



THE UNITED STATES AFTER THE GREAT RECESSION: THE CHALLENGE OF SUSTAINABLE GROWTH

Joshua Meltzer
David Steven
Claire Langley



Joshua Meltzer is a fellow in the Global Economy and Development program at the Brookings Institution and adjunct professor at The Johns Hopkins University's School of Advanced International Studies.

David Steven is a nonresident senior fellow for the Managing Global Order project in the Foreign Policy program at the Brookings Institution and a nonresident senior fellow and associate director of the Center on International Cooperation at New York University.

Claire Langley is a research analyst in the Global Economy and Development program at the Brookings Institution.

Acknowledgments and Author's Note:

The authors would like to thank Sean Cleary, founder and executive vice-chair of the FutureWorld Foundation. This paper is a deliverable for the Trilogue Salzburg conference held in August 2012 and is part of a multi-year program called Norms for Global Governance. It is also a contribution to the "Geopolitics of Scarcity" project, which is supported by the John D. and Catherine T. MacArthur Foundation. The authors would also like to thank Katherine Sierra of the Global Economy and Development program at the Brookings Institution, Charles Roxburgh of the McKinsey Global Institute, Charles Kenny of the Center for Global Development, Jennifer Morgan of the World Resources Institute, Elliot Diring of the Center for Climate and Energy Solutions (C2ES), Homi Kharas of the Global Economy and Development program at the Brookings Institution, Adele Morris of Climate and Energy Economics at the Brookings Institution, Bruce Jones of the Managing Global Order project at the Foreign Policy program at the Brookings Institution, Matthew Kent of River Path Associates and Jane Frewer of River Path Associates.

CONTENTS

Executive Summary.....	1
Introduction: The United States in Turbulent Times	3
1. The U.S. Economy: How It Works and What It Delivers	6
Economic Outcomes.....	6
Social Outcomes	9
Environmental Outcomes	11
The American Growth Model Under Threat	14
2. Where Next for the United States after the Great Recession?	15
America's Dynamic Demography.....	15
Deepening Political Distrust.....	18
A New Era of Global Leadership.....	20
Scenarios for the Future	21
Determining the Future	24
3. America's Future Direction	27
Tackling the Jobs Crisis.....	27
Investing for Tomorrow	29
Fueling the Future.....	31
Fiscal Rebalancing	32
Conclusion: Renewing America's Global Leadership	34
Endnotes	36

LIST OF FIGURES

Figure 1: GDP Rises, Income Falls, 1975-2011.....	6
Figure 2: Rapid Growth in Government Debt: Income of the Top 10 Percent, 1940-2012.....	8
Figure 3: Wealth Gains Have Been Concentrated among the Richest Families, 2001-10	10
Figure 4: Populations of the Largest Countries: Winners and Losers, 2010-50.....	16
Figure 5: Median Age Projections for Selected Large Countries for the Next 40 Years.....	17
Figure 6: Confidence in U.S. Institutions Is Declining, 1973-2012	19

THE UNITED STATES AFTER THE GREAT RECESSION: THE CHALLENGE OF SUSTAINABLE GROWTH

Joshua Meltzer
David Steven
Claire Langley

EXECUTIVE SUMMARY

“Never before has our nation enjoyed, at once, so much prosperity and social progress with so little internal crisis and so few external threats,” President Clinton argued in January 2000 in his final State of the Union address.

Despite this optimistic prognostication, the millennial decade was one of profound crisis, with serious consequences for the United States’ economy and society, and for the environmental sustainability of the American dream.

This paper starts from the following assumptions:

- First, though the United States’ economic model has many strengths, its resilience has been weakened. Acute economic, social and environmental challenges will need to be addressed in either the short or long term.
- Second, the United States’ response to this era of crisis will be an important factor influencing how other countries react, given the size of its economy, its position as a “necessary but not sufficient”

actor on most global issues and its potential for innovation.

- Third, it is necessary to gain an understanding of the drivers of and obstacles to change in American society to draw conclusions about its response to crisis.

We identify four trajectories (scenarios) the U.S. could take over the coming decades:

- The United States could continue to try and *muddle through*, reacting to the external environment, rather than trying to shape it.
- It might aggressively focus on *going for growth* in order to meet the aspirations of its growing population, with only limited regard for environmental consequences.
- Alternatively, *intelligent design* would lead the U.S. to place greater value on sustainability at national and global levels, adopting reforms that begin to push its economy onto a new trajectory.
- Finally, shocks could drive an *emergency response*, as renewed breakdown in global financial systems, serious conflict or state failure, or a se-

ries of extreme weather events dominate the government's agenda.

All trajectories are plausible, but the *intelligent design* scenario is most desirable. This paper makes recommendations that, although challenging to implement, are politically feasible and if implemented would place the U.S. growth model on a new sustainable trajectory at an acceptable cost.

To reach this goal this paper focuses on four areas for action:

- *Increasing employment*, which is the most urgent priority to accelerate recovery from the Great Recession, while addressing underlying structural issues that have led to a decade of poor economic outcomes for most citizens.

- *Investing in the future*, as the key marker of whether the United States is prepared to make farsighted decisions to improve education, build new infrastructure and increase innovation.

- *Maximizing an increased energy endowment* in a way that grows the economy, while reinforcing the trend towards reducing resource demand and reducing greenhouse gas emissions.

- *Fiscal rebalancing*, where the United States must insulate economic recovery from the process of fiscal reform while reducing and stabilizing debt over the long term.

Finally, we argue that President Obama can re-energize America's global leadership if he builds on a platform of domestic actions that enhance the sustainability of America's society and economy.

INTRODUCTION: THE UNITED STATES IN TURBULENT TIMES

In January 2000, President Bill Clinton argued that the United States had entered the new century from a position of unparalleled strength. “Never before has our nation enjoyed, at once, so much prosperity and social progress with so little internal crisis and so few external threats,” he said in his final State of the Union address. “We will make America the safest big country on Earth. We will pay off our national debt for the first time since 1835. We will bring prosperity to every American community. We will reverse the course of climate change and leave a safer, cleaner planet. America will lead the world toward shared peace and prosperity, and the far frontiers of science and technology.”¹

Despite this optimistic prognostication, the millennial decade was one of profound crisis, with serious consequences for the United States’ security and prosperity, and for the sustainability of the American dream. The dot-com market crashed in March 2000, the latest in a chain of asset price bubbles that burst in Japan in 1991 and East Asia in 1997.² The attacks of 9/11 drew the United States into expensive and inconclusive wars that caused significant damage to its international reputation.³ In 2007, the property market collapsed, triggering near-meltdown in the financial sector, and then a brutal recession saw the median American family lose 40 percent of its wealth.⁴

At the end of what he described as “a difficult decade,” President Barack Obama’s State of the Union address was very different in tone from that given by President Clinton 10 years earlier.⁵ He painted a picture of the economic “devastation” that had hit ordinary people and their resulting loss of faith in America’s government, business and media. It was time, he argued, to start anew and rebuild the

American dream, drawing on the country’s history of “stubborn resilience in the face of adversity” and the core ideals and values that had made it strong.

