockers, or expensive, such as anti-retroviral drugs for treating people with HIV/AIDS. The second category includes treatments with substantial benefits for some patients, but a diminished benefit for others. For example, heart attack patients treated within 12 hours of a heart attack receive large benefits from angioplasty and placement of a stent; however, the benefits for patients with stable angina, chest pain or discomfort, are less clear. The final category includes treatments with little benefit or scientific evidence. Treatments in this category are more likely to be focused on treatment for chronic conditions. Chandra and Skinner find that much of the improvement in health is generated by treatments in the first category, while much of the cost is generated by treatments in the third category, and therefore conclude that health insurance interacts with technological change to drive health care cost growth as health insurance provides access to new technologies for patients who may experience little health benefit.

Increases in income (5 to 36 percent): As personal income increases, people demand more and better goods and services, including health care. This means that holding other factors constant, as higher personal income increases the quantity and quality of care demanded, overall health care spending increases as well. GDP is a good indicator of the effect of increasing income on health care spending. When GDP is growing, many Americans experience increases in income and will demand more health care services. When the rate of GDP growth declines, such as during the recent recession, health care spending growth may slow down; however, the magnitude of impact on health care spending may be smaller than compared to periods of higher GDP growth due to the persistent relationship of increasing income leading to the production of new technologies. To add further context to this

⁴⁶Amitabh Chandra and Jonathan Skinner, "Technology Growth and Expenditure Growth in Health Care," *Journal of Economic Literature*, vol. 50, no. 3 (2012).

relationship, the income elasticity for health care services, that is the magnitude of the association between income and demand for health care services, may vary across households and over time. While there are a variety of assessments of the effect of income on health care expenditures, historical data from the United States suggest that for a 10 percent increase in income, health expenditures will rise between 2 and 4 percent.⁴⁷ Incorporating data from other countries to estimate the relationship at the national level and including the effect of other factors affecting health spending that are correlated with real per capita GDP raises the increase in health care expenditures to about 14 percent.⁴⁸

Health insurance expansions (10 to 13 percent): The expansion of health insurance increases health care cost per capita as people demand more health care when they are better insured. Health insurance has expanded in two ways: (1) by covering an increasing share of the population and (2) by covering each person more completely. Both of these pathways decrease the out-of-pocket expenses that beneficiaries pay through deductibles and cost-sharing, which have declined as a share of overall health care spending.

These two pathways help explain how health care costs may be affected when considering different types of health insurance. A recent study found that having Medicaid insurance in Oregon increased the likelihood of any hospitalization by 30 percent compared to having no insurance.⁴⁹ Older research from the Rand health insurance experiment suggests that total per capita expenditures increased by about 30 percent for

⁴⁷ Joseph P. Newhouse, "Medical Care Costs: How Much Welfare Loss?" *Journal of Economic Perspectives*, vol. 6, no. 3, (Summer 1992), 7-8.

⁴⁸ Sheila Smith, Joseph P. Newhouse, and Mark S. Freeland, "Income, Insurance, and Technology: Why Does Health Spending Outpace Economic Growth," *Health Affairs*, vol. 28, no. 5 (2009), 1279-1280.

⁴⁹ Amy Finkelstein, Sarah Taubman, Bill Wright, Mira Bernstein, Jonathon Gruber, Joseph Newhouse, Heidi Allen, Katherine Baicker, The Oregon Health Study Group, "The Oregon Health Insurance Experiment: Evidence from the First Year," National Bureau of Economic Research working paper series, no. 17190, 2011.

beneficiaries receiving free care compared to those in a plan similar to current high-deductible insurance plans.⁵⁰

Furthermore, the relative comprehensiveness of coverage and out-of-pocket expenses differs by insurer category, such as a private insurer, Medicare, or Medicaid. Therefore, health care spending may increase when people switch to a more comprehensive type of health insurance coverage, such as switching from Medicaid to private health insurance.

Health care price inflation (10 to 19 percent): Health care price inflation contributes to health care cost growth; however, the precise impact of health care price inflation on overall health care cost growth is not known. Unlike many markets, prices in the health care market are difficult for consumers to discern and therefore, infrequently used to determine which provider to see or which service to undergo, when options are available. While there may not be a strong or direct influence from competition on price inflation, there are indirect mechanisms in both the public and private health insurance markets. In the private health insurance market, some consumers comparison shop for health insurance plans—or employers comparison shop on their behalf—and insurance plans use contracts with providers to restrict the prices charged for services provided. The extent to which this mechanism limits cost growth varies by insurance plan type and the incentives each plan type imposes to limit health care costs. For example, fee-for-service plans generally pay providers a set amount to provide a specific service and therefore provide little or no incentive to limit costs; however, plans offered by health maintenance organizations may limit health care costs by encouraging the efficient provision of health care services through mechanisms such as capitated payments and utilization review, as well as through contracts with low-cost providers or those offering discounted rates. In the market for public health insurance, various strategies by federal and state governments to restrict inflation have been used over time, including state

⁵⁰ Joseph P. Newhouse and the Insurance Experiment Group, *Free for All?: Lessons from the RAND Health Insurance Experiment*, (Cambridge, MA: Harvard University Press, 1993).

certificate of need requirements and prospective payment systems for Medicare services.⁵¹

Increases in administrative expenses (7 to 13 percent): The cost of administering health care has several sources, and has proven difficult to identify. Despite the difficulty in estimating administrative expenses, economists generally agree that they contribute to health care cost growth. Increases in administrative expenses may be due to the more complex and changing structure of the insurer and provider relationship. As a result, increased effort and new technology to deal with coding and filing claims, billing, and maintaining medical records may have increased administrative expenses.

