



Strengthening U.S. Competitiveness in the Global Economy

Martin N. Baily and Matthew J. Slaughter • December 2008

A NOTE ON THE REPORT

The Private Equity Council commissioned this study of U.S. global competitiveness by two of the nation's leading economists as part of the council's ongoing effort to contribute to a lively and informed debate about critical public policy issues that face our nation. The views, opinions, and recommendations expressed in this report are those of its authors. We hope that this paper will serve as a valuable tool for policy makers from all sides of the political landscape to better understand the state of our country's competitiveness and to help create solutions that will improve our global economic leadership.

Douglas Lowenstein
Private Equity Council
December 2008

ABOUT THE AUTHORS

Martin N. Baily

Martin N. Baily served as chairman of the Council of Economic Advisers during the second Clinton administration, from 1999 to 2001, and as one of three members of the council from 1994 to 1996. He was a Senior Fellow at the Peterson Institute for International Economics from 2001 until 2007. Earlier, he was a principal at McKinsey & Company's Global Institute and Professor of Economics at the University of Maryland. He also served as Vice Chairman of National Academy of Sciences/National Research Council. He earned his Ph.D. from the Massachusetts Institute of Technology.

Matthew J. Slaughter

Matthew J. Slaughter is Associate Dean of the MBA Program and Professor of International Economics at the Tuck School of Business at Dartmouth. He is also currently a Research Associate at the National Bureau of Economic Research; a Senior Fellow at the Council on Foreign Relations; an academic advisor to the McKinsey Global Institute; and a member of the academic advisory board of the International Tax Policy Forum. From 2005 to 2007, Professor Slaughter served as a Member on the Council of Economic Advisers. Slaughter also earned his Ph.D. from the Massachusetts Institute of Technology.

INTRODUCTION: THE COMPETITIVENESS CHALLENGE FACING AMERICA

I. Does America Face a Competitiveness Problem?

The world's economic leader of the 20th century was the United States. In 1900 the United States was one among many fast-growing emerging markets pursuing the United Kingdom. By 2000 the United States was the world's largest economy, with one of the highest economy-wide productivity levels supported by leading global companies in a wide array of industries. By many measures, at the opening of the 21st century America was seen as the world's most competitive economy.

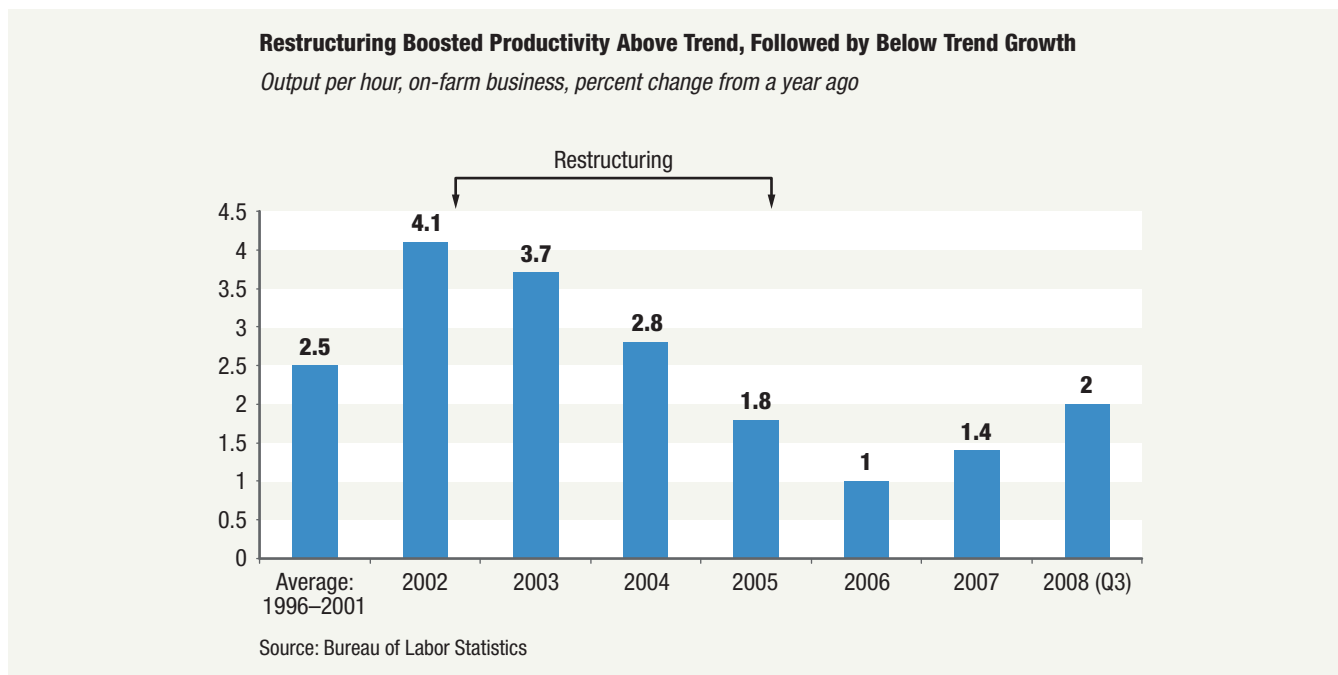
Recently, however, America's economic strength has come into question. This partly reflects the much faster growth of countries such as China, India, and central and eastern Europe. Forecasts now abound projecting when these fast-growing economies will be larger than the United States. But it also reflects warning signs at home.

- Today we are in the middle of the worst financial crisis since the 1930s, together with a deepening slowdown in the United States and abroad as well. At the time of writing, the U.S. recession had already reached one year, the longest in over a generation. These difficulties come after several years of poor income growth for the majority of American workers and their families.
- Following years of very slow growth, productivity in the non-farm economy accelerated after 1995 to about 2½ percent a year. Surprisingly, growth was even faster 2002 to 2004, driven by a wave of business restructurings, but that wave seems to have played out and productivity growth 2005 to 2008 has been at a rate below the trend of the late 1990s—see Figure 1. Given the variability and uncertainty, it is hard to know what the trend rate of growth is today, but there is greater concern that the economy is slipping back to the slow rate of the pre-1995 generation.
- Alarms are also being sounded about the waning competitiveness of key sectors. The independent, bipartisan Committee on Capital Markets Regulation opened its December 2007 report with the sobering line, “By any meaningful measure, the competitiveness of the U.S. public equity market has deteriorated significantly in recent years.” The ongoing financial crisis has only extended concerns about America's capital markets. Ford, Chrysler, and General Motors—icons of American economic strength for much of the 20th century—are today fighting for survival, with recent years bringing over 100,000 job cuts and scores of billions of dollars in losses.

What do we mean by competitiveness? The most important aspect of competitiveness is productivity. How do the level and rate of growth of American productivity compare with other countries, and can strong productivity growth be sustained in the future? Productivity is central because it measures the extent to which the economy obtains goods and services of value from the labor and capital inputs it provides and this, in turn, is strongly linked to average living standards. The ability of the economy to

compete in international trade is a second important element of competitiveness that our report also addresses, given concerns about persistently large U.S. trade deficits.

Figure 1: Has the US productivity boom ended?



We judge that the U.S. economy today retains many competitive strengths. The manufacturing, service, and agricultural sectors all remain highly productive relative to other countries. American companies lead the world in information technology, biotechnology and in more prosaic but equally important capabilities such as supply-chain management. These competitive strengths continue to rely both on the skills of American workers and on the competitive intensity of the private sector. But despite these continuing strengths, there are signs gathering that U.S. competitiveness may be waning.

Today’s immediate priority for policymakers is the severe financial crisis gripping the world—both stopping the crisis itself and also limiting the severity of the economic recession it seems to have fostered. Overall U.S. economic performance is likely to be poor for many quarters. The focus of this paper is on America’s competitiveness in the longer run, beyond the crisis and any related economic downturn. Indeed, we contend that this crisis has made even more urgent addressing long-run competitiveness. Many countries—e.g., Japan in the generation since the early 1990s—have suffered protracted economic slow-downs in the years after financial crises have passed.

That must not happen here. Maintaining high standards of living for Americans will continue to require an economy built on the foundation of high-productivity companies. But these companies have an ever-wider range of global locations in which they can locate and expand their operations. Beyond today’s financial crisis, the paramount policy challenge facing the United States will be how to ensure that America

remains a competitive location for dynamic, high-productivity job creation and investment.

For four reasons, time is of the essence in addressing America's competitiveness challenge. First, because economy-wide impacts of structural policies tend to appear only gradually—reaping the gains of sound structural policies often takes years or even decades. Second, because corporate strategic planning often covers many years. Third, because the depreciation of the U.S. dollar since 2002 has boosted the global competitiveness of many American companies and has created a unique opportunity to expand investment, increase skills, and add employment. And fourth, because today's financial crisis threatens to spur regulatory reform that hampers competitiveness. Past regulatory failures, many and in need of fixing though they are, risk future regulation that will undermine innovation and competition and thereby hurt the U.S. economy.

II. Key Messages of This Report

This report recommends economic policies to boost the competitiveness of the American economy over the next few years. American workers and companies ultimately determine the competitiveness of the economy, but government policies are critical in creating the right environment for private-sector success.

- *We in the United States do many things very well, so we should sustain policies that support these strengths.*
 - Many Americans have come to believe that the U.S. economy is no longer able to compete internationally and that we are the victims of unfair trade competition. In fact, the U.S. is a highly productive economy¹ that became uncompetitive because the dollar moved too high. As we show in the next section, on the right terms, U.S.-based companies can compete internationally, indeed the decline of the dollar since 2002 has created the opportunity to expand exports and close the trade deficit; indeed, this is already happening. *Policymakers should reduce barriers to trade and investment to help expand global markets.*
 - One of the great U.S. policy successes of the past 35 years has been the bipartisan effort to eliminate regulations that stifle competition and innovation. Productive U.S. companies can expand throughout the nation and force their competitors to adapt. Leading companies from around the world sell in the U.S. market and invest in U.S. factories and offices, ensuring that the U.S. economy is exposed to and strives to meet global best practices. All this dynamism has yielded higher productivity growth and greater choices for consumers. This is not to say that policy should aim to eliminate all regulation, because it plays a legitimate and vital role in areas like consumer protection and worker safety — as well as in the financial system — as a tool for regulating against systemic risk. Indiscriminate elimination of any and all regulation is unwise. The need is for sounder regulation. *Continued regulatory reform is very much needed in many areas, but we should not return to the days where policymakers micro-manage industries.*

¹ Comparisons of national productivity are made by the OECD. Look at their website under Statistics, Portal, Productivity. GDP per hour worked in the United States is among the highest of all member countries.

