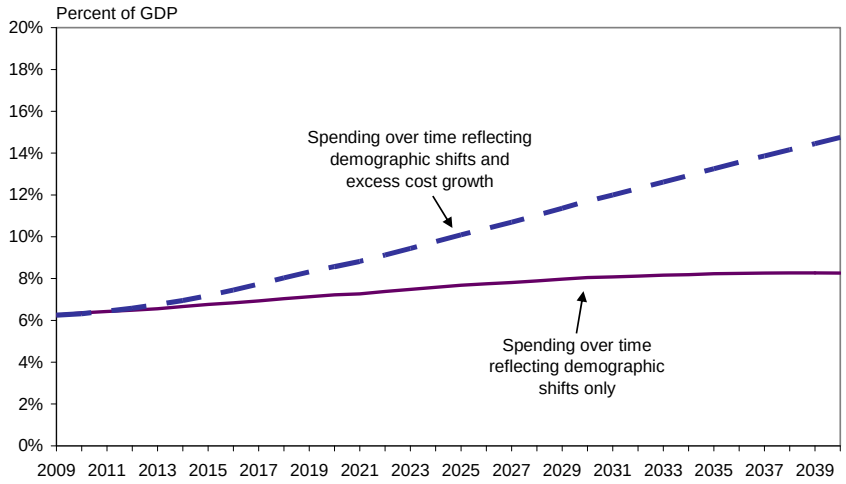
## C. The Effect of High Health Care Costs on Government

The reason that rising health care costs have major implications for government budgets is simple: almost half of health care is paid for by Federal, state, and local governments through Medicare, Medicaid, CHIP, and other programs.[7] This fraction is expected to grow in the years ahead as the baby boom generation becomes eligible for Medicare, and as enrollment in Medicaid and CHIP increases.[8]

Figure 5 shows projected spending on Medicare and Medicaid as a share of GDP. In the absence of reform, Medicare and Medicaid expenditures are projected to rise from the current 6 percent of GDP to 15 percent in 2040. As the figure shows, only about one-quarter of this rise is due to the projected demographic shifts in the population. The remaining three-quarters is due to the fact that health care costs are projected to increase faster than GDP.

**Figure 5: Projections of Total Spending on Medicare and Medicaid as a Share of GDP, 2009-2040**




Source: CEA calculations.
Note: Total spending includes both Federal and state expenditures.

This projected trend in Medicare and Medicaid spending obviously has implications for the government budget. For a given path of revenue and non-health spending, the projected behavior of Medicare and Medicaid in the absence of reform implies an unsustainable rise in the Federal deficit. Since state governments pay for a large fraction of health care for low-income populations, particularly through Medicaid, rising health care costs also have serious implications for state budgets. And, because states must balance their budgets each year, the budgetary pressures are felt more quickly at the state level.

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[7] U.S. Department of Health and Human Services, National Health Expenditure Accounts, Projections 2008-2018.

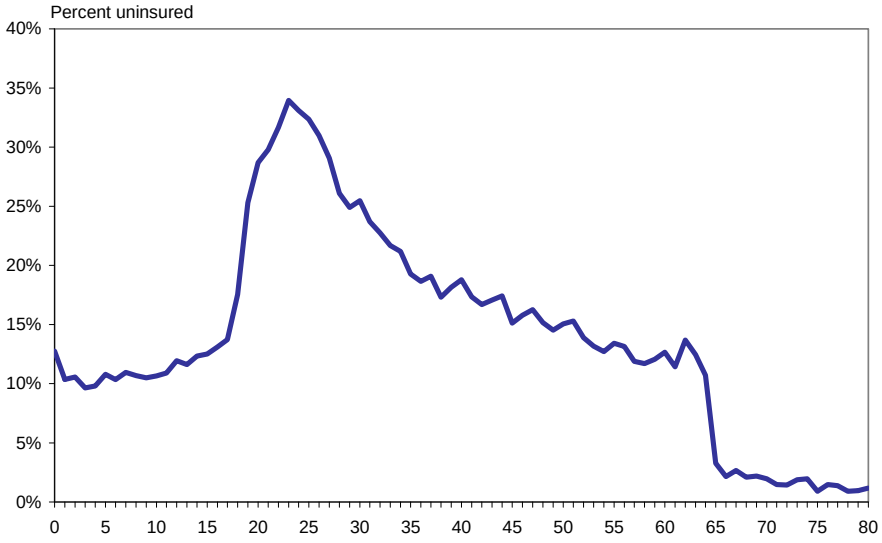
[8] Many low-income individuals also become eligible for Medicaid upon reaching the age of 65. According to CMS data at http://msis.cms.hhs.gov/, the fraction of Medicaid spending in 2006 for recipients who were 65 or older was 24.2 percent. Their corresponding share of all recipients was 10.2 percent. Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds (2008); Hadley et al. (2008).

## D. Trends in Insurance Coverage

In 2007, 45.7 million Americans did not have health insurance.[9] About one out of every six U.S. residents under the age of 65 is currently without health insurance.[10] Moreover, an even larger number of non-elderly individuals experience gaps in coverage over longer time periods. For example, one study found that 31.8 percent (82 million individuals) were uninsured for at least one month during the 2004 and 2005 calendar years.[11]

As Figure 6 demonstrates, the fraction of Americans without insurance varies substantially across ages, with the highest rates among young adults and the lowest rates among the elderly, virtually all of whom are covered by Medicare.

**Figure 6: Percent of Americans Unisured by Age**




Source: U.S. Census Bureau. 2008 Annual Social and Economic (ASEC) Supplement.

One reason for the large number of uninsured in the United States is high and increasing health care costs. Individuals may become uninsured if out-of-pocket premium requirements are no longer affordable. They may also become uninsured if employers no longer offer health insurance as part of workers' total compensation.[12] Recent work suggests that rising health insurance costs (which are highly correlated with overall health care spending) can explain more than one-half of the declines in overall rates of health insurance coverage during the 1990s.[13]

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[9] DeNavas-Walt et al. (2007).
[10] Based on CEA tabulations of the U.S. Census Bureau's March 2008 Current Population Survey.
[11] Rhoades and Cohen (2007). See also Cutler and Gelber (2009).
[12] See Chernew, Culter, and Keenan (2005). Cutler (2003) and Glied and Jack (2003) examine specifically declines in private coverage rates rather than overall coverage.
[13] Chernew, Cutler, and Keenan (2005).