Aging (2 to 7 percent): The relative aging of the U.S. population contributes to increasing health care costs. An increasing share of the population that is older increases average health care costs per capita due to the additional medical care older Americans generally require. While an aging U.S. population has increased health care costs overall, the contribution of aging has been relatively small.

Changes in the amount of defensive medicine and supplier-induced demand:⁵² Because the clinical value of a medical service may vary by patient and categorization of a service as defensive or supplier-induced depends on intent, it is difficult to identify these services. Defensive medicine and supplier-induced demand were either not included or found to be zero in the macro-studies determining the relative influence of various factors on health care cost growth presented in figure 9; however, several studies on specific procedures show that they do contribute to increasing health care costs. CBO reported that enacting certain tort

⁵¹State certificate of need requirements generally aim to restrain health care costs and allow for coordinated planning of the creation of new health care provider locations and offering of new services. Prospective payments, such as those made through Medicare's inpatient prospective payment system, are predetermined payment amounts based on the estimated costs of an efficient provider rather than the actual costs incurred by a particular provider.

⁵²Defensive medicine refers to health care services that have little or no clinical value, but that physicians order or perform at least partly to help avoid adverse judgments in malpractice lawsuits. In contrast, if providers who are paid on a fee-for-service schedule increase the volume of services provided in order to increase their own income, the increase in service use is described as supplier-induced demand. CBO, *Technological Change and the Growth of Health Care Spending*, p. 11-12.

reform proposals designed to limit defensive medicine would have reduced national health care spending by \$11 billion in 2009, or 0.5 percent of health care expenditures, through decreased medical liability insurance premiums and lower utilization of health care services.⁵³ While several studies show evidence of supplier-induced demand for particular services, including imaging services and procedures provided at physician-owned specialty hospitals, no study characterizes the overall impact of supplier-induced demand on health care cost growth.⁵⁴

Many of the factors listed previously may not affect health care cost growth independently; instead they have combined effects through interactions in the health care market. For example, researchers believe that the influence of technological change on health care spending has been facilitated by higher historical levels of fee-for-service insurance, which incorporates less utilization review compared to managed care, and by periods of increasing per capita income which is associated with increased demand for new technologies.

Key Uncertainties for
Health Care Cost
Projections are
Technological Change,
Increases in Income, and
Health Insurance
Expansions

Although there is some consensus among researchers about which factors drive health care cost growth, there is considerable uncertainty about the magnitude of impact of each factor on future health care cost growth. Population growth is relatively predictable and barring a pandemic or similar catastrophic event, is not likely to contribute much uncertainty to health care cost projections. More uncertainty is likely to be associated with factors influencing health care spending per capita, particularly technological change, given its varied pathways of influence on health care cost growth. The following is our analysis of the relative uncertainty associated with factors influencing health care spending per capita.

⁵³CBO, *Analysis of the Effects of Proposals to Limit Costs Related to Medical Malpractice ("Tort Reform")*, Letter to the Honorable Orrin G. Hatch (Washington, D.C.: Oct. 9, 2009).

⁵⁴GAO, *Higher Use of Advanced Imaging Services by Providers Who Self-Refer Costing Medicare Millions*, [GAO-12-966](#) (Washington, D.C.: Sept. 28, 2012). J. M. Mitchell, "The Prevalence of Physician Self-Referral Arrangements after Stark II: Evidence from Advanced Diagnostic Imaging," *Health Affairs*, web exclusive, Apr. 17, 2007, w415-w424. J. M. Mitchell, "Effect of Physician Ownership of Specialty Hospitals and Ambulatory Surgery Centers on Frequency of Use of Outpatient Surgery," *Archives of Surgery*, vol. 145, no. 8 (2010).

Technological change: While analysis of the number and types of medical technologies that are expected to be introduced in the next few years may yield some information about the range of possible impact of technology on health care spending per capita, the large number of sources of technological change makes this cost driver the most uncertain for estimating future health care costs. Much of this uncertainty is due to the unknown costs and effectiveness of changes in clinical practice—such as the introduction of new pharmaceutical drugs, medical devices, diagnostic tests, and procedures to treat disease—while the development and incorporation of nonclinical technologies—such as health information technology—also contribute to the uncertainty of future health care costs. Moreover, the development of new medical technology is influenced by future health insurance expansions and increases in income, further reducing the predictability of the impact of technological change on future health care costs.

Increases in income: Based on expectations of future GDP growth and changes in the distribution of income among Americans, the influence of increases in income on health care cost growth is somewhat uncertain in the near future and likely to increase in uncertainty in the long-run. Because increasing personal income generally increases demand for health care services, the extent to which future increases in personal income will affect health care cost growth can be approximated using expectations of future growth in aggregate income, as measured by GDP, and changes in how that income is distributed. If a given increase in GDP is associated with an increase in income for a larger proportion of Americans, then the increase in GDP will generate a larger increase in health care cost growth. Together, the expected volatility in future GDP growth and possible changes in the distribution of income among Americans leads us to believe that there is some uncertainty surrounding the size of the impact that increases in income may have on future health care cost growth, and that the uncertainty is larger for the more distant future.