- *We in the United States do some other things not so well, things that we must start improving to avoid major drags to competitiveness. Our report addresses three pressing areas needing improvement.*
 - *Worker Skills.* Over the 20th century one of America's greatest achievements was creating a world-class education system that drove the skills upgrading of the U.S. labor force. This progress, however, has slowed dramatically in the past generation, all while educational upgrading is quickening abroad. America should immediately implement policies to reverse its educational slowdown. The key margins need to be high school and college graduation rates, through expanded early-education efforts and financial aid.
 - Throughout our history, skills of the U.S. workforce have also expanded through immigration of highly educated workers. Such immigration often helps, not hurts, native workers as companies expand skill-intensive operations here at home. An important policy change should be to eliminate all caps on high-skilled immigration, as a complement to the educational efforts above.
 - At the same time, to support the skills and opportunities of American workers, safety-net policies should be strengthened and expanded to assist workers who have been dislocated by economic change and who have not enjoyed economic gains commensurate with productivity growth.
 - *Infrastructure.* Roads, bridges and other parts of the American infrastructure are deteriorating rapidly. We need to improve quality and also adopt more appropriate roles for the private and public sectors. Public spending on infrastructure needs to increase, or private-sector competitiveness will be compromised. We also support direct private investment in infrastructure to allow the private capital market to fund improvements where appropriate. We believe that the poor performance of many public services is the result of monopoly. For example, allowing competition and relaxing restrictions on operating procedures—including allowing the use of market and congestion pricing—would improve transportation and other services.
 - *Fiscal Policy.* We need to maintain a tax code that supports risk-taking and innovation that lie at the heart of competition and productivity, but our current tax code is at risk for not raising enough revenue because of rising pressures from Social Security and, in particular, Medicare and Medicaid (beyond the projected costs to resolve the financial crisis). The most fundamental problem is the near-absence of sensible political discussion to inform voters about fiscal alternatives and tradeoffs. Our proposal is that we must have that debate first, and then make the tough but necessary decisions about how much federal spending Americans are willing to pay for.
 - A second problem is that although Medicare reform will be needed, at present we lack adequate information about how to do this. We need much more information about which treatments work best, medically and financially. The medical sector is an industry where information about sound treatment protocols spreads very slowly and unevenly. That must change if healthcare costs are not to become a major drag on U.S. economic growth and competitiveness.

Our report's focus is not exhaustive. Addressing each and every ingredient that shapes long-term competitiveness would lie far beyond the scope of this report. Rather, we have chosen problem areas that would yield high returns if properly and urgently addressed. Thus, our report offers a series of interconnected ideas that can help U.S. companies and their workers maintain leadership in the challenging global economy.

AMERICA'S COMPETITIVE STRENGTHS— PRESERVING WHAT WORKS WELL

I. What Do International Trade and Investment Say about America's Competitive Position?

The value of the dollar rose from 1995 to 2002 and pushed the trade deficit to over 6 percent of GDP by 2006. The largest part of the trade deficit comes from manufactured goods and the second largest from oil. The soaring price of oil has meant that net petroleum imports were nearly \$300 billion in 2007 and were just over \$200 billion in the first half of 2008 alone.

To many Americans, the persistent large trade deficit represents a sign that the US economy is no longer competitive, especially in the manufacturing sector, and is losing out to the billions of workers in China, India and elsewhere that are now participating in global trade. There is both truth and fiction to this idea. It is correct to say that the ability of the US economy to compete in international trade is not what it was in the past when the mighty US economy dominated the world with technologies and organizational and managerial techniques that were far ahead of competitors.

That era is past. The US economy no longer dominates the global economy because other countries have developed their production capacity and best practices have spread around the world—oftentimes through the investments that US multinational companies have made overseas. And, of course, instead of being self-sufficient in oil, we now pay exorbitant prices to foreign producers. But just because the world has changed does not mean that the U.S. economy can no longer compete globally. Contrary to some popular opinion, we judge that the US economy—which remains one of the most productive in the world—is capable of competing globally, expanding exports and even seeing some recovery in import-competing sectors. Nor do we cast China, India and NAFTA as villains or even as the cause of the huge US trade deficit.

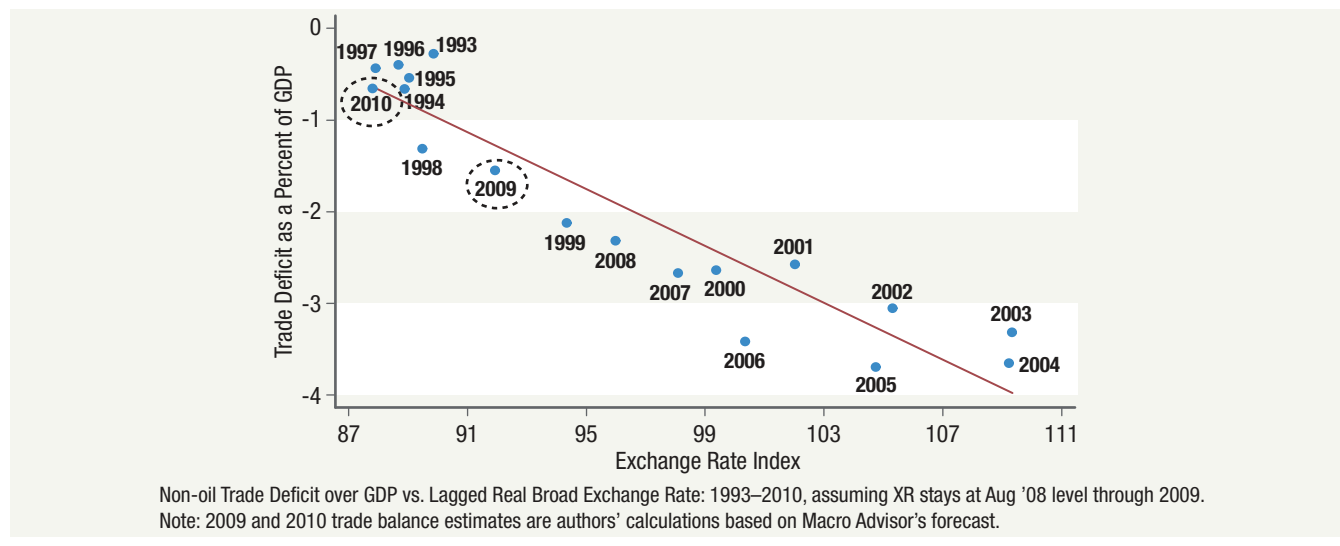
We recognize the costliness of the job losses faced by workers in industries such as apparel and furniture that have lost out to expanded trade, and elsewhere in this paper we discuss policies we think should be used to help such workers. But it is vital that economic problems not be mis-diagnosed, for then the proposed cures will not help and may hurt.² The huge US trade deficit has as its counterpart an equally huge inflow of foreign capital, which triggered the rise in the value of the dollar and made much of U.S. manufacturing uncompetitive. The US service and agricultural sectors have continued to be net exporters throughout this period, but even these sectors became less competitive as the dollar rose.

2 For example, there are some who believe cheap imports from China and Mexico displace U.S. manufacturing production and hurt the domestic economy. A country's "terms of trade" measures how the prices of the goods it sells compares with the prices of those it buys. Trade with China, India and Mexico have lowered the prices of US imports and actually improved our trade position. In fact, empirical evidence (e.g., Broda, Christina, and John Romalis. 2008. *Inequality and Prices: Does China Benefit the Poor in America?* University of Chicago) has suggested that cheap imports helped offset rising U.S. income inequality starting in the mid 1990s. If you think that low-priced imports have hurt the economy, consider the skyrocketing price of imported oil, which really has hurt U.S. terms of trade and living standards.

Since 2002, the dollar has fallen, declining very substantially against the euro, and by about 20 percent against a broad group of currencies, according to the index reported by the Federal Reserve.³ This decline in the dollar has been costly in terms of the higher cost of imports, especially oil and other commodities but, on the positive side, it has laid the foundation for a recovery in U.S. industries that are engaged in global trade. Declines in the real (i.e., inflation-adjusted) value of the dollar have boosted the price competitiveness of American companies, and recent data show this very clearly. The rate of growth of U.S. real exports has risen every year since 2002, such that the three years running since 2005, growth in U.S. real exports has exceeded that of real imports. Indeed, export growth is now a critical driver of overall U.S. GDP growth. Of the 2.0 percent U.S. GDP growth in 2007, nearly half—0.95 percentage points—was accounted for by export growth. Second-quarter 2008 GDP growth is currently estimated to have been an annualized rate of 2.8 percent, more than all of which—2.9 percentage points—was accounted for by growing exports and falling imports.

Figure 2 illustrates the importance of the dollar to U.S. trade performance by showing the US trade deficit as a percent of GDP against the exchange rate of the dollar from 1993 to the present. The figure takes into account the fact that it takes time for the dollar to impact exports and imports by using a lagged value of the exchange rate, and it focuses on non-oil trade by excluding imports of petroleum products. It shows that in the early 90s the trade deficit was small and the dollar was low, but when the dollar rose in the late 90s, the trade deficit soared. As the dollar has come down, so has the deficit, landing a little above 2 percent of GDP in the first half of 2008. Included in the figure are estimated values for 2009 and 2010 (circled) that suggest that if the dollar were to remain at its level of August 2008, then by 2010 the US trade deficit in goods and services (excluding oil) will fall to well under 1 percent of GDP. If the dollar stays at its current (August 2008) level and if the history of the last 15 years is a good guide, then US trade will be pretty close to balanced (excluding oil).

Figure 2: The US Trade Deficit is Linked Closely to the Value of the Dollar



3 This is based on the change in the broad real exchange rate index of the Federal Reserve, comparing the average value for 2002 against the average value in 2008 (average monthly values for January through November).

A few important caveats are needed. First, because of signs of a weakening global economy the dollar, as measured by the Federal Reserve's Real Broad Index, has appreciated a bit from its low point in March, up 14 percent to the end of November.⁴ Further dollar appreciation would limit adjustment of the trade deficit.⁵ Second, the dollar is not the only factor affecting US trade. From year to year, the ups and downs of the business cycle here at home and abroad will influence exports and imports. Indeed the current U.S. recession is one explanation for the larger than expected fall in the trade deficit so far this year. Third, it can be misleading to describe the dollar as "causing" the trade deficit, because the dollar is largely determined in the marketplace and is itself the result of other forces. And it is important to remember that by far the largest customer for US production is the US market, which is very weak at present. Increased exports have not been enough to prevent job losses in the auto industry and in the financial sector in 2008.

And a final caveat is that Figure 2 excludes U.S. trade in oil, so we are leaving out an important reason for the growth in the trade deficit. Oil imports have grown over time for several reasons: rising demand from a growing economy; lack of conservation; stagnant domestic production; and a lack of investment in alternative energy sources yielding viable substitutes. The surge in oil prices that peaked this summer was primarily the result of rising world demand, especially from growth in China and lack of conservation in the United States. There are also political limits on global supply.⁶ The long run solution to the problem of our dependence on foreign oil is to reduce the growth of energy use through conservation and to increase the domestic supply of energy. In the short run, a silver lining to the global downturn is that oil prices have plummeted, which should both benefit consumers and lower the trade deficit. As the global economy recovers, however, oil prices are likely to rise again and U.S. oil imports will be costly once more. This actually increases the force of the argument we are making here: Over the past ten years at least, the U.S. has paid for its imports of foreign oil by borrowing the money, but going forward the only sustainable way to pay for oil is by increasing exports.