Workers in small firms are especially vulnerable. In the United States, almost 96 percent of firms with 50 or more employees offer health insurance as compared with 43 percent of firms that have fewer than 50 workers.[14] Among small firms, the percentage offering health insurance peaked in 2001 and has been gradually declining since then.[15] On average, small firms face much higher premiums relative to large firms for a given level of coverage generosity.[16] This is primarily due to small firms facing higher administrative costs and insurers' concern about potential adverse selection risks.[17] Assuming that real growth in employer-sponsored insurance premiums does not slow from current rates, CEA projects that less than 20 percent of small employers will offer coverage by 2040.[18]

While the percentage of Americans with public insurance has been rising, it has not been sufficient to offset the decline in rates of private health insurance coverage.[19] Using historical changes in the percentage of non-elderly uninsured individuals to predict future trends, Figure 7 shows that 22 percent of the non-elderly population (roughly 72 million Americans) will be uninsured by 2040.[20]

As the number of uninsured rises, there is a corresponding increase in uncompensated care costs, which include costs incurred by hospitals and physicians for the charity care they provide to the uninsured as well as bad debt (for example, unpaid bills).[21] Both the Federal government and state governments use tax revenues to pay health care providers for a portion of these costs through Disproportionate Share Hospital (DSH) payments, grants to Community Health Centers, and other mechanisms.[22] In 2008, total government spending to reimburse uncompensated care costs incurred by medical providers was approximately $42.9 billion.[23] In the absence of reform to slow the real growth rate of health spending and a subsequent rise in the uninsured, we project that the real annual tax burden of uncompensated care for an average family of four will rise from $627 in 2008 to $1,652 (in 2008 dollars) by 2030.[24]

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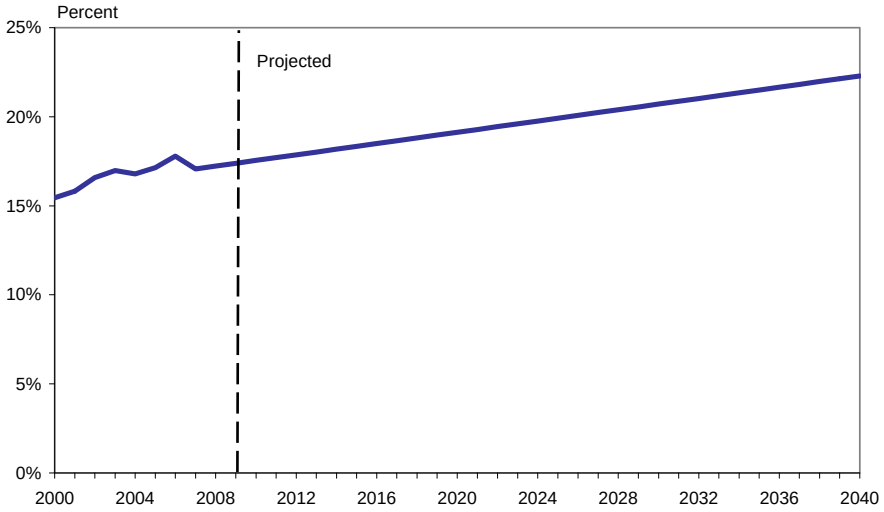
[14] U.S. Department of Health and Human Services, Medical Expenditure Panel Survey-Insurance Component (2006).
[15] Kaiser Family Foundation (2008).
[16] Gabel, McDevitt, and Gandolfo (2006).
[17] Lee (2002); Simon (2005).
[18] Projection was generated using the average annual change in small firm offer rates over the 2001 to 2006 period. For additional discussion of small firms' demand for health insurance, see Hadley and Reschovsky (2002) and Gruber and Lettau (2004).
[19] Cutler and Gelber (2009).
[20] The projection was generated using the historical average annual change in the percentage of the non-elderly population that is uninsured from 1999 to 2007, as reported by DeNavas-Walt et al. (2007). Given the lags in data availability on national health insurance coverage, our estimates do not fully incorporate the effect of the economic downturn on employer-sponsored coverage and its impact on future coverage rates. Moreover, the projection does not take into account other factors that may influence coverage rates, such as changes in public insurance eligibility or local labor market conditions.
[21] American Hospital Association (2005).
[22] Hadley et al. (2008).
[23] The precise amount of government spending used to finance uncompensated care is challenging to estimate since these resources may not be well targeted to providers who treat the uninsured. See Hadley et al. (2008) for more discussion.
[24] Current year per capita estimates were based on the ratio of total estimated uncompensated care costs paid for by the government to the estimated number of full-year uninsured. We then assume that per capita spending would grow at 4 percent per year in real terms.

**Figure 7: Projected Percentage of the U.S. Population Under Age 65 without Health Insurance, 2000-2040**




Source: CEA projections using U.S. Census Bureau's Annual Social and Economic (ASEC) Supplement.

Taken together, these facts and projections paint a compelling picture of the serious challenges facing the American health care system. Rapidly rising costs threaten to lead to stagnating take-home wages and devastating budget deficits. And, they are likely to greatly increase the number of people without health insurance over the next three decades.

## III. INEFFICIENCIES IN THE CURRENT SYSTEM

To understand what could be accomplished with health care reform, it is crucial to identify the inefficiencies present in the current system. This section details both the empirical evidence for such inefficiencies and the likely sources. It also describes the market failures leading to low rates of insurance coverage. The section then describes two key components of health care reform: genuine containment of the growth rate of health care costs and expansion of insurance coverage. Because genuine cost containment will be difficult, we describe some of the critical changes likely to be necessary to achieve success.

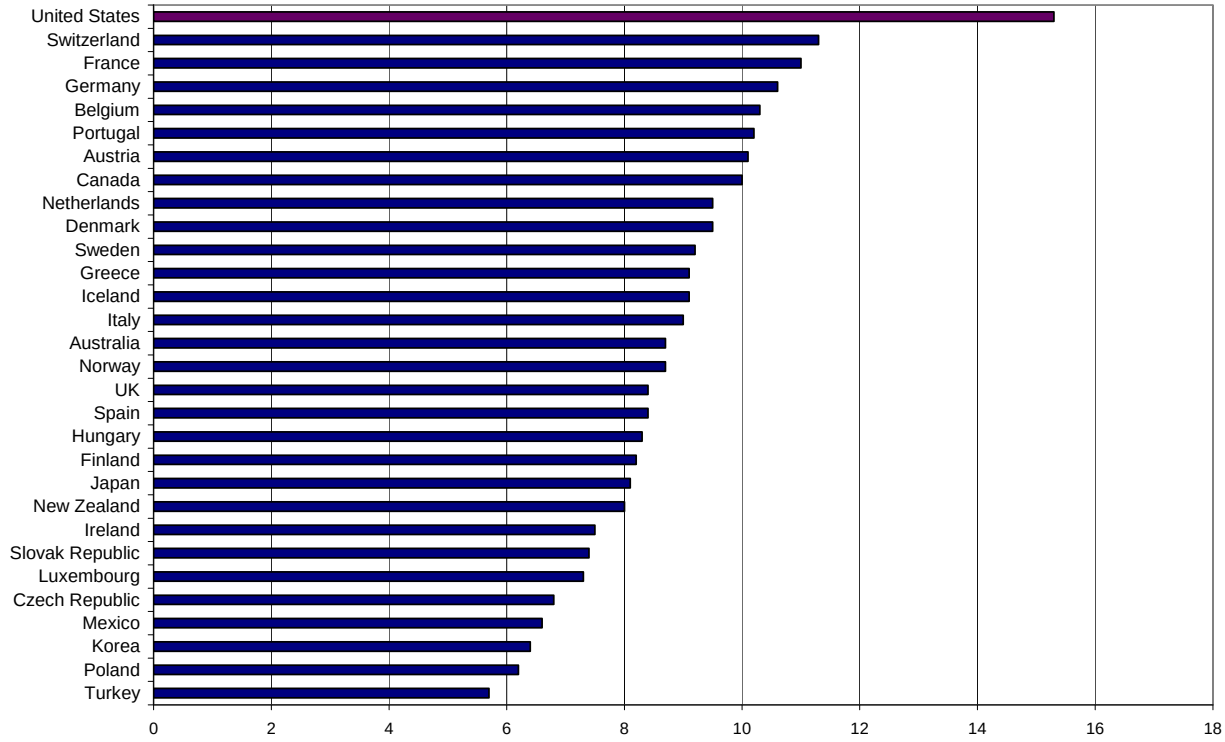
### A. Quantifying the Amount of Inefficiency Using Comparisons