Health insurance expansions: The expansion of health insurance may have some associated uncertainty for future health care costs per capita. This uncertainty is likely to have a lower bound of maintaining current insurance levels and an upper bound based on increasing both the number of insured Americans and the depth of coverage for each person. While future scenarios with decreasing insurance levels are possible, current policy debate is focused on increasing insurance levels. Possible increases in health insurance include the expansion of private insurance and Medicaid to cover the approximately 49 million Americans uninsured

as of 2011, which would remove barriers to health care and increase health care spending.

Health care price inflation: Changes in the structure of payment models and health insurance plan types will help limit health care price inflation, likely resulting in relatively little uncertainty in the amount of future health care cost growth caused by health care price inflation. Health care prices have been increasing steadily between 3 and 5 percent annually in recent decades. While some factors, such as consolidation of providers and integration of provider types, can reinforce price inflation, insurance plan types and insurance models have also been evolving to incorporate new methods of restraining health care cost growth. The trend of shifting toward more capitated payment,⁵⁵ rather than fee-for-service, may continue as new capitated payment models are introduced and more beneficiaries switch to managed care health plans. In addition, the introduction of groups of providers organized into accountable care organizations may also restrain health care cost growth through payment models designed to promote quality care and coordinate care.⁵⁶

Increases in administrative expenses: While it is difficult to assess the uncertainty associated with administrative expenses, it is clear that administrative expenses represent a relatively small portion of overall health care spending, and thus are likely to impose a relatively small amount of uncertainty on health care cost projections. The largest near-term change in administrative expenses is likely to be from increased use of electronic medical records, which may have large initial implementation costs, but also may decrease administrative expenses over the long-term.

Aging: Similar to population growth, the aging of the U.S. population is relatively predictable; therefore, aging is not likely to produce much uncertainty for long-term health care projections. Changes in the age profile of the United States may affect health costs per capita through relatively unlikely events such as a pandemic or other catastrophic event,

⁵⁵Capitated payments reimburse providers for the cost of health care services for a particular patient over a period of time. Payments are generally based on a diagnosis or treatment and are often adjusted to account for the health status of the patient.

⁵⁶Accountable care organizations are made up of groups of providers and suppliers that join together with the goal of reducing costs by improving the quality and efficiency of health care delivered to beneficiaries.

or a major technological breakthrough that significantly affects life expectancy.

Changes in the amount of defensive medicine: Because it is difficult to separate health care services provided due to defensive medicine from those that would have been otherwise provided, it may be also somewhat difficult to affect change on the influence of these factors on health care spending. There are legislative proposals to limit the ability of individuals to bring medical malpractice actions, which are designed to limit defensive medicine spending; however, the uncertainty associated with health care spending due to these factors is likely to be small.

Changes in the amount of supplier-induced demand: It is also difficult to identify services provided due to supplier-induced demand, and therefore difficult to estimate the uncertainty associated with supplier-induced demand. However, some changes in supplier-induced demand may impact future health care cost growth. For example, PPACA's limiting of the expansion of physician-owned hospitals,⁵⁷ and increased use of prospective and bundled payments may improve productivity and limit supplier-induced demand because the payment structure gives providers an incentive to find ways to treat patients more efficiently.⁵⁸

Increases in direct-to-consumer advertising and consumer information: Uncertainty associated with increases in direct-to-consumer advertising and consumer information is relatively unknown as the phenomenon is quite new and its impact on future health care cost growth depends on many factors, including advertising regulations and physician attitudes toward patient requests.

Concluding Observations

Comparing the results of our simulations before and after the enactment of PPACA helps to illustrate the important role that efforts to slow the growth in health care spending have in improving the long-term fiscal

⁵⁷In order to continue to qualify for an exception to the federal statutory prohibition on physician self-referrals, most physician-owned hospitals must meet new criteria established under PPACA, including a prohibition on expanding facility capacity beyond 2010 levels.

⁵⁸Bundled payments, or episode-based payments, are payments for an entire episode of services, which incorporate the often reduced cost for services provided in the same episode of care, compared to the cost of providing each service in separate episodes.

outlook. These efforts will require a sustained commitment and understanding of the key factors affecting health care cost and how they interrelate. Reducing health care cost growth alone, however, is not sufficient to put the federal budget on a sustainable path. Even in simulations assuming health care cost growth can be constrained for an extended period, our simulations show debt held by the public rising as a share of GDP over time, particularly assuming historical trends and policy preferences for revenue and other spending continue. Therefore, more needs to be done to change the fiscal path. This will likely require difficult decisions about both federal spending and revenue.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 19 days from the report date. At that time, we will send copies of this report to interested congressional committees and other interested parties. We will also make copies available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact Susan J. Irving at (202) 512-6806 or irvings@gao.gov, or James C. Cosgrove at (202) 512-7114 or cosgrovej@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

Sincerely yours,

A handwritten signature in black ink that reads "Susan J. Irving". The signature is fluid and cursive, with the first name "Susan" and last name "Irving" clearly legible.

Susan J. Irving
Director for Federal Budget Analysis
Strategic Issues

A handwritten signature in black ink that reads "James C. Cosgrove". The signature is highly stylized and cursive, with the first name "James" and last name "Cosgrove" clearly legible.