Despite these caveats there is an important lesson to be drawn: Provided the dollar stays at a competitive level, *there is a tremendous opportunity for US companies and workers*. Production, profits and jobs in sectors that either export or compete with imports can be increased, looking both at goods and services industries. That opportunity has to be seized, however, for there is no guarantee that the actual trade deficit will fall in line with the "prediction" of Figure 1. There must be an adequate supply of trained and skilled workers, and companies must build their technology bases and production. Just as important, there is a challenge to restore an adequate level of saving in the US economy. It may be hard intuitively to connect the trade deficit with the level of saving in the economy, but in fact they are strongly related. The trade

-
- 4 The euro, pound and Canadian dollar have all declined against the US dollar in recent weeks, probably a good thing, since they had likely risen too much. Some Asian currencies, notably the Chinese yuan, could arguably rise more against the dollar.
 - 5 We tested the robustness of our estimates to different levels of dollar appreciation from its August 2008 level. We found that if the dollar appreciates by 5% and 10% from its August 2008 level in 2008 and 2009, respectively, then our estimated trade balance in 2010 drops less, to roughly 1.6% of GDP.
 - 6 As noted earlier, the decline of the dollar has also contributed to the rise in the price of oil. In terms of improving our trade position, the downward adjustment of the dollar gives us two steps forward but one step backwards. It makes manufacturing and service industries more competitive in trade but adds to the deficit to the extent it increases the cost of oil imports. In addition there was some speculative or bubble component to the surge in oil prices. Fortunately, oil prices are coming down at the time this is written.

deficit has been financed by a large inflow of capital to the U.S. and any reduction in the trade deficit will have to be sustained by an increase in the national rate of saving—or else by a reduction in national investment, which is not a desirable outcome.

In summary: the bad news is that the “good old days” are gone and the U.S. economy no longer has the unique position in global trade it had in the 1950s and 60s. The good news is that the economy is still highly productive and can compete effectively, on the right terms. Adding China and India to the mix of global competitors seems to have had less impact on overall U.S. trade competitiveness over the past 15 years than most people think, although it has certainly affected specific industries. There is a vital challenge ahead to seize the opportunity that exists today to expand exports and compete more easily with imports, and both the private and public sectors have important roles to play.⁷

Trade lowers the cost and increases the variety of the goods and services we buy. It encourages us to do the things we are good at and create productive jobs. One of the strengths of the U.S. economy is that it has been willing and able to compete against the rest of the world. Now that we are competitive in trade again, this is no time to be pushing for protectionist trade policies. Instead, the United States should pursue further liberalization in at least three important ways.

- First, the president’s Trade Promotion Authority should be restored.
- Second, the United States should hold firm on its existing bilateral and regional trade agreements, and it should also strive to negotiate and enact new ones as well.
- Third, the United States should urge like-minded countries to restart a vigorous multilateral set of negotiations at the World Trade Organization.

II. Sustaining a High Level of Competitive Intensity

A country’s level and rate of growth of productivity provide the most important indicators of its competitiveness. And on these metrics, the U.S. economy has done well over the past decade. The Organization of Economic Cooperation and Development (OECD) reports the level of GDP per hour worked and its rate of growth among member countries, a crude but useful measure of productivity.⁸ They find that the level of productivity in the U.S. is among the highest in the world and that the rate of growth from 1995 to 2006 has been greater than that in most other advanced economies. Productivity in Europe and Japan grew much more rapidly than in the US after World War II as these countries caught up to the US, but they have grown more slowly since the mid 1990s; in fact, much of Europe has been nearly stagnant by this measure.

Economists have not been totally successful in explaining why productivity levels and growth rates vary across countries, but recent studies at the firm and industry level have added a lot of insight by compar-

7 If the price of oil stays high in the future, we will have to increase exports of manufactured goods and services even more in order to pay for expensive oil imports (and/or will have to rely on additional foreign borrowing). Paradoxically, this is good for jobs even though it is bad for our standard of living.

8 The OECD Compendium of Productivity Indicators for 2008 is available at www.oecd.org.

ing given industries across a range of countries and seeing why some industries are more productive than others. This kind of work from the McKinsey Global Institute has been enhanced by statistical analysis of individual establishments, particularly in U.S. manufacturing, but also in other countries and in the service sector.⁹ This work has shown that industries that are exposed to strong competitive intensity and that have a favorable regulatory environment are more productive than sheltered industries or highly regulated industries.

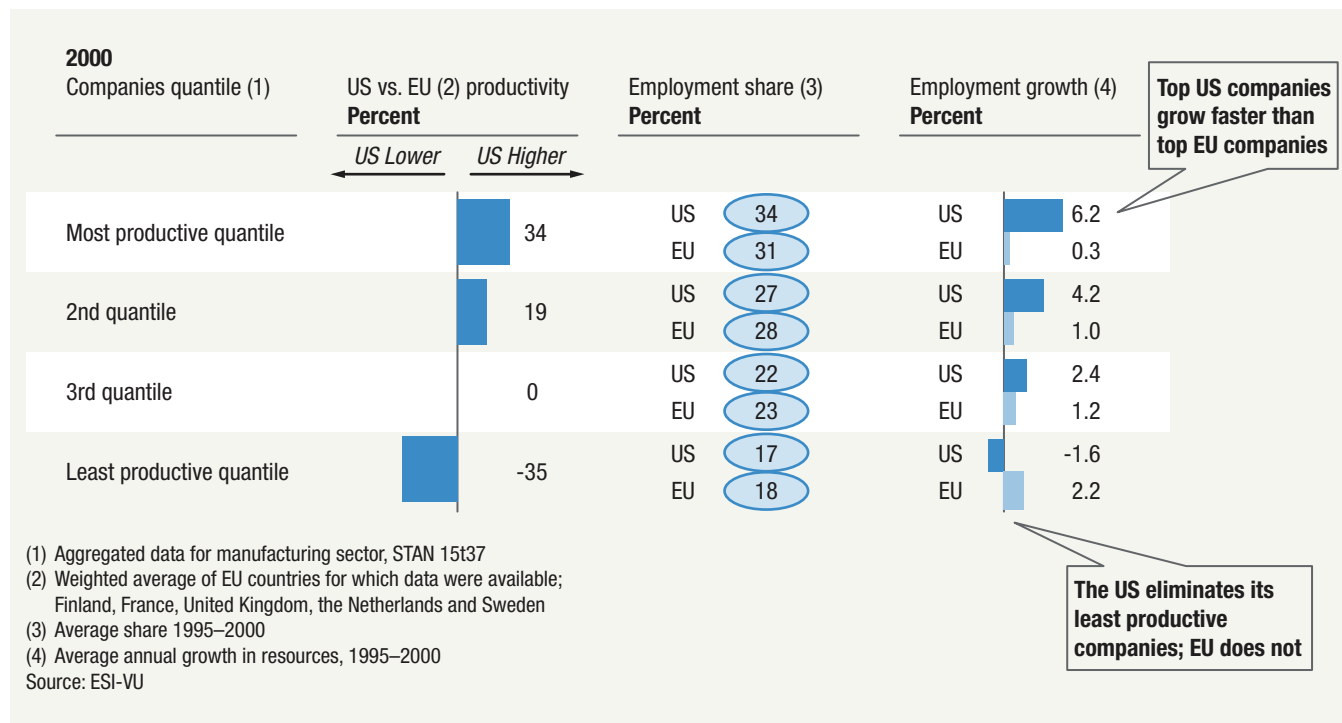
- In Japan, the manufacturing industries that compete globally, such as autos, steel and machine tools, are productivity leaders. Protected manufacturing industries, such as food processing, and domestic service industries are much less productive.
- In the retail sector in the U.S., the industry has transformed from local and regional competition to full national competition. Big-box retailers like Wal-Mart as well as chain stores that operate in shopping malls have raised the level of competition and forced industry re-structuring. The retail and wholesale sectors were very large contributors to strong U.S. productivity growth after 1995.
- A comparison of industries in Sweden with those in the US made in the 1990s showed that a lack of competition and the limitations of a small market had created a substantial productivity gap with the US. A follow-up study ten years later found that de-regulation and greater integration with the EU market had overcome these problems and allowed the same industries to increase productivity growth rapidly, even catching up to US levels. The one exception was construction, an industry that had remained protected and local.
- The U.K. was the “sick man” of Europe for many years, lagging behind other European economies. In the 1980s, policymakers embarked on an ambitious program of reform and deregulation that was sustained in the 1990s and into this decade. The payoffs to these reforms were not immediate, but today the U.K. has become one of the richest and most productive economies in Europe.

Having strong competitive intensity does not just mean having a lot of companies competing. Because of regulations that limit the scope of competition, some industries are overly fragmented and operate with low productivity—e.g., there are too many small retailers in several countries. Historically, the United States does not prop up failing companies; this allows more-productive companies to expand and take over the market. Work done by Dutch economist Eric Bartelsman in cooperation with McKinsey & Company is reported below in Figure 3. Strikingly, it shows that there is more range of productivity in the U.S. and that the high productivity companies are increasing employment while the low productivity companies are losing employment. In the EU, by contrast, the lowest quartile of companies are increasing employment the most, while the highest quartile are adding very little employment over the period 1995-2000

⁹ The productivity studies from the McKinsey Global Institute are available at www.mckinsey.com/mgi, See also Baily, Martin Neil, and Robert M. Solow. 2001. “International Productivity Comparisons Built from the Firm Level.” *Journal of Economic Perspectives*, Vol. 15, No. 3, Summer, pp. 151-172. One other very useful reference is William W. Lewis, 2004, *The Power of Productivity*, University of Chicago Press.

The strong level of competition in the U.S. market and the willingness to accommodate industry change are important reasons why productivity is so high in the U.S. and is likely an important reason why productivity grew rapidly after 1995. Advanced economies must accommodate the rise and fall of industries and companies to allow the most productive to grow and there are two important lessons for policy that follow from this conclusion.

Figure 3: The U.S. is better at achieving excellent productivity and reallocating resources to most productive companies.



- The collapse of the financial sector has resulted in calls for a much greater level of regulation for the US economy. We agree that more *effective* regulation of this sector is needed to prevent another crisis. But we judge that it would be a serious mistake to allow a backlash from the crisis and over-regulate either the financial sector or the overall economy for this would give up the huge gains the economy has achieved as a result of deregulation and greater market competition. We need smart regulation that makes markets work better, not stifling anticompetitive regulation.
- The dynamism of the economy creates new employment opportunities but it may also destroy some existing jobs, with concomitant hardship to workers, especially older workers that have spent many years in the same job. Productivity growth must be a force that benefits everyone in the long run, and to make this happen there must be adequate help for workers and families to adapt to change and find new skills and new good jobs. We address this issue directly in the next section.