Despite the result of the 2012 election, however, Americans remain deeply divided over the country’s future direction. According to a survey of political values across the past quarter century, partisan division was fairly stable until 2002, after which it increased rapidly.⁶ The public is especially split on the scope and performance of government, the role the state should play in helping the poor and the need for regulation to protect the environment.⁷ These divisions have shaped the United States’ response to the financial crisis. In September 2008, the initial phases of the banking bailout became enmeshed in the American election, and in the summer of 2011, fundamental disagreements about government debt brought the country close to a deliberate default.⁸ In recent years, fiscal battles have brought the country’s politics close to gridlock.⁹

America is not alone in its lack of direction, of course. The European Union remains incapable of solving the euro crisis, leading to expectations that a supposedly “irrevocable” currency union will shrink or could even disintegrate.¹⁰ China and India face significant headwinds over the coming years, as China is confronted by its own asset bubble and by demographic decline and India by a combination of political gridlock and economic slowdown.¹¹ Their recent success has also brought new challenges, as their middle classes become increasingly demanding and assertive. At a global level, globalization’s “long crisis” has exposed the fragility of the international system.¹² The Group of Twenty (G-20) has failed to emerge as a steering committee for the global economy, while Rio+20 has once again demonstrated how little the set piece summit has to offer.¹³

As governments devote an increasing proportion of their energy to firefighting short-term crises, longer-term challenges have been left largely unaddressed. In 2008, an energy and food price shock coincided with and contributed to the acute phase of the financial crisis.¹⁴ Commodity markets then crashed before rebounding sharply and now remain in a volatile state that is challenging both for producers and consumers of natural resources. High energy prices have been an obstacle to recovery in America and Europe, with an increase in the oil price of \$10 per barrel thought to cut growth in the countries belonging to the Organization for Economic Cooperation and Development (OECD) by 0.2 percent.¹⁵ Conversely, many energy exporters are vulnerable to falling prices, with their “fiscal break-even point” having increased dramatically as they use subsidies and other transfers to try and dampen political unrest. In 2012, due to adverse weather resulting in drought conditions in the United States, another food crisis is intensifying, with 60 percent of American farms experiencing drought in August 2012 and “major impacts on the production of many field crops this year, particularly corn, soybeans, sorghum, and hay.”¹⁶

Climate change impacts are already being felt in the U.S. The most recent decade was the nation’s hottest on record, and temperatures will continue to rise with the next few decades projected to see another 3.6°C to 7.2°C of warming in most areas.¹⁷ Certain types of weather events have become more frequent and/or intense, including heat waves, heavy downpours and, in some regions, floods and droughts. Sea levels are rising, oceans are becoming more acidic, and glaciers and Arctic sea ice are melting. These changes and others yet to come will affect human health, water supply, agriculture, transportation, energy and other aspects of society.¹⁸

Climate change may have slipped down the international agenda, but global greenhouse gas emissions rebounded much more sharply than expected after the

financial crisis.¹⁹ They have now reached the level at which they would need to peak if the world is to have a 50 percent chance of limiting warming to below 2°C.²⁰ Although many countries now have voluntary commitments to reduce their greenhouse gas emissions, implementation of a binding agreement to reduce emissions has been delayed until at least 2020. Other “planetary boundaries” are also being threatened, with some scientists warning that global ecosystems are on the verge of a “state change that will be extremely disruptive to civilization.”²¹ A substantial shift is needed in patterns of global growth if the world is to avoid irreversible environmental damage, as its urban population grows by another billion in just 15 years, and, if economies are robust, a further 4 billion people will join the global middle class.²² The world remains far from any consensus on how to achieve this shift, despite attempts to focus attention on “green growth” at the Rio+20 Summit.

Although Americans on both sides of the political divide believe their country should continue to play an active role in responding to global problems, the nature and direction of American leadership remain controversial. About two-thirds of Americans believe the country benefits from globalization, but this is below the average for 25 countries.²³ The American public is also relatively skeptical about international financial regulation, with a slight majority fearing that a new regulatory body would make the American economy less productive (compared with an average of a third in other countries). Although there is widespread concern about high commodity prices (especially as they feed through to the gas pump), improving energy independence, principally due to exploitation of shale gas, has persuaded some policymakers that the United States can now insulate itself from turbulence in the Gulf and other energy-producing hotspots.

Support for robust action at a global level to tackle climate change and other environmental problems is weak, with

only a minority of Republicans believing there is solid evidence that the Earth is getting warmer.²⁴ In the run-up to the 2012 presidential election, post-tropical storm Sandy is estimated to have caused \$20 billion in damage to New York, New Jersey and surrounding areas,²⁵ with scientists arguing that climate change has already increased the likely frequency and ferocity of extreme weather events of this sort.²⁶ Although this has increased pressure on American politicians—a fact acknowledged by President Obama as he won re-election—it is far from certain that this will translate into increased international engagement by the United States.²⁷

The current impasse may be temporary, however. Whether domestically or internationally, the process of political change is probably only beginning to gather momentum. President Obama's re-election is an anomaly in a period when incumbent governments have had a miserable time at the polls, and populist movements and fringe parties have thrived.²⁸ In the United States, the Tea Party has attacked the political establishment from the right, and the Occupy movement has had a similar, if less far-reaching, impact from the left. The Arab Spring, itself a reaction to economic stagnation, will continue to reshape multiple countries, with highly unpredictable results. Across the world, many countries will experience further political disruptions, with the next 10 years likely to be a fertile period for policy innovation. Elites find themselves broadly discredited, and outsiders will continue to have unusual opportunities to bring new ideas—both good and bad—into the mainstream, if they can make effective and entrepreneurial use of popular frustration with the status quo.²⁹

This paper represents an initial attempt to understand the directions this change is likely to take. It is written with three assumptions:

- *First, though the United States' economic model has many strengths, its resilience has been weakened.*

Acute economic, social and environmental challenges will need to be addressed in either the short or the long term. It is currently unclear whether this will lead to only minor changes to the American economic model or to a more significant transformation.

- *Second, the United States' response to this era of crisis will be an important factor influencing how other countries react,* given the size and influence of the U.S. economy, its position as a “necessary but not sufficient” actor on most global issues, and its potential for technological and social innovation.
- *Third, there is little point in expecting the United States to adopt or advocate policies that run counter to its interests and values.* It is therefore necessary to understand the drivers of and obstacles to change in the United States and use them to draw conclusions about the types of solutions that are most likely to emerge—after an era of crisis.

The paper is divided into three sections. In the first, we review the evolution of the United States' economy in recent decades and the positive and negative effects of the growth it has provided, with a focus on economic, social and environmental outcomes.

In the second section, we set out an analysis of the shifting interests of different groups in American society and the structural, institutional and cultural factors that will inform the process of change. This allows us to identify four broad scenarios for the evolution of the United States' economy, each of which represents a plausible pathway from the current crisis toward a new growth model and political settlement.

In the third and final section, we set out policy recommendations that cover the areas of employment, investment in the future, energy, fiscal rebalancing and American opportunities for global leadership during President Obama's second term.