It is well known that the American health care system has many virtues. Over the past half century, American hospitals, physicians, pharmaceutical companies, and academic researchers have developed techniques and prescription drugs that permit the treatment of a host of previously untreatable conditions.[25] Nevertheless, two sets of comparisons strongly suggest that there are large inefficiencies in the American health care system.

[25] Cutler and McClellan (2001).

***International comparisons.*** The first set of comparisons is international. We devote a far larger share of our GDP to health care than other developed countries, but we do not achieve better health outcomes.[26] Figure 8 shows the fraction of GDP devoted to health care in a number of developed countries in 2006. According to the Organization for Economic Cooperation and Development (OECD), the United States spent 15.3 percent of its GDP on health care in 2006. The next highest country was Switzerland, with 11.3 percent. In most other high-income countries, the share was less than 10 percent.

**Figure 8: International Comparison of Health Care Spending as a Share of GDP, 2006**

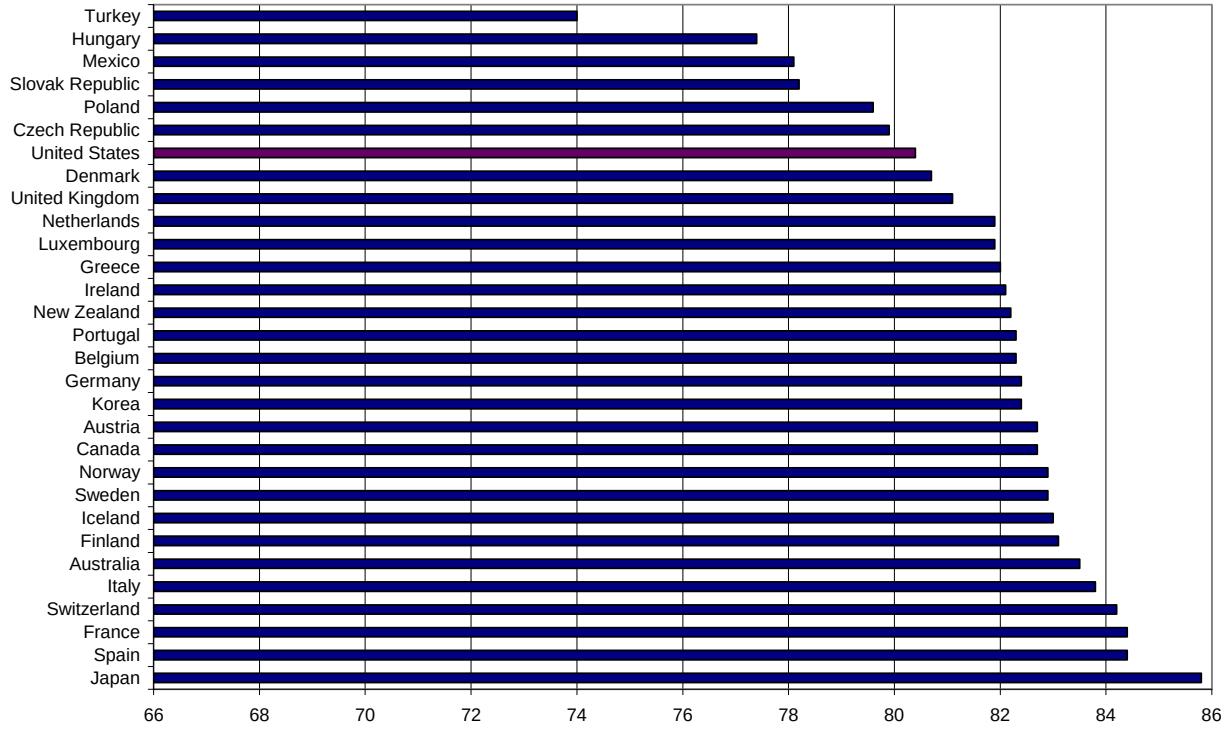



Source: Organization for Economic Cooperation and Development, OECD Health Data, 2008 (Paris: OECD, 2008).
Note: For countries not reporting 2006 data, data from previous years is substituted.

Figures 9a and 9b show female and male life expectancy in the same group of countries. The data show that life expectancy in the United States is lower than in any other high-income country—and many middle-income countries. The same result holds if one looks at infant mortality: despite the high share of health care expenditures in the United States, our infant mortality rate is substantially above that of other developed countries. Of course, many factors other than health care expenditures may affect life expectancy and infant mortality rates, including demographics, lifestyle behaviors, income inequality, non-health disparities, and measurement differences across countries.[27] But, the fact that the United States lags behind lower spending countries is strongly suggestive of substantial inefficiency in our current system.