James C. Cosgrove
Director
Health Care

Appendix I: Key Assumptions and Technical Changes in Our Federal Simulations for this Report

We run two simulations showing federal deficits and debt under different sets of policy assumptions. Our Baseline Extended simulation illustrates the long-term outlook assuming current law is generally continued, while the Alternative simulation illustrates the long-term outlook assuming historical trends and policy preferences are continued.

In the Baseline Extended simulation, we closely follow the Congressional Budget Office's (CBO) 10-year baseline budget projections, which incorporate the assumption that current law remains in effect. Revenue and spending other than interest on the debt and large mandatory programs such as Social Security and Medicare are then held constant as a share of gross domestic product (GDP). Under current law, revenue as a share of GDP would increase over time because of several factors, including the expiration of tax provisions; "real bracket creep," wherein the growth of real income causes a greater proportion of taxpayers' income to be taxed in higher brackets and be subject to the alternative minimum tax (AMT); and increased retirement income subject to taxation upon withdrawal (i.e., deferred taxes). However, history suggests that legislation will be enacted to offset such increases in revenue. In the Alternative simulation, expiring tax provisions are extended and the AMT exemption amount is indexed to inflation in the near term. Discretionary spending in the Alternative simulation grows with the economy in the first 10 years unless specific limits are specified in law. Over the long term, discretionary spending and revenue are held constant at or near their 40-year historical average share of GDP.

Long-term spending on Social Security and Medicare in the Baseline Extended simulation is based on the Social Security and Medicare Trustees (Trustees) intermediate projections, which follow current law. Spending on Medicare in the Alternative simulation for all years is based on the Centers for Medicare & Medicaid Services' Office of the Actuary's (OACT) illustrative alternative projections, which deviate from current law. In these projections, for example, Medicare physician payment rate updates are adjusted to reflect the fact that in most years, Congress has acted to override reductions that would occur under current law. In both simulations, we assume that Social Security and Medicare benefits will continue to be paid even after the Federal Old-Age and Survivors Insurance and Federal Disability Insurance trust funds and the Federal Hospital Insurance and Federal Supplementary Medical Insurance trust funds are exhausted.

Outlays for Medicaid, the Children's Health Insurance Program (CHIP), and federal exchange subsidies are based on CBO's most recent 10-year

baseline in both of the simulations. Thereafter, growth in spending in our Baseline Extended simulations is consistent with CBO's most recent long-term assumptions for the number and age composition of enrollees and the Medicare Trustees' intermediate assumptions for excess cost growth. The excess cost growth assumption in our January 2010 Alternative simulation is also consistent with the Trustees' intermediate assumptions. In our Fall 2010 Alternative simulation, excess cost growth is consistent with OACT's alternative scenario.

We regularly update these simulations as new data from CBO, the Trustees, and OACT become available. In recent years, we have updated our simulations twice a year: in the spring and in the fall. With each update, we also revisit the assumptions used in our model and update them to reflect legislative or technical changes, as needed. For example, after the enactment of the Patient Protection and Affordable Care Act (PPACA), consistent with CBO, we included federal spending for CHIP and federal exchange subsidies in the same category with Medicaid.

To facilitate comparisons between different sets of simulations over time, we made technical changes to our January 2010 and Fall 2010 simulations. The key changes are described below.

1. GDP in our January 2010 and Fall 2010 simulations was originally determined by growth in the labor force, capital stock, and total factor productivity after the first 10 years, and projections of Social Security spending were adjusted accordingly. Beginning with the Fall 2011 update, our GDP growth assumption was changed to match the Trustees' intermediate assumptions over the long term.¹ This GDP growth assumption is more consistent with the growth in labor force, wages, and other factors underlying the Trustees' Social Security and Medicare projections used in our simulations. We revised the GDP assumption in our January 2010 and Fall 2010 simulations to be consistent with this approach. Specifically, in this report, real GDP growth in the January 2010 and Fall 2010 simulations is based on the Trustees' 2009 and 2010 reports, respectively, and averages 2.1 percent over the long term in both sets of simulations. This is up from the average of 1.9 percent in our original January 2010 simulations

¹GAO, *The Federal Government's Long-Term Fiscal Outlook: Fall 2011 Update*, [GAO-12-28SP](#) (Washington, D.C.: Oct. 24, 2011).

and the same average real GDP growth in the original Fall 2010 simulations.

2. Prior to our Fall 2011 update, we adjusted the Trustees' intermediate projections for Social Security spending in our simulations to reflect wage growth implied in our simulations. After we made the change to our GDP assumption described above, it was no longer necessary to make adjustments to the Trustees' Social Security projections. Therefore, in this report, Social Security spending in the January 2010 and Fall 2010 simulations is based on the Trustees' 2009 and 2010 intermediate projections, respectively, without any additional adjustments.
3. In prior updates, our excess cost growth assumption, while based on growth for the U.S. health sector as a whole, was affected by productivity adjustments and other cost-containment mechanisms for Medicare. Beginning with our Fall 2012 update, we removed the effects of productivity adjustments and other cost-containment mechanisms for Medicare from our estimates of excess cost growth for Medicaid, CHIP, and exchange subsidies. We made similar changes to excess cost growth in our January 2010 and Fall 2010 simulations. In the revised January 2010 and Fall 2010 simulations used in this report, excess cost growth for Medicaid, CHIP, and exchange subsidies averages 0.8 percentage points per year over the long term in both the Baseline Extended and Alternative simulations. This is roughly the same as the assumption used in the original January 2010 Baseline Extended and Alternative simulations and the original Fall 2010 Alternative simulation and a small increase from the assumption used in the original Fall 2010 Baseline Extended simulation that averaged 0.7 percentage points per year.