THE CHALLENGE OF THE SLOW-DOWN IN EDUCATIONAL ATTAINMENT

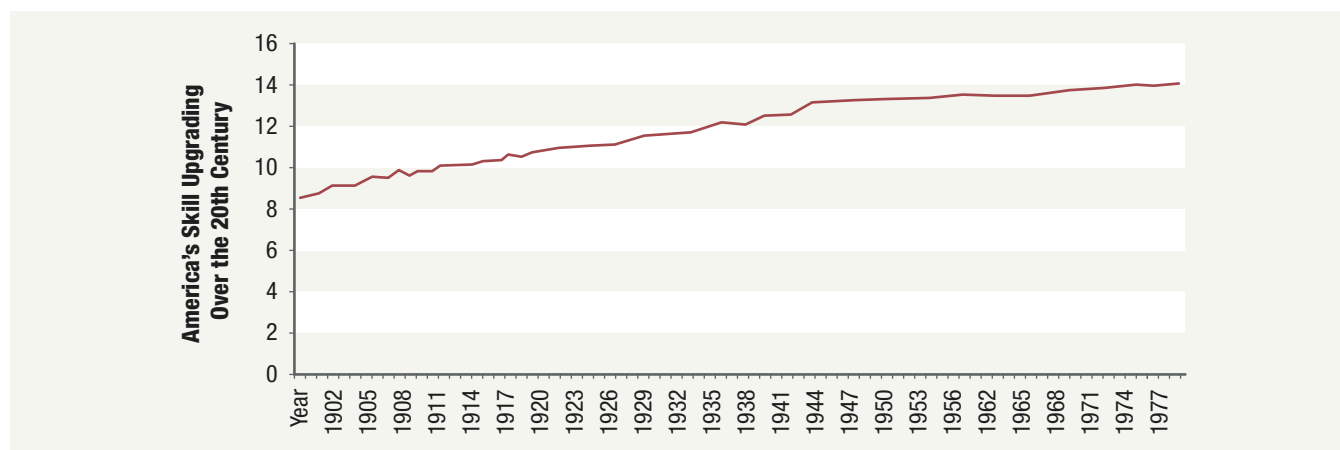
I. Defining the Education Challenge

A principal foundation of America’s economic success over the 20th century was the dramatic skill upgrading of the American labor force through secondary and tertiary education. Unlike almost every other country, over this century the United States developed an open, extensive, competitive system of public and private education at both the secondary and tertiary levels. The result was the world’s premier education sector and dramatic growth in U.S. human capital.

This development of human capital, in turn, spurred the growth and competitiveness of the overall U.S. economy through many channels. Greater human capital supported the invention of new technologies, entrepreneurship of many kinds, an ability to learn on the job in a wide range of occupations, and advanced-technology production of a wide range of goods and services. This is not to say that education was everything, but rather that combined with other institutions such as deep capital markets and a risk-taking culture, education helped propel a wide range of U.S. industries to global best practice.

Taken from the important new book on education and the U.S. economy by Harvard economists Claudia Goldin and Lawrence F. Katz, Figure 4 shows this remarkable educational growth of the American labor force.¹⁰ For every year from 1900 through 1980, it plots for all Americans born that year the mean years of schooling attained by that cohort by adulthood (measured as age 25). Thus, the 1900 value of 8.5 indicates that for all Americans born in the country in 1900, by adulthood the average educational attainment of that cohort was 8.5 years of schooling.

Figure 4: The Educational Level of the American Workforce Grew Strongly in the 20th Century—
But Hit a Plateau around 1980



10 Claudia Goldin and Larry Katz, 2008, *The Race Between Education and Technology*, Cambridge, MA: Harvard University Press. All data in this subsection on America’s educational attainment are taken from this book, unless otherwise noted.

The remarkable fact of Figure 4 is how over the 20th century, subsequent cohorts of Americans became more educated thanks to the spread of both secondary and tertiary education. Today, those just now reaching adulthood average nearly 14 years of schooling. Looking at the overall U.S. workforce rather than year-by-year cohorts shows the same remarkable gains: from 1915 to 2005 the mean educational attainment of all U.S. workers rose by nearly six years, from 7.63 years to 13.54 years—a rate of increase of 0.66 years per decade.

But in addition to this century-long progress, Figure 4 also shows a troubling fact: the rate of U.S. educational advance has sharply decelerated in recent decades. For cohorts born before about 1950, mean years of schooling rose at 0.82 years per decade. But then this rate of increase slowed, with virtually no change in educational attainment for cohorts born between 1951 and 1965 and with much slower growth than pre-1950 after that. Looking again at the overall U.S. workforce rather than year-by-year cohorts, this slowdown is very evident. From 1940 to 1980 the mean educational attainment of all U.S. workers rose by 0.86 years per decade (from 9.01 years to 12.46 years), but from 1980 to 2005 the total increase was barely one year—just 0.43 years per decade.

Katz and Goldin summarize this educational slowdown very starkly in terms of parents and children (p. 19):

After increasing nonstop for the first three quarters of the twentieth century, educational attainment among the native-born population slowed considerably during the last quarter of the century. The educational attainment of a child born in 1975 was just 0.50 years more than that of his or her parents born in 1951, but the educational attainment of a child born in 1945 was 2.18 years more than that of his or her parents born in 1921.

This slowdown in America's educational attainment poses a serious threat to America's competitiveness. This is true viewing the U.S. economy in isolation. The median worker in the U.S. labor force today has a high school degree plus a bit over one year of post-high school education. A continued near-stagnation of educational attainment will limit the creative dynamism of invention and entrepreneurship that drove so much of America's economic growth over the 20th century.

But in today's increasingly global economy, America's competitiveness is doubly challenged by its slowdown in skill upgrading because the opposite is happening in so many other countries. While U.S. high school graduation rates were slumping in the years after 1970, around the world mass secondary education was spreading fast. Of the 26 OECD nations in 2006, 18 had high school graduation rates higher than that in America. In 2004 EU nations averaged an 83% high school graduation rate, several percentage points above that in America. Concerns about slipping U.S. quality have come with this as well, with U.S. children scoring below the median in many-country tests of educational achievement in science and mathematics. A similar pattern has emerged for college-graduation rates, especially among younger cohorts. These U.S. rates are now just about average among all OECD countries. And educational upgrading is happening not just in OECD countries but in many low-income countries as well. It is now well documented, for example, that the U.S. share of global science and engineering graduates is declining at all degree levels. In 1975 China produced almost no PhDs in science and engineering; by 2003 China

graduated nearly 10,000 such PhDs, a total that continues to grow and that likely will surpass the U.S. level within a few years.¹¹

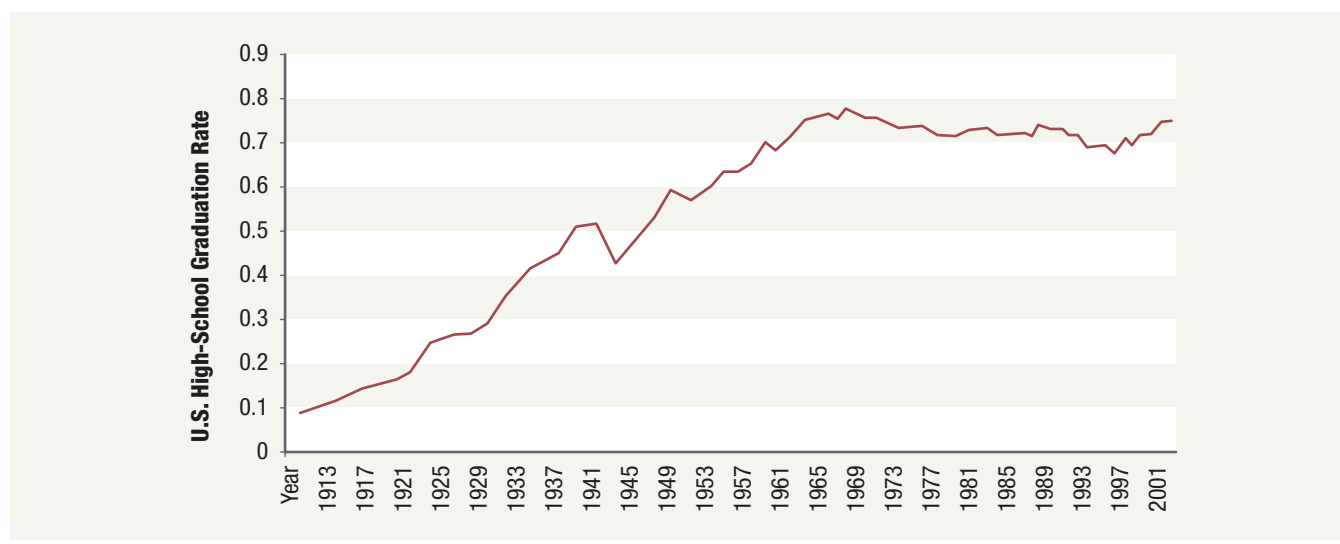
It is important to stress that assessing relative supplies of educated workers across countries is not a simple exercise in counting graduation caps. There remain large quality differences across countries, especially at the highest levels of not just undergraduate degrees but also professional and doctorate degrees as well. On many measures, elite American universities remain the best academic institutions in the world. One careful study that interviewed dozens of human-resources managers in multinational companies operating in 28 of low-wage countries found that across all these countries, only 13% of local university graduates were deemed suitable for jobs in these companies due to deficient skills in language, analytic and practical thinking, and interpersonal and teamwork talents.¹²

Even adjusting for these quality differences, however, the trend is clear: America’s abundance relative to the rest of the world in more-educated, more-skilled labor is eroding. Were this to persist, then the pressing business logic of comparative advantage will shift out of the United States and to other countries the very knowledge-intensive, high-compensation activities and companies that were the foundation of America’s economic strength and competitiveness in the 20th century.

II. Why Has America’s Educational Upgrading Slowed So Much?

What accounts for this slowdown in the educational attainment of American workers? For those born and educated in the United States, three important factors have played a role.

Figure 5: The U.S. High school Graduation Rate Has Stagnated for Nearly 40 Years



11 These statistics for China are taken from p. 5 of Richard Freeman, 2005, “Does Globalization of the Scientific/Engineering Workforce Threaten U.S. Economic Leadership?” National Bureau of Economic Research Working Paper #11457.

12 See pp. 13-14 of McKinsey Global Institute and Diana Farrell (editor), 2006, *Offshoring: Understanding the Global Labor Market*, Harvard University Press.

One, shown above in Figure 5, is a complete stagnation in the U.S. high school graduation rate. In 1900, less than 5% of American youth completed high school, which at that time was largely an elite attainment. Thanks to the dramatic success of spreading high-quality primary and high schools throughout the country, by 1969 the U.S. high school graduation rate was 77.1%.¹³ But in the nearly 40 years since 1970 this rate has barely moved. Indeed, it steadily slid to below 70% by the late 1990s before rebounding somewhat to reach 74.9% in 2004. Moreover, problems with high school completion are not evenly spread throughout the country. Rather, they are concentrated among students from disadvantaged backgrounds, in particular minority youths in inner-city schools.