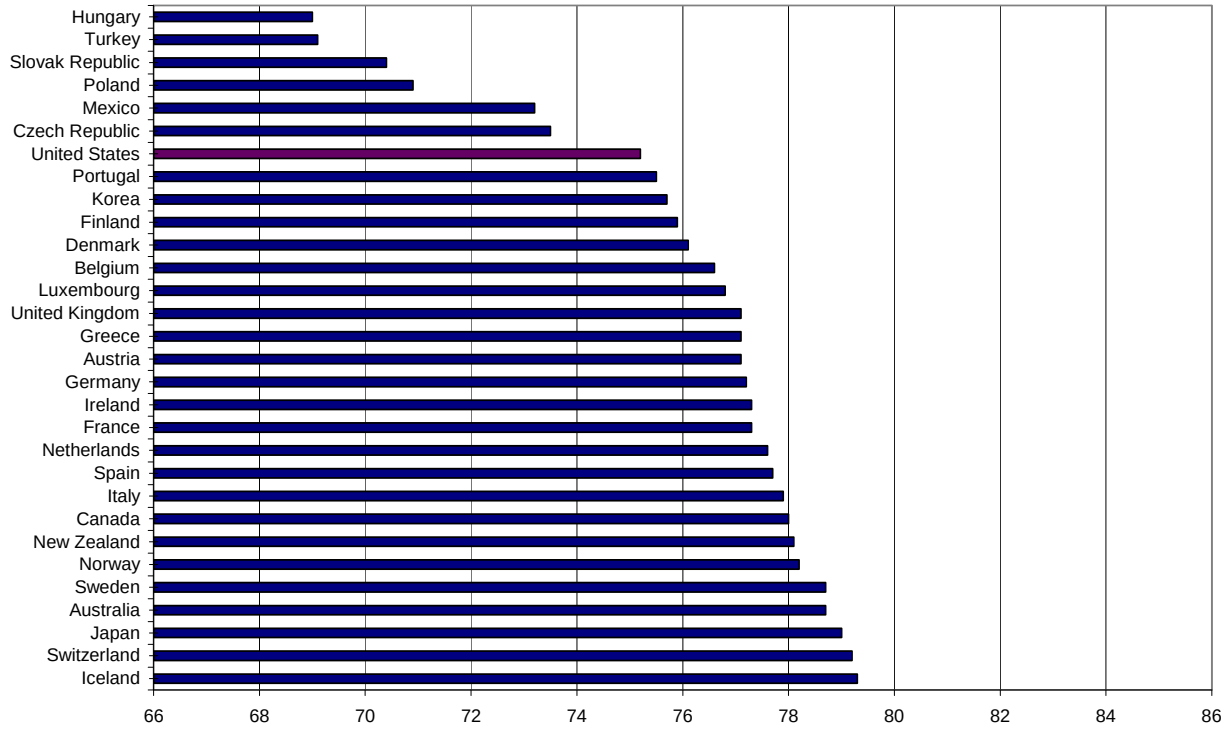
[26] Anderson and Frogner (2008).
[27] Robert Wood Johnson Foundation (2009). For more information on how differences in measurement and norms affect cross-country comparisons, see Congressional Budget Office (1992).

**Figure 9a: Female Life Expectancy at Birth, 2006**




Source: Organization for Economic Cooperation and Development. OECD Health Data, 2008 (Paris: OECD, 2008).
Note: For countries not reporting 2006 data, data from previous years is substituted.

**Figure 9b: Male Life Expectancy at Birth, 2006**




Source: Organization for Economic Cooperation and Development, OECD Health Data, 2008 (Paris: OECD, 2008).
Note: For countries not reporting 2006 data, data from previous years is substituted.

As a crude indicator, one can use the difference in health care's share of GDP between the United States and similar countries to gauge the magnitude of inefficiency. Looking at the average for Canada, Germany, Japan, Sweden, Britain, and France, it appears that the amount of resources devoted to health care in the United States that may be due to inefficiency is roughly 5 percent of GDP (15.3 percent in the United States in 2006, versus 9.6 percent, the average for the six comparison countries, all of which have better health outcomes).[28] Put another way, judging from the spending and outcomes in other countries, efficiency improvements in the U.S. health care system potentially could free up resources equal to 5 percent of U.S. GDP. This is, however, only a rough measure. It may well be that because of other differences between the various countries the true level is smaller. But, this estimate is a useful guidepost.[29]

Further evidence that the high level of spending in the United States reflects inefficiency comes from the behavior of spending over time. U.S. health care spending has risen dramatically in recent decades relative to spending in other countries, with no evident gains in relative outcomes. In 1970, we devoted only a moderately higher fraction of our GDP to health care than other high-income countries. As described above, today we spend dramatically more. Yet, during that period, life expectancy has actually risen less in the United States than in other countries.[30] Unless one believes that other influences on life expectancy have deteriorated dramatically in the United States relative to other countries, this suggests that much of the increased U.S. spending is inefficient.

***State comparisons.*** A second set of comparisons is within the United States. Because U.S. states are more similar on most dimensions than independent countries, this comparison is even more compelling. There is a large body of evidence, much of it assembled by researchers associated with the Dartmouth Atlas of Health Care, showing that utilization of specific procedures and per capita health care spending vary enormously by geographic region, and that in many cases these variations are not associated with any substantial differences in health outcomes.[31] Figure 10, for example, shows the wide variation in spending per Medicare enrollee across the United States. Large variation remains even after adjusting for differences in the age, sex, and race of enrollees across states.[32]

Analyses suggest that areas with high rates of per capita spending have higher intensity of services in an inpatient setting, higher rates of minor procedures, and greater use of specialists and hospitals ("supply-sensitive services"). Factors such as differences in medical care prices, patient demographics, health status, and income levels cannot fully explain this variation.[33]

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[28] OECD (2008).

[29] A recent report by McKinsey Global Institute (2008) concluded that the United States spends $630 billion more than expected on health care after adjusting for differences in wealth. This is over 4 percent of GDP in 2008.

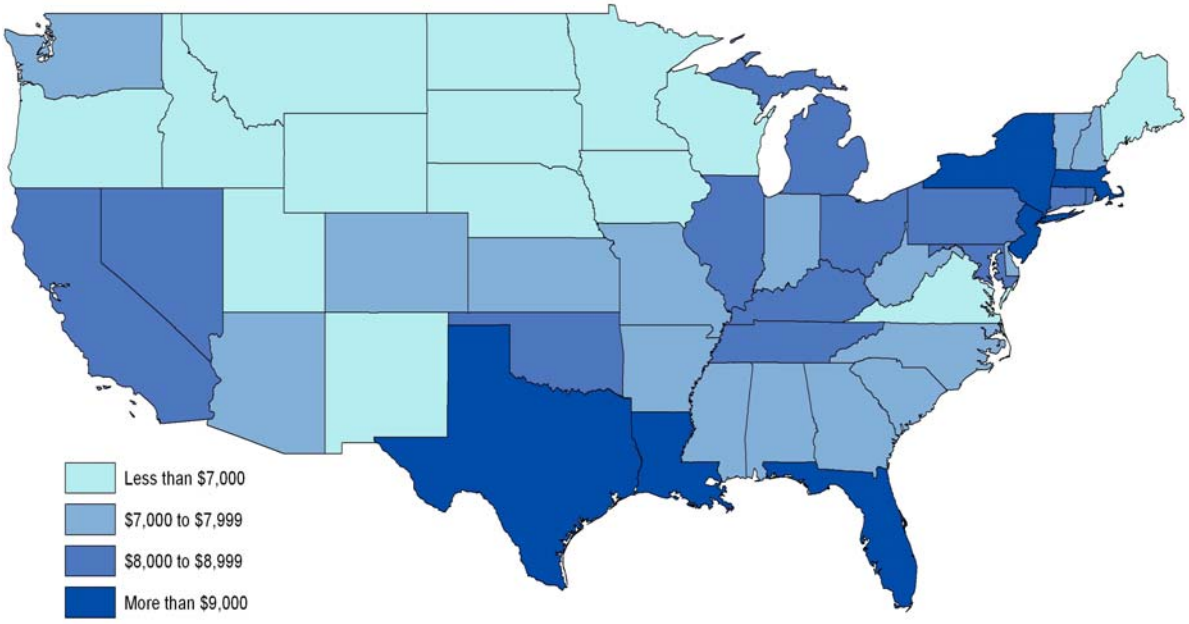
[30] Garber and Skinner (2008).