Together these changes reduced the deficit by 0.9 percentage points of GDP in 2050 in our January 2010 Baseline Extended simulation and 1.3 percentage points in our January 2010 Alternative simulation. They also reduced the deficit by 0.2 percentage points of GDP in 2050 in our Fall 2010 Baseline Extended simulation. These changes did not affect the size of the deficit in 2050 in our Fall 2010 Alternative simulation. Because of these changes, the assumptions and results of the simulations in this report differ slightly from those originally published in 2010.

Tables 1 and 2 list the key budget assumptions underlying the January 2010 and Fall 2010 Baseline Extended and Alternative simulations used in this report.

**Appendix I: Key Assumptions and Technical
Changes in Our Federal Simulations for this
Report**

Table 1: Key Budget Assumptions Underlying the Baseline Extended Simulations

Model inputs	January 2010	Fall 2010
Revenue	CBO's January 2010 baseline that assumes tax cuts will expire as scheduled under current law and that an increasing share of taxpayers will be subject to higher tax rates through 2020; thereafter remains constant at 20.2 percent of GDP (CBO's projection in 2020)	CBO's August 2010 baseline that assumes tax cuts will expire as scheduled under current law and that an increasing share of taxpayers will be subject to higher tax rates through 2020; thereafter remains constant at 21.0 percent of GDP (CBO's projection in 2020)
Social Security spending	CBO's January 2010 baseline through 2020; thereafter phases into the 2009 Social Security Trustees' intermediate projections	CBO's August 2010 baseline through 2020; thereafter phases into the 2010 Social Security Trustees' intermediate projections
Medicare spending	CBO's January 2010 baseline through 2020 that assumes cuts in physician fees will occur as scheduled under current law; thereafter 2009 Medicare Trustees' intermediate projections	CBO's August 2010 baseline through 2020 that assumes cuts in physician fees will occur as scheduled under current law; thereafter 2010 Medicare Trustees' intermediate projections that assumes full implementation and effectiveness of cost-containment provisions enacted in PPACA
Medicaid, CHIP, and exchange subsidies spending ^a	CBO's January 2010 baseline through 2020; thereafter growth in spending for these programs is consistent with CBO's June 2009 long-term assumptions for the number and age composition of enrollees and the 2009 Medicare Trustees' intermediate assumptions for excess cost growth	CBO's August 2010 baseline through 2020; thereafter growth in spending for these programs is consistent with CBO's June 2010 long-term assumptions for the number and age composition of enrollees and the 2010 Medicare Trustees' intermediate assumptions for excess cost growth
Other mandatory spending	CBO's January 2010 baseline through 2020; thereafter remains constant as a share of GDP at 2.2 percent of GDP (implied by CBO's projection in 2020)	CBO's August 2010 baseline through 2020; thereafter remains constant as a share of GDP at 2.3 percent of GDP (implied by CBO's projection in 2020)
Discretionary spending	CBO's January 2010 baseline through 2020; thereafter remains constant at 6.7 percent of GDP (CBO's projection in 2020)	CBO's August 2010 baseline through 2020; thereafter remains constant at 7.0 percent of GDP (CBO's projection in 2020)

Source: GAO analysis.

Notes: CBO's projections are from *The Budget and Economic Outlook: Fiscal Years 2010 to 2020* (January 2010), *The Long-Term Budget Outlook* (June 2009), *The Budget and Economic Outlook: An Update* (August 2010) and *The Long-Term Budget Outlook* (June 2010). The Trustees' projections are from *The 2009 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 2009), *2009 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (May 2009), *The 2010 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (August 2010) and *The 2010 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (August 2010). We assume that Social Security and Medicare benefits are paid in full regardless of the amounts available in the trust funds.

^aStarting with Fall 2010 update, we include federal spending for CHIP and federal exchange subsidies in the same category with Medicaid.

**Appendix I: Key Assumptions and Technical
Changes in Our Federal Simulations for this
Report**

Table 2: Key Budget Assumptions Underlying the Alternative Simulations

Model inputs	January 2010	Fall 2010
Revenue	CBO's estimates assuming expiring tax provisions are extended through 2020 and the 2009 AMT exemption amount is indexed to inflation for years 2010 to 2020; thereafter is phased into the 40-year historical average of 18.1 percent of GDP	CBO's estimates assuming expiring tax provisions are extended through 2020 and the 2009 AMT exemption amount is indexed to inflation for years 2010 to 2020; thereafter is phased into the 40-year historical average of 18.1 percent of GDP
Social Security spending	CBO's January 2010 baseline through 2020; thereafter phases into the 2009 Social Security Trustees' intermediate projections	CBO's August 2010 baseline through 2020; thereafter phases into the 2010 Social Security Trustees' intermediate projections
Medicare spending	Based on OACT's alternative scenario that assumes physician fees will remain at current levels (i.e., a physician fee schedule update of 0 percent) instead of being reduced as scheduled under current law ^a	Based on OACT's alternative scenario that assumes that physician payment rates grow with inflation (using the Medicare Economic Index) beginning in 2010 ^a and policies enacted in PPACA that would restrain spending growth begin to phase out after 2019
Medicaid, CHIP, and exchange subsidies spending ^b	CBO's January 2010 baseline through 2020; thereafter CBO's June 2009 long-term projections adjusted to reflect excess cost growth consistent with the 2009 Medicare Trustees' intermediate projections	CBO's August 2010 baseline through 2020; thereafter CBO's June 2010 projections adjusted to reflect excess cost growth consistent with OACT's alternative scenario and CBO's assumption that a policy that would slow the growth of subsidies for health insurance coverage is not in effect
Other mandatory spending	Baseline Extended adjusted for extension of certain tax credits through 2020; thereafter is phased back to 2.2 percent of GDP by 2025 (same as Baseline Extended)	Baseline Extended adjusted for extension of certain tax credits through 2020; thereafter is phased back to 2.3 percent of GDP by 2025 (same as Baseline Extended)
Discretionary spending	Discretionary spending other than American Recovery and Reinvestment Act spending grows with GDP after 2010 (i.e., remains constant at 8.7 percent of GDP); American Recovery and Reinvestment Act provisions are included but assumed to be temporary	Discretionary spending other than American Recovery and Reinvestment Act spending grows with GDP after 2010 (i.e., remains constant at 8.6 percent of GDP); American Recovery and Reinvestment Act provisions are included but assumed to be temporary