A second factor has been the near-stagnation in college-attendance rates for males. Male college attendance rates rose dramatically from about 10% for those born in 1900 to 56.1% for those born in 1951. Since then, however, these rates have increased very little, reaching just 58.5% for the 1975 cohort. A similar slowdown has fortunately not occurred for women, whose college-attendance rates have risen continually: from around 10% for the 1900 cohort to 48% all the way to 68.3% for the 1975 cohort.¹⁴

And a third factor has been the complete stagnation in college-graduation rates for males. Like college-attendance rates, these graduation rates for males rose from about 5% for those born in 1900 to 28.5% for the 1949 cohort. But then these rates began to decline, falling for cohorts born in the 1950s and 1960s and only then turning back up to return to about 28.7% for the 1975 cohort. And again, a similar slowdown has fortunately not occurred for women, for whom the 1975 birth cohort attained a 35.3% college-graduation rate.¹⁵

One additional factor in the slowdown in the educational attainment of American workers has been immigration. In recent decades, immigrants to the United States have been much more likely than natives to have low levels of schooling. In 2007, for example, 27.4% of foreign-born workers had not completed high school, compared to only 6.0% of the native-born labor force. But immigrants remain a small share of the U.S. population and labor force: the foreign-born share of the U.S. population was about 4.6% in 1970 and today is higher but still only about 13%. This means that the bulk of the slowdown in educational attainment of America's workers has not been accounted for by immigration inflows, but rather by the three dimensions of slowing native educational attainment identified above.

And it is important to emphasize that the slowdown in U.S. educational attainment has been contributing to rising U.S. income inequality, especially because of ongoing shifts in labor demand towards more-skilled workers, driven by the nature of technological change and the expansion of international trade and investment.

13 This rate is measured each year as the number of high school diplomas awarded that year (by both public and private schools) divided by the number of 17-year-olds living in the United States that year.

14 For the years 1950 to 1980, these college-attendance rates are measured as those reporting having attended 13 or more years of schooling by age 30. For the years 1990 to 2005, these rates measure those reporting having attended at least some college.

15 College-graduation rates measure the fraction of each birth cohort that has completed at least four years of college by age 30.

III. Policy Recommendations to Improve American Education and Worker Skills

The slowdown in America's educational attainment has been driven by a collection of economy-wide forces at play for decades. We have three sets policy recommendations to help reverse this trend. The first focuses on skills already in the labor force, in terms of worker adjustment and retraining. The second addresses raising high school and college completion rates. And the third, on immigration policy, would complement the others by looking abroad.

Support the Skills of Existing Workers

This section has focused on the labor-market skills that Americans gain through formal education. To start our policy recommendations, we want to stress the importance of on-the-job skills development. Many American companies and their workers invest time and resources in learning new talents and capacities to support ever-changing products and needs of customers.

This importance of on-the-job skills development is an important force that drives today's widespread worker anxiety about job dislocations. Jobs appear and disappear at amazing rates in the U.S. economy. In 2007, for example, private-sector employment expanded by about 900,000 jobs. But this net increase masked the far more dramatic shifts below the surface — the economy created and destroyed more than four million jobs per month. What that means is that, based on an average of four 40-hour work weeks a month, about 25,000 jobs are destroyed and created every hour that America is open for business.

Economic change and adjustment is essential to the competitiveness of the U.S. economy. That said, adjustment presents very real challenges to American workers in terms of supporting themselves and their families when they no longer have earnings and, often, health insurance; searching and training for new jobs; and preserving earnings capacity in these new jobs. Not surprisingly, many American workers feel anxious—about change and about their paychecks. Their concerns are real, widespread, and legitimate.

We regard current U.S. labor-market programs as well intentioned but, because of their design, inadequate to cope with these widening labor-market pressures. As currently structured, U.S. labor-market supports do not adequately help workers cope with the challenges faced in today's economy. Even within their limited reach, those programs do not perform well or efficiently. As such, they do not adequately support on-the-job development and retention of skills for the American worker.

So what to do? At a minimum, if the structure of existing labor-market programs is maintained, then these programs need to be made more efficient and worker-friendly. For example, with the exception of a small wage-loss insurance program for workers over 50 that is difficult to qualify for, Trade Adjustment Assistance offers adjustment assistance solely to workers who seek retraining, rather than assisting workers with the manifold adjustment challenges they face today. Most workers in transition find TAA's current benefits inadequate or inappropriate for their needs: in recent years, less than a quarter of certified

workers actually took TAA benefits. These sorts of program-design problems should be eliminated.

Our preferred course of action would be to fundamentally reshape U.S. labor-market policy with a set of expanded and integrated policies. Grant Aldonas, Robert Lawrence, and Matthew Slaughter have recently proposed such a framework.¹⁶ This Adjustment Assistance Program would include: a wage-loss insurance program for workers 45 and older, to supplement their income when they take employment at a lower paying job; continued health insurance coverage while workers remain eligible for unemployment insurance; and expanded eligibility for current federal training programs, combined with the expansion of tax preferences designed to encourage ongoing skills acquisition and lifelong learning. At an estimated annual cost of \$22 billion, the AAP would commit more than twenty times the resources currently spent on TAA.

We support a new program such as this. The precise details would need to be worked out, but Congress must move to strengthen programs that support workers dislocated by global trade or other related forces to provide these workers the access, means, and tools to develop the skills demanded by the evolving world market.

Raise High School and College Graduation Rates

Ongoing research on the causes and consequences of America's stagnant high school graduation rates suggests two areas for new government policy.

- One is to expand support for the bundle of public programs that foster childhood development of cognitive and socio-emotional abilities. Careful empirical research by scholars including Nobel laureate James Heckman has documented that investments in childhood-development programs yield high rates of returns—both absolutely and relative to later-age programs such as adult literacy programs. These programs should be most targeted at disadvantaged families, in which childhood development often lags.¹⁷
- The other is to expand the incentives high school students see for graduating. Success has been documented for providing students with both adult role models and also financial incentives such as cash payments for success that have been pioneered in New York City and Washington, D.C.

Taken together, over time a bundle of education supports like this would contribute to higher high school graduation rates. In itself this would be welcome, but it also would have the indirect benefit of boosting college-enrollment and college-graduation rates, because of more and better high school graduates who are capable of going to and completing college.

16 *Succeeding in the Global Economy: An Adjustment Assistance Program for American Workers*, White Paper prepared for the Financial Services Forum, available at www.financialservicesforum.org.

17 An excellent overview of recent research and policy implications is James J. Heckman's survey, "Schools, Skills, and Synapses," National Bureau of Economic Research Working Paper #14064, June 2008.

Many college-ready or already college-enrolled students face severe financial constraints in terms of insufficient family resources, loans, and grants. This problem has grown in recent decades, however. College tuitions have been growing much more rapidly than both typical family incomes and the general level of prices. For example, the U.S. Department of Education has calculated that mean real net tuition for four-year U.S. public colleges rose by 30% from 1989-90 to 2003-04, during which time real median family incomes rose by just 9%.¹⁸ Tuition rates at many private schools have been rising even faster. At the same time, the real value of financial aid typically available to many families has fallen.

It is well-documented that higher tuition costs reduce both the attendance and completion rates for college students from disadvantaged families: e.g., those with below-median income. This fact, combined with the rising financial burden facing many college students and their families, leads us to recommend an expansion of federal financial-aid generosity. Making college cheaper for moderate-income families will not ensure that all qualified young people complete a college education, but it will help and it is a policy we know how to accomplish. Here, we have two specific recommendations.

- Current federal policy supporting higher-education is a complex and cumbersome set of tax preferences, many of which apply to narrow sets of circumstances. We recommend that these various tax preferences be consolidated into a more-general, more-transparent regime such that any student with the ability to go to college also has the financial resources to pay for it. Bills proposing this sort of streamlining have recently been proposed in Congress; these bills can guide this effort, with the twin goals of simplifying choices facing families and also minimizing taxpayer costs.¹⁹
- We do not propose public subsidies at the level that would pay for a four-year elite college. We do propose a subsidy large enough to pay for a two or four-year degree at a public college for students from low and moderate income families. An important goal here would be to subsidize education costs specifically for disadvantaged families who would otherwise not send their children to college.

Reform U.S. Immigration Policy

As noted above, today U.S. immigrants are more likely than natives not to have completed high school. But today foreign-born nationals also constitute an important share of the U.S. supply of workers with a college degree and above. This is especially true in the science and engineering labor force. The number of foreign-born workers in this workforce has nearly quintupled since 1980. Increases have been most pronounced among the most educated. The foreign-born share of doctorate-level workers rose from 24% in 1990 to 42% today.

¹⁸ Page 440 of Katz and Goldin (see note 8).

¹⁹ Three bills of note here are: H.R. 2458, the Universal Higher Education and Lifetime Learning Act of 2007 (introduced by Rep. Rahm Emanuel); S. 87, the College Opportunity Tax Credit Act of 2007 (introduced by Sen. John Kerry); and S. 614, the Middle Class Opportunity Act of 2007 (introduced by Sen. Charles Schumer). A recent General Accounting Office report carefully documents the complexity of the current financial-aid system. See General Accounting Office, 2008, *Higher Education: Multiple Higher Education Tax Incentives Create Opportunities for Taxpayers to Make Costly Mistakes*, GAO-08-717T.

The role of these foreign-born technical workers has been especially important in information technology. IT has long been one of the most innovative and productive sectors of the U.S. economy, accounting for between half and two-thirds of the economy-wide productivity acceleration that began in 1995. At the end of that decade, 24% of all IT firms in Silicon Valley had been founded by immigrants from China or India.

In principle, highly-skilled immigrants can complement their native-born counterparts in many ways, boosting output and productivity in companies throughout the economy. And skilled immigrants have long contributed in many ways to American competitiveness. They bring human capital, brimming with ideas for new technologies and new companies. They bring financial capital as well, with savings and resources to develop these new ideas. And they often bring connections to business opportunities abroad, stimulating exports and affiliate sales for multinational companies.

In practice, however, the United States sharply restricts legal inflows of skilled foreign workers. The H1-B visa program, which accounts for nearly all skilled immigrants admitted to work here each year, is currently capped annually at 65,000 with a bachelor's degree or higher plus an additional 20,000 with a master's degree or higher. Established by the Immigration Act of 1990, each H1-B visa allows a company to sponsor a highly educated foreigner—typical occupations include architects, doctors, engineers, and scientists—to work in the United States for at least three years.

This supply is nowhere near market demand. Last year, by the afternoon of the first day that the U.S. Citizenship and Immigration Services began accepting new H1-B petitions more than 150,000 petitions had already been filed. So USCIS rejected any petitions received after close of business the next day, and then allocated the 85,000 fiscal 2008 H1-B visas via random lottery. Each year thousands of these visa applicants are already in the United States completing undergraduate and post-graduate degrees, beneficiaries of America's colleges and universities who seek to apply their new learning in the U.S. labor market rather than abroad.

Leading U.S. companies today are crying out for more immigrants to satisfy their talent needs in America. And they do so as the forces of globalization present them an ever-wider range of locations abroad in which they can operate. Increasingly, talent needs that cannot be met in America because of immigration restrictions can be met abroad—much to the detriment of the U.S. economy. Bill Gates put this very clearly in Congressional testimony earlier this year: “many U.S. firms, including Microsoft, have been forced to locate staff in countries that welcome skilled foreign workers to do work that could otherwise have been done in the United States, if it were not for our counterproductive immigration policies.”

- In light of the above, we recommend that current U.S. caps on H1-B visas be eliminated. As a second-best alternative, we recommend that current U.S. caps on H1-B visas be increased substantially and that the current policy of allocating any excess demand via random lottery be replaced with a more sensible method. One option would be to create and implement a points system for evaluating visa applicants based on criteria such as work experience. Another option would be to use the price mechanism and allow bidding for visas; one auxiliary benefit here would be a new source of tax revenue.