[31] Wennberg, Fisher, and Skinner (2002).

[32] Fisher, Bynum, and Skinner (2009).

[33] Research suggests that there may be additional contributing factors, including workforce patterns and end-of-life care education. See Baicker and Chandra (2004) and Fisher et al. (2003) for additional discussion.

**Figure 10: Per Capita Medicare Spending, 2006**




Source: The Dartmouth Institute for Heath Policy and Clinical Practice. The Dartmouth Atlas.

These large differences in spending suggest that nearly 30 percent of Medicare's costs could be saved without adverse health consequences.[34] If these patterns are consistent with the experience of other populations, such as Medicaid enrollees and the privately insured, then it should be possible to cut total health expenditures by about 30 percent without worsening outcomes. Since we currently spend approximately 18 percent of our GDP on health care, a 30 percent reduction in expenditures would again suggest that savings on the order of 5 percent of GDP could be feasible.

## B. Sources of Inefficiency in the Health Care Delivery System

The inefficiencies behind the empirical estimates have been widely reported. Among the most frequently cited are:

- We spend a substantial amount on high cost, low-value treatments.
- Patients obtain too little of certain types of care that are effective and of high value.
- Patients frequently do not receive care in the most cost-effective setting.
- There is extensive variation in the quality of care provided to patients.
- There are many preventable medical errors that lead to worse outcomes and higher costs.
- Our system is complex and we have high administrative costs.

At a fundamental level, the inefficiencies stem from the fact that health care is very different from conventional goods and services. The markets for health insurance and medical

[34] Wennberg, Fisher, and Skinner (2002).

care are classic examples of markets in which asymmetric information is important—that is, where one party to a transaction is likely to have more information than another. In health insurance markets, asymmetric information can lead to adverse selection, whereby individuals who know they are likely to have high health care costs are more likely to seek health insurance. Information asymmetries also lead to moral hazard, where insurance coverage may insulate patients from cost consciousness and promote unnecessary care. In considerable part because of these market failures, government programs and policies play a large role in health care. This means that in many cases incentives are not determined by market forces.

These departures from the conditions that would lead to efficient outcomes manifest themselves in seven main drivers of inefficiency in the U.S. health care system.

***Provider incentives*.** Most provider payment systems are fee-for-service, which creates financial incentives for doctors and hospitals to focus on the volume of services that they deliver rather than the quality, cost, or efficiency of care delivery. In general, payment systems do not reward higher quality and value. In some cases, they reward poor quality of care by paying for the costs associated with additional medical care necessary to fix errors that could have been prevented.[35] Providers also have strong financial incentives to compete on the basis of technology adoption rather than price, leading to an excess supply of high technology equipment and services (for example, MRI machines and minimally invasive vascular diagnostic and procedure suites) and accelerated replacement of hospital beds in local markets. In turn, this can lead to higher rates of utilization and costs.[36] Also, current payment systems generally do not reward providers for effectively managing patients with chronic illnesses or educating patients about preventing disease through lifestyle changes such as exercise, improved nutrition, and smoking cessation. Finally, some academic research has suggested that some physicians practice "defensive medicine," that is, supply additional services that are of marginal or no medical value, including additional diagnostic tests and unnecessary referrals to specialists.[37]

***Limited financial incentives for consumers*.** While health insurance provides valuable financial protection against high costs associated with medical treatment, current benefit designs often blunt consumer sensitivity with respect to prices, quality, and choice of care setting.[38] There is well documented evidence that individuals respond to lower cost-sharing by using more care, as well as more expensive care, when they do not face the full price of their decisions at the point of utilization.[39] Additionally, most insurance benefit designs do not include direct

[35] Preventable re-admissions are an example. According to Medicare Payment Advisory Commission (MEDPAC), about 18 percent of Medicare hospital admissions result in re-admissions within 30 days of discharge, which amounts to an extra $15 billion a year spent on re-admissions. About $12 billion of this amount is spent on potentially preventable re-admissions (Hackbarth, 2009). A second example is payment for drug-related injuries. In a recent Institute of Medicine study, researchers estimated that medication errors injure at least 1.5 million people each year and generate at least $3.5 billion in health care spending (Institute of Medicine, 2006).

[36] U.S. General Accounting Office (2008).

[37] Studdert et al. (2005).

[38] This source of inefficiency is driven in part by the tax treatment of health insurance, which over time has led to very generous health insurance products (e.g., low deductibles and coinsurance) being offered in the market, particularly in employer settings.

[39] The classic illustration of this relationship is from the RAND Health Insurance Experiment (Manning et al., 1987). Additional evidence can be found with respect to emergency room visits (Selby, Firemand, and Swain, 1996;

financial incentives to enrollees for choosing physicians, hospitals, and diagnostic testing facilities that are higher quality and lower cost.

***Pricing of medical treatment.*** There are relatively few forces in health care markets that lead to price reductions in the way that we observe price reductions in other sectors of the economy when new technologies are introduced and diffused. Many administered pricing systems, such as those used by Medicare and some private plans, are slow to adjust for productivity improvement or decreasing marginal costs of production that come as new medical procedures are routinized and providers acquire experience. One example of this is CT scan technology, whereby a procedure on an older 8- or 16-slice machine may be reimbursed at a similar rate as one on a newer 32- or 64-slice model. Even though the newer machine is faster, which can lead to greater throughput and a lower average cost per scan, prices are not adequately updated to reflect this, leading to potential overpayment.[40]

***Fragmentation.*** Within the United States, patients receive care from a variety of independent and often competing organizations. Poor information flows across provider organizations and misaligned incentives can lead to higher utilization and costs, as well as poorer health outcomes.[41] There is some evidence that vertically integrated provider systems (such as Kaiser Permanente, Geisinger, and Mayo Health System) can better manage costs and coordinate high-value treatment plans with patients, resulting in higher quality of care.[42] Fragmentation of the system also leads to higher administrative costs. Because there is a lack of standardization around billing systems, forms, and benefit designs, additional personnel are needed in hospitals and physicians offices to handle administrative functions for different payers. There is a wide range of estimates regarding just how much higher administrative costs are in the United States relative to other countries given our complex multiple-payer system. For example, a report by the McKinsey Global Institute estimates that the excess administrative costs associated with the U.S. multi-payer system are approximately $100 billion (in 2008 dollars) per year.[43]

***Lack of information for providers.*** Medical care has become increasingly specialized and complicated, and patients do not always receive care that fully complies with current clinical guidelines.[44] Often, it is exceedingly difficult for providers to keep up with the best available evidence regarding the clinical risks and potential health benefits of alternative treatments. In the United States, there are few coordinated efforts to objectively quantify the benefits of new devices, drugs, and procedures for diagnosing and treating diseases relative to their predecessors. This lack of information for providers is likely an important part of explaining the variation in treatment patterns, and may help to explain why the United States spends a great deal on procedures and treatments with little objective marginal value.