1. THE U.S. ECONOMY: HOW IT WORKS AND WHAT IT DELIVERS

Economic Outcomes

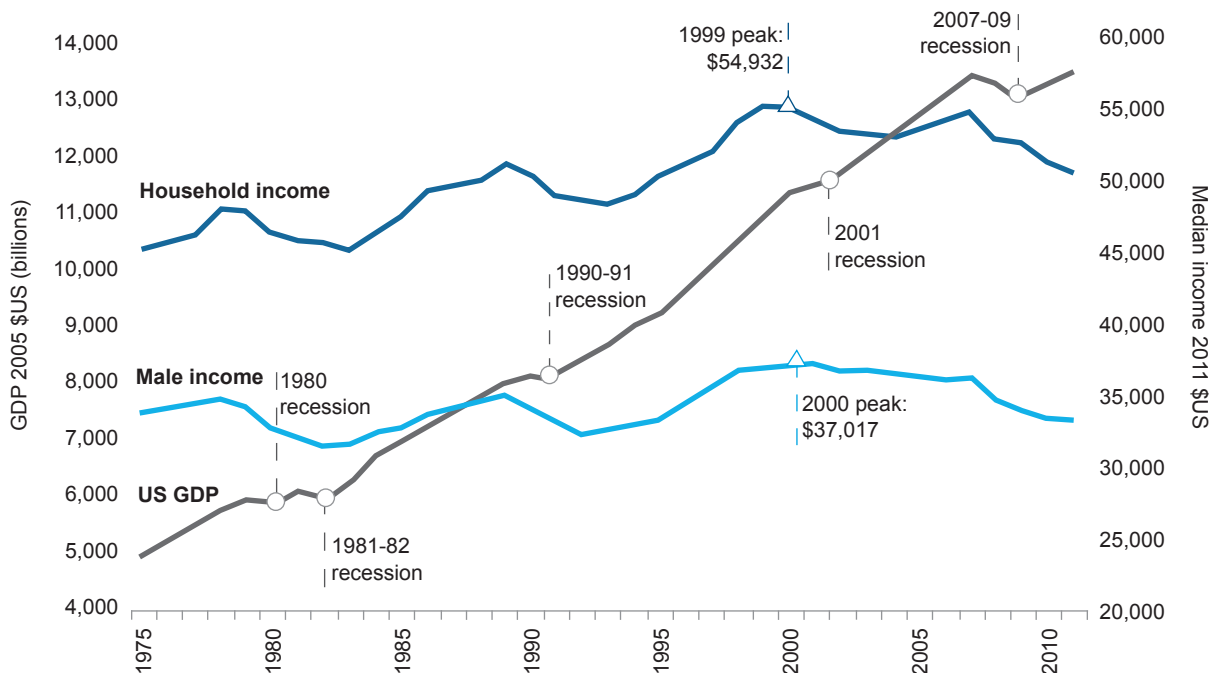
The United States is the world's foremost economic power. Since the end of World War II, its economy has achieved relatively steady growth, low unemployment and inflation, and rapid advances in technology. This prosperity underpins American global leadership, supporting a military that dwarfs its rivals, maintaining America's place at the heart of the international system, and influencing other countries through trade, investment, the diffusion of technologies, and the spread of scientific, economic and legal models.³⁰

In the postwar period, gross domestic product (GDP) has grown in real terms by an average of 2.9 percent

a year, or 1.7 percent on a per capita basis, with the economy more than six times larger in 2012 than it was in 1945 (figure 1).³¹ Over the long term, the economy has been highly successful in creating employment, with an average of 1.3 million new jobs created each year and an unemployment rate of below 6 percent.³² The average worker is also much better paid, with mean annual earnings for males having doubled in the postwar period.³³

During this time, the United States has placed a premium on the role of the private sector as the main driver of innovation and productivity while constraining the role of the government in the economy. The American economy consistently ranks highly when compared with its competitors and is currently seventh in the World Economic Forum's Global Competitiveness Index.³⁴ Its

Figure 1: GDP Rises, Income Falls, 1975-2011



Sources: U.S. Bureau of Economic Analysis, U.S. Census Bureau and the National Bureau of Economic Research.

other key strengths are the size of its domestic market, the flexibility of its labor market, its commitment to innovation and the sophistication of its business sector.

Labor productivity, which has grown at an average annual rate of 2.4 percent since World War II, has been underpinned by high levels of research and development. The United States spends about 3 percent of GDP on research and development (R&D), about average for the OECD.³⁵ However, it is home to the world's best universities and research institutions, with seven American universities ranked among the top 10 in 2011, and with the United States accounting for more than a third of citations in the world's science and engineering journals and registering more than half the world's patents.³⁶ The public sector, meanwhile, has invested in breakthrough R&D, such as through the Defense Advanced Research Projects Agency, which created the Internet.³⁷ This has allowed the country to remain at the forefront of sectors with high growth potential, such as information technology, biotechnology, pharmaceuticals, personal services and renewable energy.³⁸

The economy is highly entrepreneurial, with Americans more likely to set up new businesses than the citizens of comparable countries, and workers prepared to relocate to seek work.³⁹ The depth and sophistication of the United States' financial markets, including its capital venture sector, provides funding for startups with high growth potential, where firms that are less than five years old accounted for almost two-thirds of net jobs created in 2007.⁴⁰ Established American companies tend to be more decentralized than their competitors and more open to innovation.⁴¹ American consumers also appear to be unusually willing to try new products and services.⁴²

The Great Recession, however, has heightened concerns that the United States' economic model is failing to deliver to its full potential. The recession, which be-

gan in December 2007, was the longest and deepest of the 11 experienced since the war.⁴³ Recovery has been anemic, with the economy only returning to its prerecession size in the third quarter of 2011.⁴⁴ Moreover, the economy faces the following longer-term threats:

- *Competitiveness is being eroded.* Since 2005, the United States has experienced the largest drop in its score on the World Economic Forum's Global Competitiveness Index of any country.⁴⁵ Business leaders have low levels of trust in the ability of politicians, government and other institutions to support growth; believe that regulation places too great a burden on the private sector; and are concerned about a lack of macroeconomic stability.⁴⁶ A majority expect American competitiveness to continue its decline.⁴⁷
- *The economy is struggling to generate sufficient new jobs.* Before 1990, the United States returned to prerecession levels of employment in an average of just six months after the recovery was complete. Since then, however, it has experienced two "jobless recoveries" (1990, 2001), and it is now in the midst of a third, with it expected to take up to five years for employment to recover.⁴⁸ As a result, long-term unemployment has been an increasing problem. Only 4 percent of the unemployed had been out of work for more than a year in 1980. This number had risen to about 10 percent of total unemployed before the financial crisis and had reached nearly 30 percent of the total by 2010.⁴⁹
- *Many workers are not seeing an increase in their earnings.* Until 1970, male workers saw their wages increase by about 25 percent per decade.⁵⁰ Since then, however, they have done much less well, with real median earnings now lower than they were 40 years ago (see Figure 1), a period when the proportion of men in full-time work shrunk significantly. Poorly edu-