Source: GAO analysis.

Notes: CBO's projections are from *The Budget and Economic Outlook: Fiscal Years 2010 to 2020* (January 2010), *The Long-Term Budget Outlook* (June 2009), *The Budget and Economic Outlook: An Update* (August 2010) and *The Long-Term Budget Outlook* (June 2010). The Trustees' projections are from *The 2009 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 2009), *2009 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (May 2009), *The 2010 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (August 2010) and *The 2010 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (August 2010). OACT's projections are based on *Projected Medicare Part B Expenditures under Two Illustrative Scenarios with Alternative Physician Payment Updates* (May 2009) and *Projected Medicare Expenditures under an Illustrative Scenario with Alternative Payment Updates to Medicare Providers* (August 2010). We assume that Social Security and Medicare benefits are paid in full regardless of the amounts available in the trust funds.

^aSince 2003, Congress has taken a series of legislative actions to prevent scheduled reductions in physician payment rates that would otherwise occur under law.

^bStarting with Fall 2010 update, we include federal spending for CHIP and subsidies for the newly created health insurance exchanges in the same category with Medicaid.

Economic Assumptions

Through 2020, GDP grows at the rates underlying CBO’s most recent baseline estimates at the time the simulations were run. Thereafter, we follow the intermediate estimates from the most recent Trustees’ report at the time the simulations were run. These estimates are consistent with the growth in labor force, wages, and other factors underlying the estimates for Social Security and Medicare spending in our simulations. GDP is held constant across simulations and does not respond to changes in fiscal policy.

The interest rate on federal debt is held constant even when deficits climb and the national saving rate plummets. Under such conditions, there could be a rise in the rate of interest and a more rapid increase in federal interest payments than our simulations display. Sensitivity analyses reveal that variations in these assumptions generally would not affect the relative outcomes of alternative policies.

The key economic assumptions in the simulations in this report are shown in table 3.