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Wharam et al., 2007); and the effect of tiered cost-sharing for pharmaceuticals (see Gibson, Ozminkowski, and Goetzel, 2005, for a review).

[40] Competitive bidding systems would address some of these weaknesses, but have only been adopted in limited capacities by public insurance programs. See Dowd, Feldman, and Christianson (1996) for additional discussion of competitive bidding and Cutler (2009) for discussion of productivity improvement in health care.

[41] Cebul et al. (2008).

[42] For example, see Feachem, Sekhri, and White (2002).

[43] McKinsey Global Institute (2008).

[44] A study by McGlynn et al. (2003) found that only 54 percent of acute care and 56 percent of chronic care provided by physicians conformed to clinical recommendations in the medical literature.

increasing at similar rates.[89] This suggests that the relationship between labor force participation and health insurance may not be a primary determinant of labor force participation of this segment of the population today.[90]

Similarly, the expansion of coverage will likely include subsidizing premiums for newly insured, low-income individuals and families. If subsidy levels decline as household income rises, this will increase the effective marginal tax rate for these households. As a result, workers could respond by reducing their labor supply. To consider the likely magnitude of this effect on aggregate labor supply, it is instructive to consider a policy that affected individuals across a relatively wide range of the incomes for which subsidized premiums may be relevant. Academic research explored the effect on labor supply of the earned income tax credit (EITC), which introduced a 10 percent tax rate for EITC beneficiaries with incomes slightly above the poverty line because of the phase-out of EITC benefits with additional earnings.[91] The results suggest that this tax had very little impact on labor supply, and the study concludes that the findings are consistent with previous research indicating that taxes such as these typically have very little effect on hours of work. It therefore seems likely that the effects of subsidized health insurance premiums on aggregate labor supply would be modest.

***Overall effects***. In light of the large number of individuals with disabilities and significant medical conditions, and the fact that the offsetting effects appear small, the net impact of health care reform would very likely be to increase effective labor supply. This would magnify the rise in GDP and improvement in the government's budgetary position discussed above. The magnitude of the effects would depend on the size of the effects on labor supply. For example, a one percent increase in overall labor supply would translate in the long run to a one percent increase in GDP beyond the effects described in Section V.

## C. Health Care Reform would Improve the Functioning of the Labor Market

The provision of health insurance through workers' employers has significant advantages. It is, and will remain, the source of health insurance for many Americans. At the same time, some of the specific features of our employer-based system cause the labor market to function less effectively. Properly designed health care reform could reduce those inefficiencies. Here we discuss two ways that health care reform would improve efficiency in the labor market.

***Reduce job lock***. Because of limitations on coverage of pre-existing conditions, many workers who might change jobs do not do so out of fear of losing their access to insurance coverage or facing limitations on coverage offered by a new employer.[92] Health care reform would allow many of these workers to move to jobs where they would be more productive.

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[89] U.S Department of Labor.

[90] Additionally, greater access to health care insurance may increase the utilization of treatments that facilitate work. For example, Garthwaite (2008) finds that the use of certain new pharmaceutical treatments substantially increased the labor supply of near-elderly individuals with chronic pain. The author argues that new treatments may be partially responsible for the increase in labor supply among near-elderly and elderly men during the past decade.

[91] Eissa and Liebman (1996).

[92] Gruber (2000).

Again, it is possible to get a sense of the size of the potential gains involved. Although there is not complete agreement on the issue, many studies find substantial effects of employer-sponsored insurance on job mobility.[93] In particular, one study examines the effect of employer-sponsored health insurance on job turnover, and estimates the corresponding effect on wages.[94] To do this, it focuses on the short-term (one-year effect) by multiplying the estimate of the number of workers between the ages of 25 and 54 who do not move in the current year (1.04 million in 1987) because of employer-sponsored insurance by the estimate of the average wage gain that the workers would have enjoyed in their new jobs ($3,560 per year). The selectivity-adjusted wage gain of $3.7 billion represents 0.3 percent of wages for all workers between the ages of 25 to 54 and more than ten percent of wages for the affected workers. This estimate is a lower bound, however, as it focuses on the flow in each year rather than the stock over a longer time period.

While there appear to be no corresponding estimates for long-term wage effects in the literature (that consider not just the flow but the stock), a simple back-of-the-envelope calculation can be useful. One study estimates that 16 percent of workers ages 25 to 54 change jobs each year.[95] This suggests that on average, a worker will change jobs five times between ages 25 and 54. It further estimates that both men and women are approximately 25 percent less likely to change jobs if they are likely to lose health insurance coverage. This implies that a worker with employer-sponsored insurance throughout his working years would change jobs approximately four times during the years from 25 to 54, whereas his counterpart with health insurance from another source would change jobs five times. Assuming that these job transitions are equally spaced during the 30-year interval and that the wage gain is the same for each worker at each transition, the average wage effect during this thirty-year period would be at least three times larger than the short-term estimate reported above would suggest.[96] This represents approximately 1.0 percent of wages for all workers between the ages of 25 and 54 in the typical year, and more than 0.2 percent of GDP.[97] This estimate is necessarily more speculative than the short-term one, however.