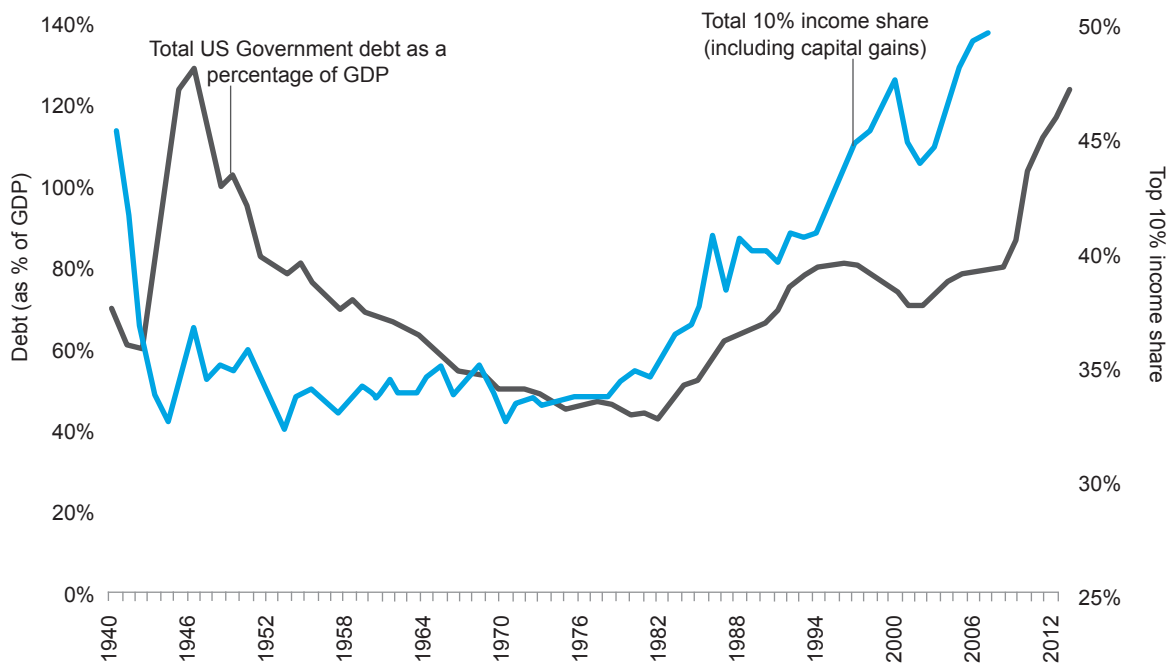
cated men have performed especially badly, with men who failed to complete high school seeing their earnings eroded by 66 percent. Women are more likely to work and have seen their earnings grow, but this has not been sufficient to compensate families for the loss of male earning power. As a result, most households have become poorer (see below).

- *Investment in infrastructure and human capital is not world class.* The United States is ranked 25th in the world in the World Economic Forum's index of quality of overall infrastructure investment.⁵¹ The country needs \$2.2 trillion worth of investment in infrastructure over the next five years, \$1.18 trillion of which has not been budgeted.⁵² School-level education is at or below the average standards for the OECD, despite relatively high levels of expenditures per student.⁵³ Publicly funded higher educa-

tion is under pressure, with cuts from both federal and state budgets. Student debt is a growing problem, with \$956 billion in loans now outstanding.⁵⁴

- *Growth has been fueled by high levels of indebtedness.* Total public and private debt grew to almost three times the level of U.S. GDP in 2008, with a third of this debt outstanding to households and about half the rise in consumer spending during the boom years accounted for by increased household debt.⁵⁵ Since the financial crisis, households and businesses have begun to pay down their debt, and they are moving toward sustainable debt levels.⁵⁶ The deleveraging process, however, is delaying recovery, with the most indebted households seeing the fastest decline in consumption during the Great Recession. Business investment remains low as a percentage of GDP.⁵⁷

Figure 2: Rapid Growth in Government Debt: Income of the Top 10 Percent, 1940-2012



Sources: U.S. Census Bureau and T. Piketty & E. Saez (2007).

- *The United States faces growing fiscal pressures.* The national debt fell throughout the postwar period, before rising dramatically in two waves (1981–95; 2001–12), reaching 123 percent of GDP in 2012 (Figure 2).⁵⁸ Tax cuts and spending increases fueled the debt after 2001, whereas during the recession, this long-term trend was exacerbated by a loss of tax revenue, an increase in entitlement spending, and the stimulus package and bailout, with the debt held by the public expected to reach 75 percent of GDP in 2013 from 40 percent of GDP in 2007.⁵⁹ The January 1, 2013 fiscal agreement included raising income taxes on individuals earning over \$400,000 and made the rest of the Bush-era tax cuts permanent. A decision on sequestration—the mandated cuts in defense and non-defense spending of \$1.2 trillion over ten years—was pushed back from January 1 to March 1, 2013. These cuts, if implemented in full, are predicted to cause a contraction of 0.5 percent of GDP and raise unemployment to over 9 percent.⁶⁰
- *The United States' economy is affected by broader global imbalances.* The current account deficit rose steadily from 1991, peaking at 6 percent of GDP in 2006, but has now fallen to slightly more than 3 percent of GDP. With Americans saving less than the country's investment needs, the counterpoint is trade surpluses run by countries such as Germany and China, where consumption levels are low and whose economies are highly reliant on exports to debtor countries. Ben Bernanke, chairman of the Federal Reserve, has argued that a “global savings glut” is an important source of global financial instability and that, in the medium term, it can be effectively addressed if countries with “unsustainable trade surpluses” export less and consume more, whereas countries such as the United States with “large, persistent trade deficits must find ways to increase national saving, including putting fiscal policies on a more sustainable trajectory.”⁶¹ The sustainability of the trade deficit will depend on ongoing foreign appetite for American assets.

Social Outcomes

Since World War II, economic growth has delivered substantial benefits for the American people, who are richer, healthier and better educated than they were 60 years ago. The average American born today can expect to live 10 years longer than one born in 1950.⁶² Literacy levels have reached 99 percent, and 70 percent of Americans who completed high school in 2009 went on to enroll in higher education.⁶³ American average income is now nearly 8.5 times higher than postwar levels.⁶⁴ Moreover, basic needs account for a decreasing share of the consumption basket, with food nearly halving its share of disposable income, while money spent on recreation has more than quadrupled.⁶⁵ In comparative terms, the United States ranks at the top of the OECD for income and for the quality and affordability of its housing provision. Americans also rate their quality of life more highly than the average for the OECD.⁶⁶

Not all trends have been positive, however, especially in recent decades. Median family income shrank for most Americans between 2001 and 2007, and then fell significantly between 2007 and 2010.⁶⁷ Poorer American families (below the 40th income percentile) saw their net worth fall consistently throughout the decade, while all but the richest 10 percent saw pre-crisis gains wiped out by the fall in house prices, leaving them poorer than at the beginning of the decade.⁶⁸ For more than half of American families, in other words, economic growth is no longer translating into improvements of living standards.