Table 3: Key Economic Assumptions Underlying the Long-Term Federal Simulations

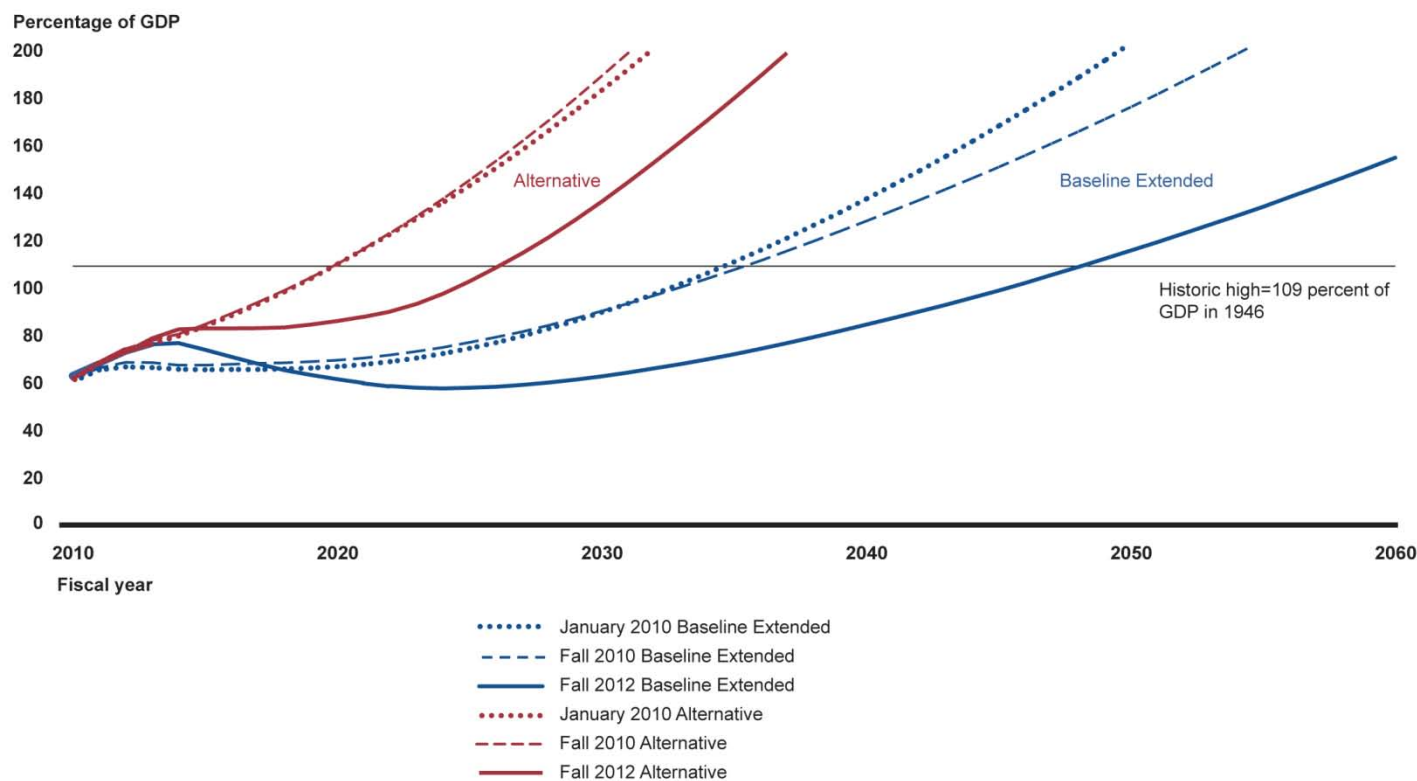
Model inputs	January 2010	Fall 2010
Real GDP growth	CBO January 2010 baseline through 2020; thereafter averages 2.1 percent based on the intermediate assumptions of the 2009 Social Security and Medicare Trustees’ reports	CBO August 2010 baseline through 2020; thereafter averages 2.1 percent based on the intermediate assumptions of the 2010 Social Security and Medicare Trustees’ reports
Inflation (percentage change in GDP price index)	CBO January 2010 baseline through 2020; 1.8 percent thereafter (CBO’s projection in 2020)	CBO August 2010 baseline through 2020; 1.8 percent thereafter (CBO’s projection in 2020)
Interest rate (on debt held by the public)	Rate implied by CBO’s January 2010 baseline net interest payment projections through 2020; 5.0 percent thereafter (the rate implied in 2020)	Rate implied by CBO’s August 2010 baseline net interest payment projections through 2020; 5.1 percent thereafter (the rate implied in 2020)

Source: GAO

Appendix II: Changes in the Long-Term Fiscal Outlook since 2010

Overall, the federal government's long-term fiscal outlook has improved since 2010 based in part on laws enacted after PPACA, including the Budget Control Act of 2011. (See fig. 10.) The provisions of the Budget Control Act primarily affected discretionary spending, and under both of our simulations, discretionary spending as a share of the economy would be lower in 2022 than at any point in the last 50 years. The Budget Control Act's automatic enforcement procedures would reduce Medicare spending by up to 2 percent under current law. Many other mandatory programs, including Medicaid, are exempt from the spending reductions. Our Fall 2012 simulations show that health care spending remains a key driver of the federal government's long-term fiscal imbalance. Under the Fall 2012 Alternative simulation, spending for Medicare, Medicaid, CHIP, and federal exchange subsidies almost doubles as a share of GDP by 2035.

Figure 10: Comparison of Debt Held by the Public in Our January 2010, Fall 2010, and Fall 2012 Simulations



Source: GAO analysis.

The results of our more recent Fall 2012 simulations for spending on Medicaid, CHIP and exchange subsidies do not differ significantly from the results from the Fall 2010 simulations that were run not long after the enactment of PPACA. Our most recent simulations published in Fall 2012 incorporate CBO's and the Joint Committee on Taxation's revised estimates through 2022 for the coverage provisions following the Supreme Court's ruling. Spending on Medicaid, CHIP, and federal exchange subsidies is not significantly different from those in our Fall 2010 simulations in part because the reduction in federal matching funds associated with covering fewer individuals in state Medicaid programs is partially offset by increased costs of the federal exchange subsidies as a result of larger numbers of low-income individuals enrolling in exchange plans.

Medicare spending is slightly higher in our most recent Baseline Extended simulation due to technical refinements the Medicare Trustees made in response to recommendations by the 2010-2011 Technical Review Panel on the Medicare Trustees Report; they were not directly related to PPACA.¹ In our most recent Alternative simulation, Medicare spending is slightly lower than it was in our Fall 2010 Alternative simulation due to a change in the OACT's assumption for physician payment updates in their alternative projections; this change was also unrelated to PPACA.

The key budget assumptions in our Fall 2012 simulations are shown in table 4.

¹The 2010-2011 Technical Review Panel recommended a new approach for developing long-range projections that incorporates a more refined analysis of Medicare versus non-Medicare payment rate updates. As a result, the pre-PPACA "baseline" cost growth in the 2012 Trustees Report is now assumed to be "GDP plus 1.4 percent"—or 0.4 percent faster than the previous growth assumption of "GDP plus 1 percent."