Studies of the U.S. labor market have shown that the increased availability of skilled and educated labor enhances the employment prospects of other workers. In economists' terms, the two types of labor are complements. This means that increasing the number of skilled workers by relaxing the restrictions on H1-B visas will generally help American workers, not harm them. In the policy debate over such visas, it is often the case that large multinational companies argue for expansion while workers' groups push for keeping the restrictions. Our support for more H1-B visas is not so much because it will help big companies, which it will, but mostly because this will help most native-born workers.

THE CHALLENGE OF DETERIORATING INFRASTRUCTURE

I. Defining the Infrastructure Challenge

There are serious problems in infrastructure in the United States. One in every seven miles of highway is rated “not acceptable”²⁰ and problems in bridges and tunnels are commonplace. Urban congestion is a serious problem for commuters, where the average commute time increased from 38.4 minutes in 2002 to 43.2 minutes in 2008 in New York City, a 2 percent a year rate of increase. Other large metropolitan areas also face long commute times.²¹ Urban congestion also slows business traffic, making it more costly to deliver goods and more difficult to manage supply chains. Both business and vacation travelers suffer from congestion delays in air travel, spending time waiting in airports, sitting on the runway, waiting for clearance, or stuck circling in a holding pattern. The US electricity grid is straining at the seams in some states and blackouts have become commonplace. The distribution network is very vulnerable to adverse weather, inflicting power outages on thousands of customers with each storm. Such storms are forecast to become increasingly common and 2008 seems to be following that trend.

The problem of long commute times is not just one of convenience; it also adversely affects economic opportunity. The American economy provides both the opportunity to work and the incentive to work, but in order to make good on the opportunity side, workers must be able to get to their jobs in a reasonable amount of time and at a moderate cost. Unlike most European economies and Japan, the U.S. transportation infrastructure is geared to the automobile, assuming that most people will drive to work. The environmental implications of this are becoming increasingly evident, but even without that consideration, it places a heavy burden on low-wage workers if they have to drive to work or else suffer with very long commutes if they rely on public transportation. Improving the urban transportation infrastructure would increase employment opportunities for many Americans.

To what extent do the problems in infrastructure actually impact US competitiveness? There were economic studies written in the aftermath of the slowdown in US productivity growth of the 1970s that found supercharged effects for infrastructure. The construction of the interstate highway system and other public investment projects were said to have powered rapid productivity growth after World War II, and the slowing of such investment was blamed for slower economic growth in the 1970s and 80s. Those studies have not held up to further scrutiny, and at this point there is no solid estimate of the costs to measured productivity of the infrastructure problems. In part, this is because many of the costs are imposed on consumers and commuters and do not show up in standard productivity measures. Despite the lack of quantitative productivity evidence, we judge that infrastructure failures are a serious problem for the economy that can be seen and measured in congestion delays, potholes, excessive commute times, blackouts, failing bridges and consumer dissatisfaction.

20 Reported in *The Wall Street Journal*, Christopher Conkey, “Funds for Highways Plummet As Drivers Cut Gasoline Use,” July 28, 2008 page A1. The assessment of highways is from the National Surface Transportation Policy and Revenue Study Commission.

21 Data from www.payscale.com and www.census.gov.

II. Why Is America's Infrastructure Deteriorating?

There are multiple causes of the problems. There has not been adequate public funding of the infrastructure. The allocation of public funds has been politicized and is inefficient. Infrastructure has been operated badly and maintenance has been neglected. There is generally no platform for innovation or efficiency improvement. Regulation prevents market pricing and often limits competition. Private markets are unwilling to make the large, risky investments that are needed and do not take into account public goods such as reduced congestion.

To make the case that public funding has been inadequate, one can look at past trends. Deshpande and Elmendorf (2008)²² report data on net and gross public infrastructure spending that indicate a declining trend, particularly in net spending. One example of inefficiency in spending comes from Clifford Winston at Brookings, who finds that interstate highways should have been built with much deeper and stronger foundations, and this was not done in large part because the payoff would have come long after the roads were built. Politicians love to cut ribbons on new roads, but are not around when the road crumbles prematurely. Reportedly, some of the failing bridges would not be crumbling if they had been maintained properly, and again this suggests a problem of shortsightedness.

We could go on at great length describing the cause of the problems and pointing to examples, but that is not the best use of limited space. The more important question is to see what steps should be taken to remedy the situation.

III. Policy Recommendations to Improve Infrastructure

The political debate in the United States is very polarized and neither end of the spectrum has embraced the steps necessary to improve infrastructure. Those who believe in the power of markets should advocate for lower barriers to entry, more competition and greater freedom to set economic prices. Those who believe that more funding is needed should be willing to say where the money is coming from and look for ways to improve the way the existing public infrastructure is operated and maintained.

Increase Infrastructure Spending

There are some infrastructure projects that will require increased public funding and there is no magic bullet to solve the funding shortfall. As we note elsewhere in this paper, fiscal discipline seems to have been tossed out. Some want to spend more, never mind the increased deficit, while others want to cut taxes. We think fiscal discipline is sufficiently important that new spending should be on a pay-as-you-go model.

The Highway Trust Fund was started in 1956 as a way to fund the interstate highway system and provide

22 Deshpande, Manasi and Douglas W. Elmendorf. 2008. An Economic Strategy for Investing in America's Infrastructure. Strategy Paper: The Hamilton Project; The Brookings Institution

Federal assistance for road construction. In 1983 a fraction of the revenues was assigned to the support of mass transit. The main source of revenue is the 18.4 cents per gallon federal tax on gasoline, a tax rate that has not been increased since 1993.²³ There have been proposals to increase the tax and to index it to inflation, but no action has been taken. Since the price of gasoline has been a major complaint raised to Congress in recent times, the chances of raising the gas tax is minimal in the short term. Longer term, the high price of gasoline provides an opportunity to increase revenue. If oil prices and gas prices continue to decline, then some part of that decline could be appropriated to increase the trust fund. It makes no sense to tie such an important part of our public infrastructure to a tax that is fixed in terms of cents per gallon in the face of steadily rising costs of construction and maintenance. And this revenue source also faces pressure from falling U.S. driving miles: in fiscal 2008, due largely to a fall in miles driven, total gasoline taxes paid into the highway trust fund fell by \$3 billion. Without increased funding, the Trust Fund is projected to be exhausted in 2009.

Policymakers would need to consider exactly how to structure and fund a major increase in U.S. infrastructure spending. One possibility would be to create a non-partisan entity charged with prioritizing national spending projects. An example of this is the recently proposed National Infrastructure Bank.²⁴

The infrastructure issue has moved to front and center in the policy debate today because President-elect Obama and his economic team are planning to introduce a stimulus package that includes a substantial new level of funding for infrastructure. Traditionally, infrastructure spending is not suitable for short term economic stimulus because such projects need to be carefully planned and built out over several years. In the current situation, however, the transition team argues that there are many ready-to-go projects that can be rolled out quickly. They also say that a stimulus to demand will be needed in the US economy for at least two years and maybe longer. We agree that a stimulus package is needed to ameliorate the current sharp downturn, and that there may be some infrastructure maintenance to be done quickly, or state projects now frozen by lack of funds. But we are concerned that the rush to stimulus may result in wasteful spending. The rebuilding of the US infrastructure should be done carefully and should be paid for.

Promote Direct Private Investment When Competition is Not Feasible

Not all public services can be provided under competitive conditions, but private capital markets can still be used to fund needed investment. The UK experience showed that while electricity generation can be provided competitively, the distribution grid is a natural monopoly. It is one that can still be privately run and funded, but it must also be publically regulated. More generally, with appropriate regulation of rates, private capital markets can provide funding where there are natural monopolies. Other countries also provide examples of tapping into the private capital market to fund roads, bridges and tunnels. Advances in electronics have made it much easier to collect tolls and provide a source of pecuniary returns to make

23 In 1993 4.3 cents of the tax was diverted to general Treasury funds, but in 1997 this was reversed and the full tax revenue was assigned to the trust fund.

24 The National Infrastructure Bank Act, S. 1926, was introduced by Sens. Christopher Dodd and Chuck Hagel. As envisioned in this legislation, this bank would both evaluate and finance (via bond offerings) federal infrastructure investments above \$75 million.

infrastructure projects attractive to private investors. Hedge funds and private equity companies in the United States are eager to make such investments if the regulatory problems can be resolved. Government involvement is often required to establish a right-of-way for such projects and the size of the toll should be subject to regulation, but these issues can be resolved and have been resolved in many cases.

The right approach is to allow direct private investment in infrastructure projects subject to clear, simple and transparent regulation that follows the principle of maximizing long run consumer benefits. The private sector should assume risks but be able to earn reasonable profits if they run the project well. Politicians should be kept at arm's length from the projects while they are in office, and for several years after they leave office.

Use Markets to Increase Competition and Supply Capital

There is already a literature on using the price system to improve the efficiency of the existing infrastructure, particularly in the areas of congestion pricing both for airports and urban roads and better allocation of the wireless spectrum. We endorse these proposals to make prices reflect economic value and note that other countries have successfully used congestion pricing for urban roads, such as in London and Singapore. We hope setting infrastructure prices more rationally gains greater support here in the United States. Rather than re-visiting this much-studied issue, however, we propose a complementary approach—increasing the level of competition.

Policymakers need to break out of a trap in which underfunded public entities provide poor service; have large, inflexible bureaucracies to run them; have an inadequate and decaying capital stock; fail to innovate and face no competition. Improvements are possible if managers are made accountable for performance and have financial incentives to increase efficiency.

But the best approach is to foment competition. It is possible to sustain competition in urban transportation, electric power generation, airports, and other services. Some public supervision is needed to ensure safety and customer protection, but this should not be allowed to discourage innovation or serve as a barrier to entry. As we saw earlier, competition in the private sector encourages the expansion of the more productive entities that can gain market share against less productive ones. This same dynamic should be used to improve public services when that is possible. The US has very strong capital markets that have supported risky new ventures in technology and other areas. We should give them the opportunity to fund competitive entry in the public sector. The Federal government could create financial incentives to any metropolitan area willing to experiment with increased competition in providing public services. Experimentation is a good way to proceed to see how competition really works out. This is also a good way to start on the market pricing issues we described earlier. One of the most dramatic areas where this approach is being considered is education. There are already charter schools that compete with regular public schools in many jurisdictions. In the District of Columbia, where the public schools are notoriously poor, the mayor and school chancellor are reportedly planning the creation of a competitive alternative set of schools to bypass the existing public-school system.