Inequality has risen steeply and is now one of the highest in the OECD, second only to Mexico. After taking into account the redistributive impact of government taxes and transfer payments, the Gini coefficient for American disposable income rose from 0.37 in 1979 to 0.49 in 2007.⁶⁹ Though poor and middle-class Americans have seen their living standards stagnate in recent years, the

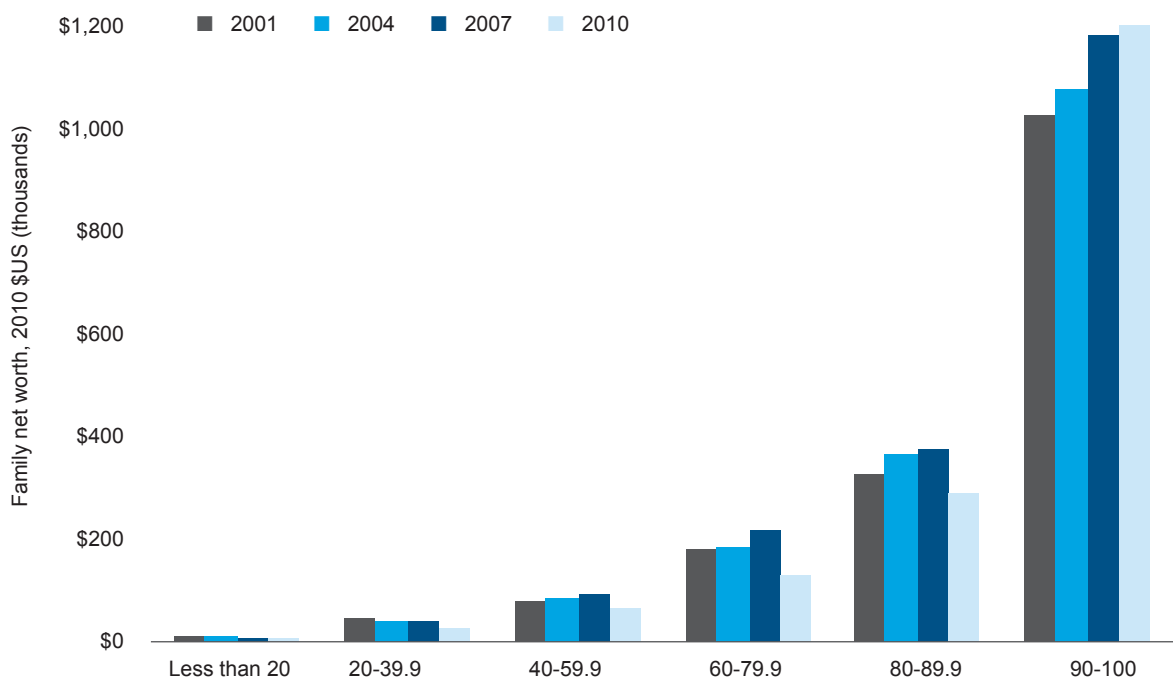
top 1 percent earned 20 percent of income in 2010, and the top 10 percent almost half of all income (Figures 2 and 3).⁷⁰ Household income is increasingly derived from capital, rather than from labor (although there were significant capital losses during the recession), and capital income has become steadily more concentrated among the richest households.

At the same time, economic mobility has been declining, with fewer people able to move through income brackets due to ability and hard work.⁷¹ By some measures, the United States is now less mobile than many countries in Europe. Parental socio-economic status, for example, is moderately correlated with children's educational attainment and income in the United States.⁷² Although 84 percent of Americans earn more than their parents did, Germany and Canada both per-

form better on this indicator.⁷³ Intergenerational mobility, which appears to have increased until the 1970s, also fell significantly in the 1980s and has remained unchanged since then.⁷⁴

The drivers of inequality and a lack of mobility are complex.⁷⁵ Increased competition from trade has created incentives on businesses to increase their efficiency and use technology that reduces the need for low-skilled labor. However, this effect is tempered by the fact that approximately 70 percent of American imports come from developed countries with similar wage costs.⁷⁶ Foreign direct investment (FDI) and the offshoring of jobs might also have contributed to inequality, with the OECD finding that outward foreign direct investment has had some impact, although mainly on the upper half of the dis-

Figure 3: Wealth Gains Have Been Concentrated among the Richest Families, 2001-10



Source: Federal Reserve.

tribution.⁷⁷ Technology has also replaced low-skilled work and increased the demand for high-skilled work, driving wage differentials, while immigration may have also depressed wage costs.

Although these global drivers have an impact on the U.S. economy's ability to deliver broad-based social outcomes, other factors are under national control:

- *Poor education outcomes* at primary and secondary school levels, especially in the worst schools, have contributed to the decline in mobility, as have the increasing costs of the university system and those of elite universities in particular. Students from wealthier families are much more likely to attend a four-year college program than their less-wealthy counterparts, whereas fewer than 10 percent of students at Harvard, Yale and Princeton receive Pell Grants, a federal scholarship for low-income students. Education has become less of a government priority, accounting for 14 percent of government expenditures in 2008, compared with 23 percent in 1970.⁷⁸
- *Tax and transfer payments* have had less of a redistributive impact over time.⁷⁹ The United States is below the OECD average for the progressivity of its tax system, and its transfers are relatively modest and not well targeted.⁸⁰ Though effective federal tax rates have fallen for all income groups, richer Americans now pay a small proportion of a much larger income in tax.⁸¹
- *Deregulation of the labor market* has also had a negative impact on the distribution of income, with the rise in inequality since the 1980s occurring in tandem with a near halving of the rate of union membership.⁸² Deregulation, however, has had a broader impact on the market, increasing competition, expanding economic activity and creating employment,

which has partially offset the downward pressure on wages from less-regulated labor markets.⁸³

- The rising cost of *housing* (34.4 percent of average household expenditures), especially during the property bubble, the need to spend more on *personal insurance and pensions* (11.2 percent), and more expensive *health care* have all placed pressure on living standards.⁸⁴ Health care is an especially pressing problem, with the United States already spending more than any other OECD country on health—17.6 percent of GDP in 2010, as compared with below 12 percent in Canada, Germany, Australia and the United Kingdom.⁸⁵ Notwithstanding the recent health care reforms, health costs as a percentage of GDP are expected to increase to 34 percent by 2040.⁸⁶

Unsurprisingly, there are signs of popular discontent with the American economic system, with only a third now believing that it delivers fair outcomes for middle- and working-class citizens.⁸⁷ Although 68 percent of Americans say that they have achieved or will achieve the American dream, the proportion that believes they are richer than their parents were at a similar age has fallen 13 percentage points over the past 30 years.⁸⁸ Fewer than half of parents now expect their children to enjoy a better standard of living than they did.