***Promote small firm creation and competitiveness.*** Firms compete for workers by offering compensation packages that include wages as well as non-wage benefits such as health insurance. In a large majority of states, current insurance market practices disadvantage small employers (including the self-employed) relative to larger firms with respect to purchasing coverage. High administrative costs and concerns among insurers about adverse selection contribute to higher premiums for small employers, which can reduce their willingness to offer health insurance as part of total compensation. This, in turn, can affect the ability of small

[93] See, for example, Madrian (1994), Monheit and Cooper (1994), and Currie and Madrian (1999). For a review of related literature, see Gruber and Madrian (2001).
[94] Monheit and Cooper (1994).
[95] Monheit and Cooper (1994).
[96] The short-term estimate essentially only considers the wage difference that is missed at the time of the extra transition. However, because the worker will spend more time in each job, there will be more than one year at the lower wage, with this becoming increasingly true over time. For example, while the worker without ESI would change to a third job around the age of 37, the worker with ESI would not transition to the third job until age 41. On average, the worker with ESI transitions to the next job almost four years later than the one without ESI, and this lag increases from just a year or two at the first transition to several years at the final transition.
[97] The estimated long-term effect of at least $11 billion in 1987 represents 0.24 percent of GDP in that year.

employers to attract and retain qualified workers. Moreover, if small employers choose not to offer health insurance, they are further disadvantaged given the preferential tax treatment associated with employer contributions toward health insurance.

In addition to the direct effect of higher premiums on the ability of small firms and the self-employed to purchase affordable health insurance, there are broader economic costs introduced by this market failure. Both economic theory and empirical evidence suggest that there are substantial benefits to society of individual risk-taking of the kind that entrepreneurs bear when starting up their own businesses.[98]

As discussed above, the creation of an exchange has the potential to improve access to affordable coverage for small employers and to help level the playing field with respect to their ability to compete for talented workers in the labor market.

## VII. CONCLUSION

The American health care system is on an unsustainable path. Expenditures as a share of GDP are already substantially higher than in other developed countries, and are projected to grow rapidly in the next three decades. This growth threatens to have a devastating impact on the growth in workers' take-home pay and the government budget deficit. It is also likely to increase the number of Americans without health insurance from its already very high level and thus undermine the health of our population.

Successful health care reform will slow the growth rate of health care costs, maintain choices of doctors and health plans, and expand coverage. Slowing the growth rate of costs by 1.5 percentage points per year would have a dramatic impact on the trajectory of health care expenditures as a share of GDP over time. Slowing the growth rate of costs by a smaller amount (0.5 or 1.0 percentage point per year) would have smaller, but still important effects.

Our analysis shows that successful health care reform would have major benefits for the U.S. economy. Over time, the slowing of cost growth through increased efficiency would bring about substantial increases in Americans' standard of living. It will also prevent devastating increases in the budget deficit and raise capital formation. We estimate that slowing health care cost growth by 1.5 percentage points will increase real GDP in 2030 by nearly 8 percent relative to what would happen without reform. We also find that slowing cost growth is likely to lower the unemployment rate consistent with steady inflation by roughly one-quarter of a percentage point for an extended period.

The net welfare effects of expanding coverage to the uninsured are also likely to be very large—probably in the range of $100 billion each year. Genuine reform will also likely increase labor supply, reduce job lock, and aid small businesses.

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[98] van Praag and Versloot (2007) and Holtz-Eakin and Kao (2003); see also Lerner (1999).

The kind of reform that will bring about these economic rewards will not be easy. It will require truly game-changing innovations in many areas. But, if we can bring about such changes, there will be substantial benefits to American households, businesses, and the economy as a whole.

# APPENDIX 1

## A Model of the Growth Effects of Slowing the Growth of Health Care Costs

This appendix section sets out the details underlying the analysis in Sections V. The framework can be thought of as a growth accounting exercise or a Solow growth model. We first describe the general framework, and then turn to the specific assumptions underlying the calculations.

### A. General Considerations

#### 1. *Output in the absence of reform*

In the absence of health care reform, GDP in a given year, year t, is given by

$$Y_t = A_t K_t^{\alpha} L_t^{1-\alpha}.$$

Here K is capital, L is labor, and A reflects technology. α is a parameter between zero and one that reflects the importance of capital in producing output.

The model takes α and the paths that K, L and A would follow in the absence of health care reform as given.

#### 2. *Direct gains from efficiency improvements in health care*

The first part of the analysis (in Section V.A) concerns the direct effects of efficiency improvements in health care. Let $HS_t$ denote the fraction of GDP in year t that we save as a result of health care reform. What this means is that because of efficiency improvements in the health care sector, we are able to obtain the same amount of health care as before (as measured by outcomes, such as diseases prevented and treated, the length and quality of life, and so on) while using a smaller fraction of our capital and labor than we otherwise would have. Those resources can be used to produce additional output. Thus, the total value of our output is higher than before.[99] Thus, if we free up fraction $HS_t$ of our resources, output will be higher by proportion $HS_t$ than it otherwise would have been. For example, if we are able to save 1 percent of GDP as a result of health care reform, GDP will be 1 percent higher than it otherwise would have been.[100]

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[99] Recall that, because of the way GDP is measured, not all of the higher output would be reflected in measured GDP. But the true value of health care and other goods and services produced would rise by the full amount of the value of the additional output produced using the resources freed up by reform.

[100] This assumes that the additional resources are used to produce non-health-care output. If some of them are used to provide additional health care, the output gain is slightly larger, because of the efficiency improvement in health care.

Formally, let $h_t$ be the fraction of capital and labor devoted to health care (and the fraction of output that takes the form of health care) in the absence of reform,. Without reform, fraction $1 - h_t$ of the economy's stocks of capital and labor are used to produce non-health-care output; with reform, fraction $1 - (h_t - HS_t)$ of the stocks are used to produce non-health-care output. Thus, the output of the non-health-care sector is $1 - (h_t - HS_t)$ times initial GDP, rather than $1 - h_t$ times initial GDP. Thus, total output (of the non-health-care and health-care sectors together) is higher by a factor of $1 + HS_t$. (Implicitly, we are measuring the percentage increase in GDP in year t as a result of cost savings using year t prices. If we used prices from some other year, the share of non-health-care in

### 3. *Increases in investment and capital*

Some of additional income from health care reform will be saved, which will lead to a higher capital stock than we would otherwise have had. This effect is the subject of Section V.B.[101]

To think about these effects, consider the first year in which there are health savings, and call this year 1. Output is higher only by the direct effects of the health savings: because there are no prior health savings, there is no effect via capital. Thus,

$$\Delta Y_1 = Y_1^{DIRECTREFORM} - Y_1,$$

where a "Δ" in front of a variable means that it is the difference between its values with and without reform.

Let $s_1$ denote the fraction of the additional income in year 1 that is saved. Then in the next year, the difference between the capital stock and what it would have been without reform is:

$$\Delta K_2 = s_1 \Delta Y_1.$$

Thus, output in year 2 is higher both because of the greater efficiency in health care and the higher capital stock.

Looking at year 3, we now need to account for the fact that we carry over higher capital from year 2 and that some of this additional capital depreciates. In particular,

$$\Delta K_3 = \Delta K_2 + s_2 \Delta Y_2 - \delta \Delta K_2,$$

where δ is the depreciation rate. The analysis then proceeds as before: output in year 3 is higher from the efficiency gains and the increased capital stock, and so on for years 4 and beyond.[102]

## B. Specific Assumptions

### 1. *The path of the economy without reform*

Our assumptions about the path of output in the absence of reform follow the January 2009 Administration projections. These projections have real GDP growing faster than usual over the next several years as the economy recovers from the recession, then growing at an annual rate of about 2.6 percent through 2019 and roughly 2.5 percent thereafter. The projections extend through 2040.