In summary, our proposals for improving U.S. infrastructure are as follows:

- There is tremendous momentum in Washington now for increased public spending on infrastructure as an economic stimulus. We support this up to a certain point. The country needs a long term, careful plan for restoring and improving the public infrastructure that includes a stable funding source. The gasoline tax has been a vital funding source historically, but its value has eroded. With gas prices now down, this is an opportunity to schedule gas tax increases that would be triggered automatically by a resumption of solid economic growth. The level of the tax should be indexed to the costs of the investments it funds.
- Extend the direct private investment movement to more of the public sector such as urban transportation, bridges, tunnels and toll roads. Tap into private sector sources of funds.
- Extend the deregulation movement to more of the public sector: facilitate entry and competition, remove regulations that limit flexibility in operating procedures. It is time to stop protecting inefficient, costly public provision of essential services.
- Allow and encourage market and congestion pricing for urban roads and airports.

Inevitably, there are areas where competition in the provision of public services is not possible. As a partial substitute for competition, an independent body should regularly assess performance levels and encourage the spread of best practices. Charge the GAO with the task of determining best practices in the provision of public services by studying different federal agencies, states and localities. They should also determine the metrics that could be used to create accountability for managers and front office personnel in public agencies. GAO would then be charged with sampling different agencies around the country over time, to determine how well they are performing.

THE CHALLENGE OF FISCAL POLICY

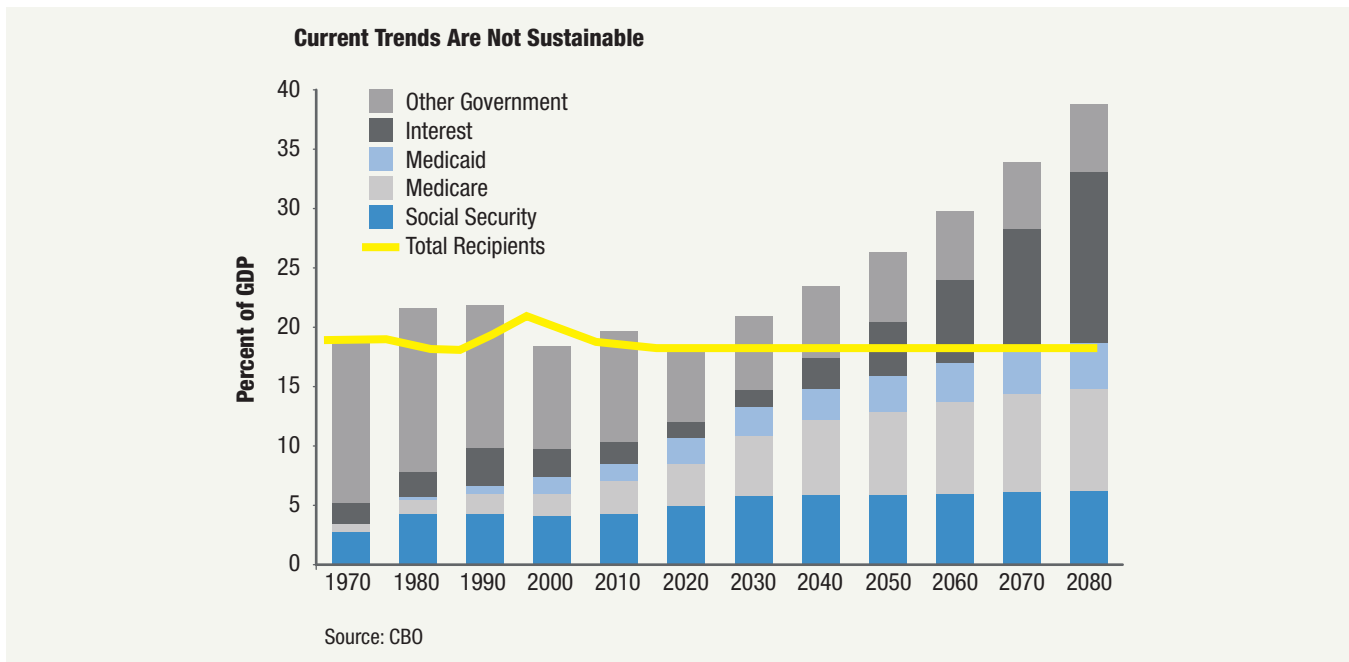
I. Twin Fiscal Challenges

America today faces two related fiscal challenges. One is the unsustainable long-term fiscal outlook, which in turn is being driven primarily by the projected ongoing increases in real health-care costs per Medicare and Medicaid beneficiary. The other fiscal challenge is the absence of a comprehensive and candid conversation about preferred tax and spending choices for the country—not just for the approaching long-term crisis but today as well. If the country mishandles these challenges then American economic competitiveness will suffer—at least a little and perhaps a great deal.

The Fiscal Challenge of a Poor Long-Term Outlook

First is America’s approaching long-term fiscal crisis from the projected increase in entitlement spending—Social Security in part, but primarily Medicare and Medicaid. This long-run problem is displayed very dramatically in Figure 6 below, which prepared by the Office of Management and the Budget earlier this year.

Figure 6: OMB Projections of the Long-Term U.S. Fiscal Outlook



The chart shows that if federal revenues remain at close to 19 percent of GDP, the deficit will balloon as spending outpaces revenues. Medicare (yellow) and Medicaid (purple) are the biggest direct causes of the problem, but the chart also illustrates another key fact. The longer a solution to the deficit is postponed, the worse the situation becomes, because interest on the debt (shown in red) starts to explode. Budget deficits beget budget deficits. Notice also that the OMB chart is over optimistic in one important respect. The

top, blue segment represents all government spending apart from the named programs (including military spending) and this segment is assumed in the chart to decline sharply after 2010. This is not based on any specific policy proposal and is unrealistic. Other government (or discretionary) spending has certainly not declined in the last eight years as a percent of GDP, and it is unlikely to decline over the next eight.

The nonpartisan Congressional Budget Office is more realistic about discretionary spending and summarizes the scenario as follows.

“Under any plausible scenario, the federal budget is on an unsustainable path—that is, federal debt will grow much faster than the economy over the long run. In the absence of significant changes in policy, rising costs for health care and the aging of the U.S. population will cause federal spending to grow rapidly. If federal revenues as a share of gross domestic product remain at their current level, the rise in spending will eventually cause future budget deficits to become unsustainable.”²⁵

CBO’s describes an “alternative fiscal scenario” that is probably its most likely, as it projects future tax and spending choices consistent with many years of actual past tax and spending choices: e.g., various temporary “patches” have prevented the Alternative Minimum Tax from hitting tens of millions of taxpayers, and CBO assumes this pattern will continue. Under this scenario, total federal spending as a share of GDP steadily rises from 20.0% in 2007 to 29.0% in 2030—a level not seen since World War II. Partly driving this rise is Social Security spending, going from 4.3% to 6.1% of GDP with the aging of the Baby Boom generation (the share of Americans aged 65 and older is projected to rise from 12% in 2007 to 19% in 2030). But the primary driver will be spending on Medicare and Medicaid, which will more than double from 4.1% to 8.4% of GDP. With revenue projected to remain virtually unchanged at about 18.8 of GDP, fiscal deficits (and the implied interest payments on the expanding debt) will creep up by nearly half a percentage point annually. The projected 2030 budget deficit is a staggering 10.1% of GDP. In 2031, total federal debt as a share of GDP will hit 109%, a level reached only once before, at the end of World War II and the massive borrowing it required. And in the years beyond, Medicare and Medicaid spending expand more and deficits grow to unsustainable levels.

Is the coming surge in Medicare and Medicaid spending something new? No. For decades, Medicare and Medicaid spending have been growing faster than the overall economy—consistent with expanding health spending in the private sector as well. The CBO projection assumes this pattern will continue. What is critical to understand here, however, is that rising total health-care costs have not been—and will not be—simply a function of more Medicare/Medicaid beneficiaries thanks to an aging population. Rather, the main force behind rising total health-care costs has been—and will be—higher costs per beneficiary. We return to this key fact below.

The Fiscal Challenge of a Poor National Discussion

The other fiscal challenge America faces today is the absence of a comprehensive and candid conversation

25 Page 1 of “The Long-Term Budget Outlook,” by CBO Director Peter Orzag, testimony before the Committee on the Budget, U.S. House of Representatives, December 13, 2007.

about preferred tax and spending choices for the country. Rather, what fiscal conversations there are tend to be limited in both scope and, unfortunately, candor.

The approaching fiscal crisis just described offers a good example. A few government officials have drawn attention to it; for example, the Federal Reserve Chairman has addressed it regularly, referring to our situation today as “the calm before the storm.” Yet most elected officials have addressed it very little, if at all. Instead, their preferred spending topics often have earmarks at the top of the list. Concern about earmarks is understandable, but earmarks constitute such a small share of total spending that they are largely irrelevant to the approaching crisis.²⁶ Another preferred spending topic is how the federal government might help provide health insurance to the 45.7 million uncovered Americans. We strongly agree that helping the uninsured is a laudable and necessary goal. But we will also point out that current policy discussions about how to achieve that goal are largely disconnected from the long-term threat of rising federal health-care costs—and, moreover, that achieving this goal may very well aggravate this threat.

Our constrained national conversation about fiscal priorities appears in many other places as well. Take the U.S. corporate tax code. There is now widespread consensus among scholars and practitioners that U.S. corporations face a high tax burden relative to that of many other countries. One reason is statutory tax rates. The U.S. federal corporate income tax rate of 35% (39% federal and state combined) ranks second highest among the 30 OECD countries, more than 12 percentage points above the OECD average of 26.6%. The other is tax complexity, especially for U.S.-headquartered multinationals that earn income abroad as well as at home. U.S. corporations face liability on their earnings worldwide, not just in the United States, with an extremely complex set of ever-changing rules for when foreign-source earnings incur a U.S. tax liability. This combination of a high-rate, high-complexity tax code burdens the competitiveness of American companies. Things were not always so. When the Tax Reform Act of 1986 reduced the top U.S. corporate tax rate from 46% to 34%, the United States jumped from being a high-tax jurisdiction to a low-tax one. But in the generation since, dozens of other countries have reduced their corporate income tax rates and adopted simpler codes.

Regardless of one’s views about the fair share of corporate tax (or even the issue about who really bears the economic incidence of this tax), in today’s global economy U.S. corporate tax provisions must be in line with those in other countries and must not discourage companies from locating and expanding in the United States. U.S. corporate taxes do not yield a large part of total revenue, but they do impose high tax rates on marginal corporate income.²⁷ There is scope for reforming corporate taxation to reduce the number of deductions corporations can take to allow lowering the marginal rate.

One further example of our sub-optimal national discussion of fiscal priorities is the recent treatment of the Alternative Minimum Tax. Created decades ago to prevent high-income individuals from excessively reducing their federal tax liability through large deductions, the AMT is a parallel income-tax system that allows fewer deductions (e.g., no deductions for state income taxes paid). Each year, households

26 The Office of Management and Budget estimated that total earmark spending in fiscal 2008 was roughly \$16.5 billion, less than 0.6% of total federal spending.