Environmental Outcomes

Over the past half century, the United States has made important progress in its domestic environmental quality and has led on international environmental challenges such as depletion of the ozone layer. In the 1960s and 1970s, American progress on the environment was underpinned by the rise of environmental movements, which increased awareness about the effects of economic growth on the environment. Many of the key American environmental advocacy groups were

created then, such as the World Wildlife Fund (1961), the Environmental Defense Fund (1967) and Friends of the Earth (1969). In 1969, the president created the White House Council for Environmental Quality (CEQ) and, in 1970, the Environmental Protection Agency.⁸⁹ The Clean Air Act and Clean Water Act were passed in 1970 and 1972, respectively.⁹⁰

Broadly speaking, American environmental laws and regulations are guided by the twin goals of protecting the environment for future generations while interfering as little as possible with the efficiency and growth of the economy. All U.S. environmental regulation is subject to rigorous cost/benefit analysis, where environmental and human health benefits are quantified and considered alongside the costs to industry and the broader economy. The United States pioneered market-based approaches to delivering environmental improvements, through a series of experiments that date back to the 1960s.⁹¹ A full cap-and-trade system for regulating sulfur dioxide was launched in 1990 and has delivered significant reductions in emissions at a lower cost than a regulatory option and a quarter of the original government cost estimates.⁹²

Over recent decades:

- Air quality has improved significantly, with reductions in levels of six common pollutants ranging from 7 percent for 8-hour ozone to 75 percent for annual SO₂ from 1990 to 2010.⁹³
- The Clean Water Act has led to significant increases in the quality of the water received by households and has triggered a rapid recovery of heavily polluted urban waterways.⁹⁴
- The efficiency with which the economy uses resources has also improved steadily. The amount of energy needed to produce a dollar of GDP (after adjustment for inflation) has almost halved since 1980,

although the United States still only ranks 61st in the world on this measure.⁹⁵

Internationally, the United States has played an important role in agreeing to international environmental treaties such as the 1973 Convention on International Trade in Endangered Species, the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer and the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. The basis for American engagement on these issues reflected a number of drivers, including concentrated advocacy by American environmental organizations and a calculation that the economic costs of addressing these environmental challenges would be minimal for the United States and overshadowed by the environmental benefits. The benefits of the Montreal Protocol, for example, were expected to exceed the costs by a factor of 65, even if the United States implemented it unilaterally.⁹⁶ Implementation by other countries made an already attractive proposition even more compelling.

Over time, however, the environment has become an increasingly contentious political issue. In 1992, environmental issues were a relatively minor source of partisan division, with large majorities of both Republicans and Democrats agreeing that stricter laws and regulations were needed to protect the environment.⁹⁷ Today, the environment is more divisive than any issue apart from the social security net, with Democrats now twice as likely to favor environmental controls as Republicans.⁹⁸

Similar divisions have opened up between the United States and other countries on global environmental issues, especially over climate change. In the negotiation of the United Nations Framework Convention on Climate Change, which was agreed to in 1992 and entered into force in 1994, the United States stressed

scientific uncertainty and was an early advocate of taking action on the basis of cost/benefit analysis.⁹⁹ In 1997, President Bill Clinton signed the Kyoto Protocol but resolved not to submit it for ratification “until key developing countries [also] commit to binding targets.”¹⁰⁰ President George W. Bush definitively ruled out ratification in 2001, promising instead to “develop technologies, market incentives and other creative ways to address global climate change.”¹⁰¹

These divisions complicated American efforts to respond to future environmental challenges, which include:

- *Securing access to resources.* The United States consumes about a quarter of the world’s energy and, until recently, had experienced a steady erosion of its energy security.¹⁰² All but one of the postwar recessions in the United States has been preceded by a pronounced increase in the price of crude oil, and all but one oil market disruption has been followed by a recession.¹⁰³ The Great Recession was no exception, with food and energy prices peaking in the summer of 2008 after a long period of decline.¹⁰⁴ Recovery has also been hampered by the resurgence of prices after 2010¹⁰⁵ and by uncertainty about future oil prices.¹⁰⁶ Rapid growth in demand from emerging markets has been the primary driver of higher and more volatile commodity prices, indicating the potential for increased competition for resources in both the short and long terms.¹⁰⁷
- *Tackling climate change.* During the past 20 years, the United States has experienced intense international pressure to reduce its carbon emissions, which in 2010 were more than double those of the European Union on a per capita basis and almost three times those of China.¹⁰⁸ U.S. emissions rose strongly before the recession but have since fallen, due to a combination of higher prices, lower growth, increased use of natural gas and tighter regulations

reducing the competitiveness of coal. Emissions in 2010 were 6.4 percent lower than in 2005, putting the United States on a trajectory that would allow it to meet its voluntary commitment under the Copenhagen Accord (a 17 percent reduction in emissions by 2020, from the same baseline).¹⁰⁹ However, even if all countries meet their Copenhagen commitments, the world will still be on track for warming at levels well above 2°C, ensuring ongoing international pressure on the United States to move toward, or beyond, its long-term target (an 83 percent reduction by 2050).¹¹⁰

- *Responding to extreme weather events.* The United States has proven relatively vulnerable to extreme weather events, although China and India face greater risks (ranking 19 and 22 places, respectively, above the United States on an index based on fatalities and economic impacts from 1990 to 2009).¹¹¹ Hurricane Katrina was America’s costliest natural disaster, and post-tropical storm Sandy has again shown the vulnerability of coastal cities. The economic loss from a storm of the same intensity is estimated to double every 10 years. If the 1926 Great Miami hurricane was to hit again in the 2020s, it could be expected to cause \$500 billion worth of damage (more than six times the cost of Hurricane Katrina), or about 3 percent of GDP.¹¹² Drought is also a significant threat, as was seen during the 2012 heat wave, which has had a global impact on food security.¹¹³ Even before Sandy, more than two-thirds of the American public believed that global warming is already affecting weather patterns in the country.¹¹⁴ This anxiety is now likely to have intensified.
- *Coping with water stress.* The United States is ranked as “high risk” on the Water Stress Index, although, again, the threats facing China and India are greater.¹¹⁵ The U.S. Southwest, Southeast and West all experience chronic water scarcity, due to unus-

tainable patterns of building and economic growth,¹¹⁶ and more than 1,100 counties (one-third of all counties in the lower 48 U.S. states) will experience a future high risk of water shortages by midcentury, with more than 400 of these facing an extremely high risk of water shortages.¹¹⁷ Temperatures for 2012 through June were the warmest since records began in 1895, and the drought is the worst in more than 50 years.¹¹⁸ It seems certain to have a significant impact on world food markets, with the United States' corn crop forecast to be the lowest in 14 years and the U.S. Department of Agriculture predicting cascading price rises for soybeans, animal feed, meat and dairy products.¹¹⁹

The American Growth Model Under Threat

As this review has demonstrated, in the postwar period the United States has had an impressive track record in delivering economic growth, boosting the living standards of its citizens, and improving environmental standards. America now appears to have reached an inflection point, however, with a significant majority of its residents believing that the country is heading in the wrong direction.¹²⁰

The reasons for their concern are clear. The resilience of the economy has been challenged by a series of financial shocks, some starting in the United States (the dot-com crash and the housing crisis) and some originating internationally (the East Asian financial crisis and euro crisis), but with an impact on growth in the United States. Though the U.S. economy has a good track record in bouncing back from shocks, deleverag-

ing in the wake of the Great Recession has hindered its most recent recovery.