Table 4: Key Budget Assumptions Underlying the Fall 2012 Simulations

Model inputs	Baseline Extended simulation	Alternative simulation
Revenue	CBO's August 2012 baseline that assumes tax cuts will expire as scheduled under current law and that an increasing share of taxpayers will be subject to higher tax rates through 2022; thereafter remains constant at 21.4 percent of GDP (CBO's projection in 2022)	CBO's estimates that assume expiring tax provisions other than the temporary Social Security payroll tax reduction are extended through 2022, and the 2011 AMT exemption amount is indexed to inflation for years 2012 to 2022; thereafter is phased into the 40-year historical average of 17.9 percent of GDP
Social Security spending	CBO's August 2012 baseline through 2022; thereafter phases into the 2012 Social Security Trustees' intermediate projections	Same as Baseline Extended
Medicare spending	CBO's August 2012 baseline through 2022 that assumes cuts in physician payment rates will occur as scheduled under current law ^a at the time and that the implementation of the Budget Control Act's automatic enforcement procedures reduces spending; ^b thereafter phases into the 2012 Medicare Trustees' intermediate projections in which cost containment mechanisms reduce excess cost growth to 0.2 percentage points on average between 2023 and 2086 ^c	Based on OACT's alternative scenario that assumes physician payment rates grow by 1 percent annually through 2022 ^a and then gradually transition to a long-term growth rate equal to the per capita increase in overall health spending; spending reductions under the Budget Control Act do not occur ^b and policies that would restrain spending growth are applied fully through 2019 but begin to phase out thereafter; excess cost growth averages 0.8 percentage points between 2023 and 2086 ^c
Medicaid, CHIP, and exchange subsidies spending	CBO's August 2012 baseline through 2022; thereafter growth in spending for these programs is consistent with CBO's June 2012 long-term assumptions for the number and age composition of enrollees and the 2012 Medicare Trustees' intermediate assumptions for excess cost growth; excess cost growth averages 0.8 percentage points between 2023 and 2086 ^c	CBO's August 2012 baseline through 2022; thereafter growth in spending for these programs is consistent with CBO's June 2012 long-term assumptions for the number and age composition of enrollees and CBO's alternative assumption that a policy that would slow the growth of per-participant subsidies for health insurance coverage is not in effect and eligibility thresholds are modified to maintain the share of the population eligible for subsidies; as in Baseline Extended, excess cost growth averages 0.8 percentage points between 2023 and 2086 ^c
Other mandatory spending	CBO's August 2012 baseline through 2022, which incorporates the reductions in spending scheduled to occur under the Budget Control Act's automatic enforcement procedures; ^b thereafter remains constant as a share of GDP at 2.4 percent of GDP (implied by CBO's projection in 2022)	CBO's August 2012 baseline adjusted for extension of certain tax credits and to exclude the effects of the Budget Control Act's automatic enforcement procedures through 2022 ^b thereafter is phased back to 2.4 percent of GDP (same as Baseline Extended) by 2025
Discretionary spending	CBO's August 2012 baseline through 2022, which reflects the original caps set by the Budget Control Act, as well as the lower caps triggered by the automatic enforcement procedures; ^b thereafter remains constant at 5.6 percent of GDP (CBO's projection in 2022)	Follows the original caps set by the Budget Control Act but not the lower caps triggered by the automatic enforcement procedures; ^b after 2022 it gradually phases up to 7.5 percent of GDP (the 20-year historical average)

Source: GAO.

Notes: CBO's projections are from *An Update to the Budget and Economic Outlook: Fiscal Years 2012 to 2022* (August 2012) and *The 2012 Long-Term Budget Outlook* (June 2012). The Trustees projections are from *The 2012 Annual Report of the Board of Trustees of the Federal Old-Age and*

Survivors Insurance and Federal Disability Insurance Trust Funds and The 2012 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, which were both issued on April 23, 2012. OACT's projections are based on *Projected Medicare Expenditures under Illustrative Scenarios with Alternative Payment Updates to Medicare Providers* (May 18, 2012). We assume that Social Security and Medicare benefits are paid in full regardless of the amounts available in the trust funds.

^aAt the time, physician payment rates were scheduled to be reduced by roughly 27 percent at the start of 2013. Since 2003, Congress has taken a series of legislative actions to override scheduled reductions in physician payment rates that would otherwise occur under law. Physician fee updates set by Congress have averaged 0.9 percent per year over this period.

^bThe Budget Control Act established limits on discretionary budget authority for 2012 through 2021. It also specified additional limits on discretionary spending and automatic reductions in mandatory spending, including Medicare, that begin to take effect in January 2013 and are intended to further reduce projected deficits by an additional \$1.2 trillion.

^cExcess cost growth refers to the annual growth rate of health care spending per enrollee in excess of the annual growth rate of potential GDP, adjusted for demographic characteristics.

The key economic assumptions in our Fall 2012 simulations are shown in table 5.

Table 5: Key Economic Assumptions Underlying the Fall 2012 Long-Term Simulations

Model inputs	All simulations
Real GDP growth	CBO's August 2012 baseline through 2022; thereafter averages 2.1 percent based on the intermediate assumptions of the 2012 Social Security and Medicare Trustees' Reports
Inflation (percentage change in GDP price index)	CBO's August 2012 baseline through 2022; 2 percent thereafter (CBO's projection in 2022)
Interest rate (on debt held by the public)	Rate implied by CBO's August 2012 baseline net interest payment projections through 2022; phasing to 5.2 percent in 2025 and then constant thereafter (based on CBO's June 2012 long-term projection)

Source: GAO.

Appendix III: GAO Contacts and Staff Acknowledgments

GAO Contacts

Susan J. Irving, (202) 512-6806 or irvings@gao.gov
James C. Cosgrove, (202) 512-7114 or cosgrovej@gao.gov

Staff Acknowledgments

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