27 According to the U.S. Bureau of Economic Analysis, taxes on corporate income represented 14.5% of total tax receipts in fiscal 2007.

must calculate their income-tax liability both under the standard system and the AMT, and must pay the larger of the two. However, since its inception the key trigger levels for the AMT have been set in nominal terms that are not indexed to inflation. Over time, then, with ongoing general price inflation (above and beyond increases in real income), in the eyes of the AMT more households have become “high income” and thus liable to pay higher taxes. This structural flaw has long been recognized. But it has never been permanently fixed. Instead, single-year “patches” have been applied to exempt millions of taxpayers from their AMT liability—a haphazard practice that forces ongoing uncertainty on households and that now costs tens of billions in revenue each year. U.S. tax treatment of research and development spending has been similarly haphazard. In recent years, R&D tax credits have been extended year-by-year, with variation in their exact structure, such that American companies have faced ongoing uncertainty about what tax advantages, if any, they would receive for their R&D expenditures that are critical for innovation.

Costs to the American Economy of These Twin Fiscal Challenges

What is the competitiveness cost to America from the two fiscal problems we have identified? Start with our constrained national discussion of fiscal policy. A government tax on any business or consumer activity tends to curtail it; accordingly, it is widely agreed that sound tax regimes are those with broad and transparent bases, where the breadth allows low rates (for some given target revenue) and the transparency fosters certainty for long-term decision-making by businesses and households. Largely because of the problems of our current national fiscal discussion, we are far from a sound regime. The President’s Advisory Panel on Federal Tax Reform opened its bipartisan report with the following characterization.

We have lost sight of the fact that the fundamental purpose of our tax system is to raise revenues to fund government ... The current tax system distorts the economic decisions of families and businesses, leading to an inefficient allocation of resources and hindering economic growth ... The tax system is both unstable and unpredictable. Frequent changes in the tax code, which often add to or undo previous policies, as well as the enactment of temporary provisions, result in uncertainty for businesses and families. This volatility is harmful to the economy and creates additional compliance costs.²⁸

The fiscal problem of looming unsustainable deficits threatens America’s competitiveness by threatening long-run economic growth. Large and growing fiscal deficits would draw on America’s available pool of savings generated by American households, American companies, and (thanks to globalization) foreigners through the trade deficit. American companies also rely on these same savings to fund their productivity-enhancing capital investments in property, plant, equipment, R&D, and worker training. So larger budget deficits, if not perfectly offset by more savings, will tend to raise real interest rates (the price of savings) and thus reduce the capital investment of U.S. companies. This will mean slower growth in worker productivity and earnings.

The exact timing of when rising fiscal deficits would curtail U.S. economic performance would depend

²⁸ Page xiii of the Executive Summary of the Final Report of the President’s Advisory Panel on Federal Tax Reform, November 1, 2005.

a lot on how much foreign investors would be willing to continue supplying their savings to buy this expanding government debt. If foreign-investor demand were to shift abruptly away from this debt, the resulting sharp depreciation of the U.S. dollar and spike in U.S. interest rates could bring sudden, severe drops in capital investment (and overall recession as well)—along with higher price inflation and its related problems.

How big might these economic impacts be? Very big. CBO calculations of its alternative fiscal scenario predict that expanding federal debt would reduce the total U.S. capital stock in 2040 by 25% compared with what it would be that year if the fiscal deficit did not rise from its 2007 level. By 2050 that reduction would grow to over 40%.

II. Why Are Health-Care Costs Increasing So Much?

It is important to restate that the central force driving America's dire fiscal future is the projected increases in health-care costs per Medicare and Medicaid beneficiary. These costs per beneficiary have been rising for decades much faster than inflation. CBO calculates that since 1975, annual costs per Medicare enrollee (even after adjusting for the changing age profile of the beneficiary population) grew an average of 2.4 percentage points faster than did per capita GDP.

It is also important to emphasize that these past and projected increases in Medicare and Medicaid health costs largely parallel trends in private-sector markets for health care. So, the challenges facing the federal government of understanding the causes of and possible solutions to its rising health-care costs are the same as the challenges facing companies and families throughout the U.S. economy. Slowing the growth of Medicare and Medicaid costs will be possible only in conjunction with slowing the growth of U.S. health-care costs overall. The challenge will be to do this without harming the quality of care and also the incentive to develop valuable new treatments.

Real health-care costs per person could be increasing for sound demand-side reasons, including aging and personal income growth that permits one to choose more and/or more-expensive health services. A number of studies have concluded that although these demand-side cost drivers have not been zero, they account for only a small portion of the total story. For example, a 2007 McKinsey Global Institute study found that after adjusting for income differences, the U.S. still spent more than \$477 billion on health care than its peers. The same is true for demand driven not by patients themselves but rather by doctors and other related health-care providers seeking to practice "defensive medicine" aimed at preventing subsequent claims of negligence. Rather, supply-side forces are the main culprit. Administrative expenses also account for a non-zero but small part of the story. Rather, the single biggest force driving rising health-care costs per person—by many estimates, half to approaching two thirds of all the increase—has been the invention and diffusion of new medical technologies and services. Innovation is generally a good thing in the economy and it is a good thing in the medical sector, but the structure of this industry and the nature of the incentives it faces result in cost-increasing innovations, not the kind of cost-reducing innovation we see, for example, in computers.

There is now a growing body of evidence that there are dramatic and persistent inefficiencies in America's use of its medical technologies and services. Medical technologies and practices—and thus costs—vary widely across the United States, but often with little to no correlation with patient satisfaction and ultimate outcomes such as survival and quality of life.

Consider the example of treatment of heart attacks. The class of drugs called beta blockers have been proven in multiple clinical trials to save lives of heart-attack victims, at a cost of pennies a day. Guidelines of multiple medical groups, including the American College of Cardiology, call for their administration to all heart-attack victims—i.e., call for 100% uptake of this intervention as the ideal best-practice treatment. But studies of national data show that in recent years among the 306 primary-hospital regions in the United States, only eight had prescribed beta blockers to over 80% of their heart-attack patients and the modal prescription rate was only about 50%. This sort of result has been documented time and again, with studies of Medicare patients in particular showing both variation in patient costs of several times across the United States without commensurate increases in access to or quality of care in higher-spending regions.²⁹

What accounts for all this inefficient variation in practice and expenses, much of which seems uncorrelated with the critical health-care outcome of patient well-being? The answers to this critical question are not yet fully understood. From an industrial-organization perspective, the U.S. health-care system is unproductive, both in terms of having a fragmented and often uncompetitive set of providers without widespread dissemination of best-practice techniques and in terms of often allocating too much spending without commensurate benefits. A widely cited culprit is the inertia to adopting information technology, which inhibits cost-cutting innovations and supports the gridlock of fragmentation. In turn, these inefficiencies seem to stem from a complicated set of forces related to the lack of information about what treatments work best, and incentives facing patients and providers that do not encourage cost-saving and efficiency.³⁰

III. Policy Recommendations to Address Fiscal Challenges

Initiate New Research on Health Care Costs

Our first recommendation aims at the problem of rising per capita health care costs. If the rate of increase in these costs cannot be slowed significantly, then the approaching fiscal crisis will indeed arrive.

- Accordingly, we recommend that the federal government start a new initiative to support high-quality peer-reviewed research on the cost and effectiveness of alternative treatment protocols. Such research is like other types of early-stage basic-knowledge research in that it will have social returns far above the private returns and so is well suited to public funding to address this externality. Moreover, this

29 Elliott S. Fisher, 2008, "Unwanted Variations and Their Remedies: Findings from the Dartmouth Atlas of Health Care," PowerPoint presentation.

30 For an insightful discussion of the inefficiencies facing American health care, see Alan M. Garber and Jonathan Skinner, 2008, "Is American Health Care Uniquely Inefficient?" *Journal of Economic Perspectives*, 22(4), Fall, pp. 27-50.

new funding is needed immediately because it will take many years to discover and act on this new knowledge, all during which the fiscal math of rising health-care costs will be grinding along. Two logical institutions to support this new research program are the National Institutes for Health and/or the National Science Foundation.

Appoint Presidential Panel to Review Tax Code

Our second policy recommendation aims to remedy the poor state of fiscal discussions. We do not believe that the American electorate has been adequately informed about the real tax and spending choices the nation faces. Consequently, specific proposals to raise taxes or cut spending are unlikely to be proposed or to pass Congress if they are proposed. By default, nothing is done to deal with the fiscal challenge, even though such neglect will seriously undermine U.S. competitiveness and growth over the long run.

- We recommend that a blue-ribbon, bipartisan Presidential commission be appointed to lead a new, robust, and candid national discussion about how we as a country can most strategically collect our total tax revenue and achieve a reasonable and sustained budget balance. Part of its mandate would be to propose tax solutions that minimize adverse incentives and sustain the rewards for enterprise, skill, and effort that have been so critical for spurring competition and economic performance. The Congressional Budget Office (CBO), whose leadership has been outstanding under both Republican and Democratic appointees, would conduct studies as requested by this commission.

The commission's ultimate output would be a report for every American business and household that lays out the essential terms of the U.S. fiscal situation—likely spending trajectories, possible sources of revenue, and tradeoffs among them (taxes on labor income, dividends and capital gains, consumption, and the impact of alternative tax rates). Differences of opinion among commission members as well as external submissions to the commission must be framed under the rule of a sustainable balanced budget (a pay-as-you-go rule) as scored by CBO. Those who favor higher spending levels—whether for Medicare or for the military—would need to specify the source of additional revenues. Those who favor lower taxes would need to specify resulting spending cuts, with enough specificity to allow CBO to score the proposal. With all proposals, the principles of simplicity and fairness should be paramount.

This commission is not meant to be an exercise in idle conversation, with a one-off final report that largely sits unread on bookshelves. Rather, it needs to provide thoughtful leadership to the country that will spark a new discussion leading to a better system of revenue collection in light of whatever spending obligations arise in the coming years. As such, it will need to involve key leaders and decision-makers from both our legislative and executive branches.

CONCLUSIONS

The U.S. economy is very productive compared to other countries, and its productivity growth has been strong since 1995. It has a very high level of competitive intensity and flexibility, which allows the most productive companies to expand and forces the less productive to contract. The U.S. economy has deepened its ties to the global economy as trade and investment have expanded. This global engagement has been an important reason for the strong productivity performance. The U.S. economy does not have the dominant position in the world that it had after the end of World War II, but it remains competitive and has an opportunity today to expand exports and narrow the trade deficit.

Our first recommendation is that policy choices recognize these ongoing U.S. competitive strengths and make sure they are sustained. We strongly favor further liberalization of international trade and investment. In addition, there surely are areas where regulation and oversight need improving: today's financial crisis shows the effect of poor regulation—both in structure and in practice. That said, a return to the era when regulation discouraged competition or micro managed industries would be a disaster.

Despite these ongoing U.S. strengths, today there are growing threats to U.S. competitiveness. Increases in the educational attainment of American workers has nearly ceased, with more and more workers lacking the skills that needed to make America an attractive location for high-productivity, high-compensation jobs. The U.S. infrastructure is crumbling, with much talk but very little action. The tax code is inefficient and there is no real debate about the tradeoffs we face with respect to spending and taxes. All sensible forecasts are that Medicare and Medicaid are going to swallow the federal budget, but we lack the knowledge to make the needed reform.

We believe the U.S. economy is at a crossroads. Are we going to build on the considerable strengths of the economy and tackle these emerging threats? Or are we going to continue to muddle along and allow these problems to worsen, with ever-growing costs to America's economic competitiveness? We hope that the answer is the former. But now is the time to act.