The failure to deliver rising living standards to the majority of Americans is not a recent phenomenon, but until recently it was masked by rising debt and asset prices (both mostly tied to residential property). Americans are currently experiencing an uncharacteristic loss of optimism about their country's ability to provide opportunities and social mobility for the middle and working classes, and this has led to anxiety about the sustainability of the American dream.

Environmental threats, finally, pose a serious threat to the United States. It currently has a dominant share of global resource markets, but it will face growing competition from emerging markets and possibly also from the next wave of developing countries. Climate change remains the greatest environmental challenge, with the United States certain to face continued pressure to accelerate the rate at which it lowers its extremely high per capita greenhouse gas emissions.

There is, moreover, a lack of consensus about how to address these problems, with intense partisan divisions over how to respond to the financial crisis, whether and how to tackle economic stagnation among the middle and working classes, and the role government should play in tackling environmental problems. This uncertainty makes the future highly unpredictable. In section two of this paper, therefore, we explore the interests, norms and values that will inform the future evolution of American society, and the balance it needs to strike between economic growth, social values and environmental constraints.

2. WHERE NEXT FOR THE UNITED STATES AFTER THE GREAT RECESSION?

“We have involved ourselves in a colossal muddle, having blundered in the control of a delicate machine, the working of which we don’t understand,” wrote John Maynard Keynes in 1930 as the Great Depression deepened.¹²¹ Despite the crisis, however, the human race had not lost its ingenuity, he believed, nor the capacity for its members to work together to provide themselves with higher living standards. The turmoil of the present would soon pass, Keynes argued, but only if policymakers avoided mistakes that would drive them deeper into trouble.

Keynes would find much to recognize in the modern predicament. The Great Recession has been described as the greatest economic challenge the world has faced since the 1930s.¹²² More than three years since the leaders of the G-20 countries met in London and promised to “restore confidence, growth, and jobs,” the global economy remains extremely fragile, with the International Monetary Fund warning that recovery in the United States remains vulnerable to “fiscal uncertainty, weakness in the housing market, and potential spillovers from Europe.”¹²³ The American economy continues to add jobs, but only at roughly the same rate as the increase in its labor force, leaving unemployment rates stubbornly high.¹²⁴

A crisis often creates a window in which change is possible. There are, however contrasting visions for the direction the United States should take.¹²⁵ Republicans and Democrats remain divided on the role of government, the speed of fiscal retrenchment, the distributional impact of taxation and transfers, and policies on energy and the environment. What, then, can be said about the course the United States will set over the next 20 years? What impact will it have on patterns of

growth and the quality of life of the American people? And how will decisions made by the world’s largest economy have an effect on people from other countries and on the global environment? This section sets out some of the drivers that will determine the United States’ options, based on the norms, interests and values that ensure its choices are likely to be distinctive from those made by other countries.

America’s Dynamic Demography

A country’s demography offers a window to its future. In coming decades, the United States faces a surprisingly positive demographic picture, one that will set it apart from other developed countries, while posing fresh challenges to global sustainability.

The most striking factor is the continued speed of American population growth. There are projected to be more than 400 million Americans by midcentury, about 90 million above the current level.¹²⁶ Only India, Nigeria, Pakistan and Tanzania will gain more people by 2050 (Figure 4). In contrast, other major powers (China, Russia, Japan and the European Union) will see their populations decline. As a result, the United States will age much less rapidly than many expect (Figure 5). America’s median age is increasing only slowly and is expected to be at about 40 years for much of the century. In contrast, Japan’s median age will exceed 50 years in 2025, as will Germany’s in 2040. Extraordinarily, on this measure China will be an older country than the United States before the end of *this* decade.

The United States will not be immune to the challenges of an aging society, of course, especially as its disproportionately large baby boom generation (born 1946–64) enters retirement.¹²⁷ According to the Congressional Budget Office, health and security

spending is currently on a trajectory that will see it grow from 10 percent of GDP to 16 percent over 25 years.¹²⁸ At the same time, the workforce is shrinking as a proportion of the total population, albeit more slowly than in most other developed countries.¹²⁹ Fewer workers will therefore need to be more productively employed if they are to provide baby boomers with a comfortable retirement. This difficult transition will be relatively short-lived, however. By 2040, old-age dependency will have stabilized, with little further aging until deep into the 21st century.¹³⁰

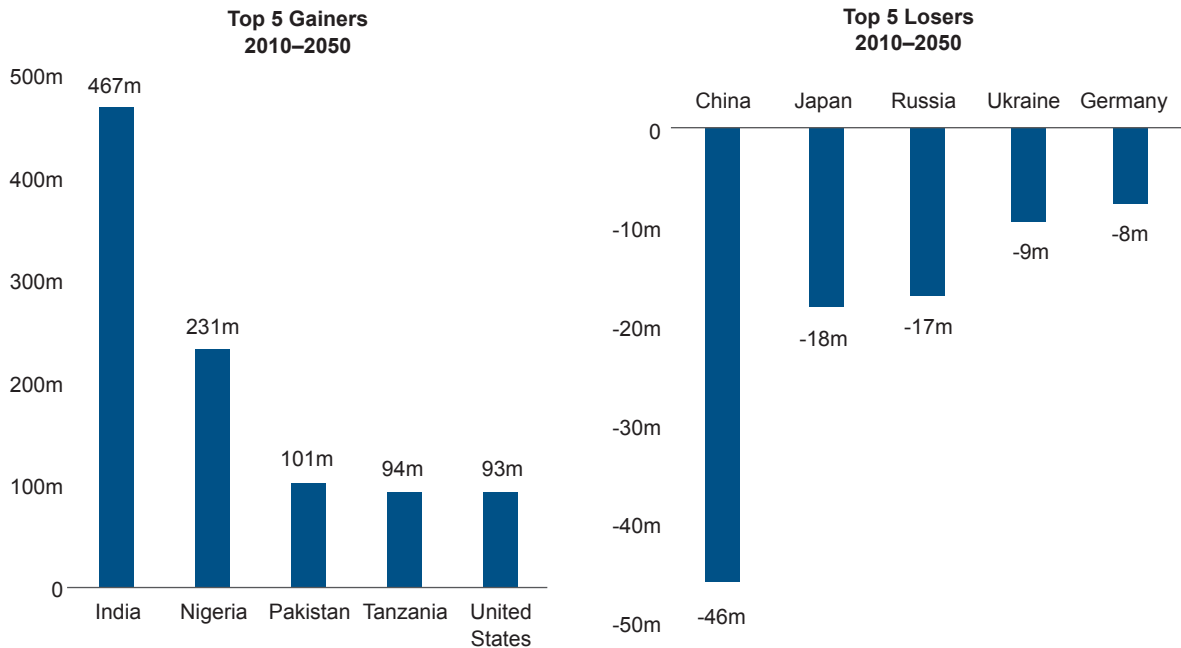
America's population growth will be confined to its towns and cities as rural areas continue to lose population. By 2050, the U.S. urban population will have grown by more than 100 million (roughly the same size as the entire American population at the beginning of World War I).¹³¹ This growth will be driven mainly by

first- and second-generation immigrants, as the United States continues to have significantly higher rates of net migration than any other G-20 country. As a result, the country's cultural makeup will continue to change rapidly, with non-Hispanic whites expected to be a minority of the population before 2050.