We make conventional assumptions about the capital stock, depreciation, and the marginal product of capital. Specifically, we assume that capital's share, α, equals one-third; the depreciation rate is 3.5 percent; and that on the pre-reform path, the capital-output ratio is constant at the level that implies

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real GDP in t would not necessarily exactly equal its share in nominal GDP, $1 - h_t$. This would have only small effects on the results.)

[101] In practice, some of the increased saving would translate into higher investment abroad rather than a larger domestic capital stock. Accounting for this effect changes the results only trivially.

[102] The increased capital stock is assumed not to affect the fraction of the economy's output that takes the form of health care. Thus, some of the additional output is in health care and some is in non-health-care goods.

a marginal product of capital of 9.5 percent (which requires a capital-output ratio of about 3.5). These values are all fairly conventional.[103]

For the calculations, it turns out not to be necessary to specify the paths of L (labor supply) and A (technology) separately. Because our analysis in Section V.A is in terms of the percentage changes in efficiency, once we have specified paths for Y and K, this is enough for us to compute the percentage change in output from reform.

The final feature of the economy in the absence of health care reform that is important to our analysis is the path that health care spending would follow. Here, we use the projections from Section II of this report. These projections show health spending as a share of GDP rising at an increasing rate: from 17.6 percent in 2009, to 21.4 percent in 2020, to 27.5 percent in 2030, and 34.2 percent in 2040.

**2. *Efficiency improvements in health care***

As described in the text, we consider three stylized paths for how reform might improve the efficiency of the health care system. On each path, stating in 2014, the growth of health care costs is reduced by a constant amount relative to what it would have been without reform.

For concreteness, consider the case of a cost reduction of one percentage point per year. In this case, costs in 2014 are 0.99 times what they otherwise would have been; costs in 2015 are 0.99 times 0.99, or about 0.98, times what they would have been; and so on. This means that health savings in 2014 are 1 percent of what we otherwise would have spent on health care. Since the projections imply that health spending in 2014 will be 18.5 percent of GDP without reform, health savings in 2014 will be 1 percent of 18.5 percent of GDP, or about 0.2 percent of GDP. In 2015, health savings are $(1 - .99^2)$, or 0.0199, times 18.9 percent of GDP, or about 0.4 percent of GDP. And so on.

**3. *Increases in saving***

Our modeling of saving out of the higher income resulting from health care reform is somewhat complicated. However, because the increases in income through this channel are not the main source of the benefits from health care reform, substantial changes in the assumptions concerning this part of the analysis would have little impact on the conclusions.

As discussed in the text, the calculations assume that all of the Federal saving is used to reduce the deficit. For the saving that goes to state and local governments and the private sector, we assume that less than all of the cost reductions are translated into higher saving. To find a rough figure for the fraction that is likely to be saved, we use the average over the five-year period 2003-2007 of the saving of the private sector and state and local governments as a share of the resources available to those sectors. This share can be computed as the ratio of two quantities. The numerator is total national saving (investment plus net exports) plus the Federal deficit; the denominator is GDP less Federal taxes, plus transfers from the Federal government. The average of this ratio over 2003-2007 was 14.5 percent.[104] We therefore assume that this fraction of the reduction in health spending by state and local governments and the private sector is saved. We also assume that this saving rate applies to the higher national income from a

[103] The specific values we choose are based on Elmendorf and Mankiw (1999). One aspect of our current economic situation that these assumptions leave out is that the capital-output ratio is currently somewhat elevated because of the recession, and is likely to return toward normal as the economy recovers. Because all of our analysis concerns long-run effects, accounting for this would have minimal implications.

[104] The data are from NIPA Tables 1.1.5 and 3.2. Using the saving numbers from NIPA Table 5.1 would yield a slightly higher non-Federal saving rate and so slightly higher output effects.

higher capital stock.

Note that this approach makes the parameters $s_1$, $s_2$, and so on somewhat complicated weighted averages. Recall that health savings are assumed to begin in 2014. $s_{2014}$ is therefore 36 percent (the fraction of the cost reductions that take the form of lower Federal spending) times 100 percent (the fraction of lower Federal spending that is assumed to take the form of deficit reduction), plus 64 percent (the fraction of the cost reductions that go to state and local governments and the private sector) times 14.5 percent (the fraction of non-Federal cost reductions that is assumed to be saved), or 45.5 percent. In 2015, the weight on the Federal government's deficit reduction is lower, because there is now additional income from the returns to the higher saving in 2014, and the non-Federal saving rate of 14.5 percent is applied to this income.

# APPENDIX 2

## The Algebra of the Effects of Health Care Reform on the Inflation-Unemployment Trade-Off

This appendix sets out the reasoning behind the analysis in Section V.C in more detail.

The growth rate of firms' compensation costs equals the growth rate of wages ($\pi^w$), plus the product of the share of health care costs in overall compensation costs ($\alpha$) times the difference between the growth of health care costs and the growth rate of wages (H). Inflation ($\pi$) equals the growth rate of compensation costs minus productivity growth ($\Delta q$). Thus, we have:

$$\pi = \pi^w + \alpha H - \Delta q.$$

The growth rate of wages equals workers' expectations about real wage growth (Ew) plus the previous period's inflation rate ($\pi_{-1}$) plus a term that is positive if unemployment is below normal and negative if unemployment is above normal:

$$\pi^w = Ew + \pi_{-1} - \lambda(u - u_{NR}),$$

where $u_{NR}$ is the normal unemployment rate and $\lambda$ is a positive parameter. Combining these two equations implies:

$$\pi = Ew + \pi_{-1} - \lambda(u - u_{NR}) + \alpha H - \Delta q.$$

We can solve this equation for the unemployment rate that keeps inflation from changing (that is, the unemployment rate that implies $\pi = \pi_{-1}$):

$$u^* = u_{NR} + \frac{Ew + \alpha H - \Delta q}{\lambda}.$$

Thus, if H—the difference between the growth of health care costs and the growth rate of wages—falls, u* (the sustainable unemployment rate) falls. If $\alpha = 0.08$ and $\lambda = 0.5$ and if H falls by 1.5, u* falls by 0.24—that is, by just under a quarter of a percentage point.

The issue of whether a permanent fall in H leads to a permanent or merely a long-lasting fall in u* hinges on the behavior of Ew. If workers do not adjust their expectations about real wage growth to the slowing in the growth of health care costs, the fall is permanent. If, however, they eventually adjust their expectations, at that point u* returns to its normal level, $u_{NR}$.

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