These demographic changes have the following implications:

- *Cities will be critical to rates and patterns of economic growth.* Urban centers that have high concentrations of educated workers, especially those with scientific and technological skills, will account for a growing share of American GDP.¹³² Cities that create jobs will thrive and see their populations grow, while the poorest-performing ones will see their populations shrink. This evolutionary dynamic will

Figure 4: Populations of the Largest Countries: Winners and Losers, 2010-50



Source: U.N. Population Prospects.

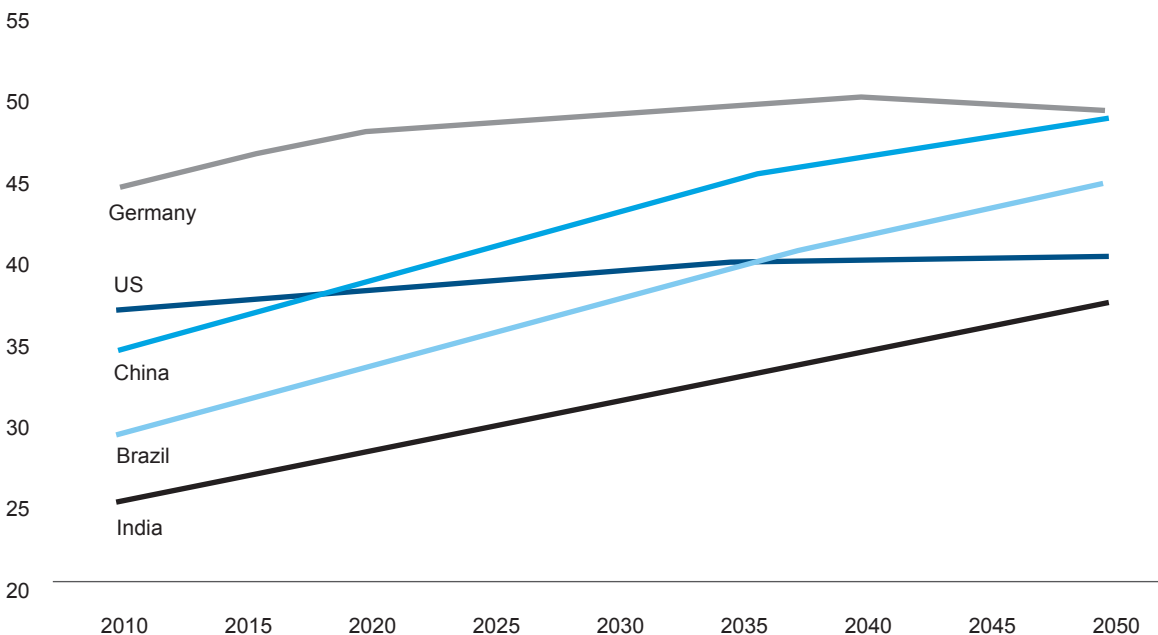
enhance the ability of the United States to adapt to new economic forces and to make a smoother exit from legacy industrial sectors.

- *A growing population will consume more.* Developed countries with stable populations can expect demand for resources to fall, possibly significantly, if efficiency gains also accelerate. The United States, however, is emphatically not in this group. The U.S. government will be under significant pressure to provide tens of millions more people with high standards of living. Such a large number of additional American consumers will inevitably have a significant impact on the global economy and environment.
- *Consumptions patterns may shift.* Changes in the configuration of American cities and in the preferences of city dwellers could have a pronounced impact on consumption patterns. Will American cities become more

densely populated over time and therefore efficient in their use of resources?¹³³ Will the United States' long love affair with the automobile begin to dwindle with the trend continuing whereby young Americans drive less than previous generations did at the same age?¹³⁴ And will there be an ongoing dematerialization of the economy as consumers switch from physical goods to virtual services?

Demographic trends will also fuel broader social and cultural changes. At present, younger generations are likely to be significantly more progressive than other voters, although how this translates into political preferences will shift as they age.¹³⁵ As intergenerational transfers grow, political friction may increase between the young and the old, especially as high participation rates continue to give older voters disproportionate electoral power.¹³⁶ Climate change could also emerge as a

Figure 5: Median Age Projections for Selected Large Countries for the Next 40 Years



Source: U.N. Population Prospects.

source of political division, especially as cities continue to be hit by extreme weather events, or if a growing proportion of the young become convinced they will see dangerous levels of climate change within their lifetimes.

A changing ethnic balance will also lead to a political realignment. Nonwhite ethnic groups are much poorer than whites, with more than a quarter of Hispanics and African Americans living in poverty.¹³⁷ Both groups are highly aspirational. Although they are much less likely than whites to believe they have already achieved the American dream, they are correspondingly more likely to think they will achieve it in the future.¹³⁸ They will therefore continue to value growth, given their wish to secure better lifestyles, but only if it delivers broad income gains. At the same time, however, nonwhites are significantly less conservative than whites and more likely to support direct government action to tackle poverty.¹³⁹ They will also become an increasingly powerful lobby for change if their aspirations continue to be frustrated.

Deepening Political Distrust

Although demography will drive change in American society, the country's political system is likely to continue to frustrate those who wish to see decisive government action. Polarization in the United States has been increasing since the 1970s as political extremes increase their representation in Congress, parties become more ideologically homogenous, and the differences between them become more stark.¹⁴⁰ In a parliamentary system, this might translate into decisive implementation of policy platforms, but the United States' separation of powers and the recent dramatically increased use of the filibuster in the Senate make it much harder for any party to impose its will.¹⁴¹

Polarization may prove especially problematic during turbulent times, limiting the United States' ability to re-

spond to unfamiliar challenges. An international review of the political response to past financial crises shows that they are more likely to lead to "greater ideological polarization in society, greater fractionalization of the legislative body, and a decrease in the size of the working majority of the ruling coalition."¹⁴² Coalitions become smaller, governments weaker, and the opposition stronger. This pattern seems to be repeating itself in the wake of the Great Recession, not just in the United States but also across the Western world.

At the same time, a broader loss of trust in elites is making it harder to build the consensus needed to tackle complex challenges. In the run-up to and in the aftermath of the Great Recession, policymakers, regulators and financial institutions have been widely perceived as having failed to protect the public good. Alan Greenspan, chairman of the Federal Reserve under four presidents, was lauded as "the maestro" for his control of the U.S. economy.¹⁴³ After the financial crisis, however, he admitted to being reduced to a "shocked state of disbelief" by the failure of the market adequately to manage risk. The Financial Inquiry Commission, meanwhile, catalogued a series of "dramatic failures" in government regulation and corporate governance.¹⁴⁴ It found that government agencies were "always behind the curve," both before and during the crisis. They had allowed the financial system "to race ahead of our ability to protect it."

The discrediting of elites is more than a short-term trend. Confidence has been falling in most major institutions, often over many decades (Figure 6). The military is the only institution that a majority of Americans trust, commanding greater respect than in the 1970s. Even organized religion is now trusted by fewer than half of Americans. Confidence in business is low and has fallen significantly since the turn of the century, while faith in banks has col-

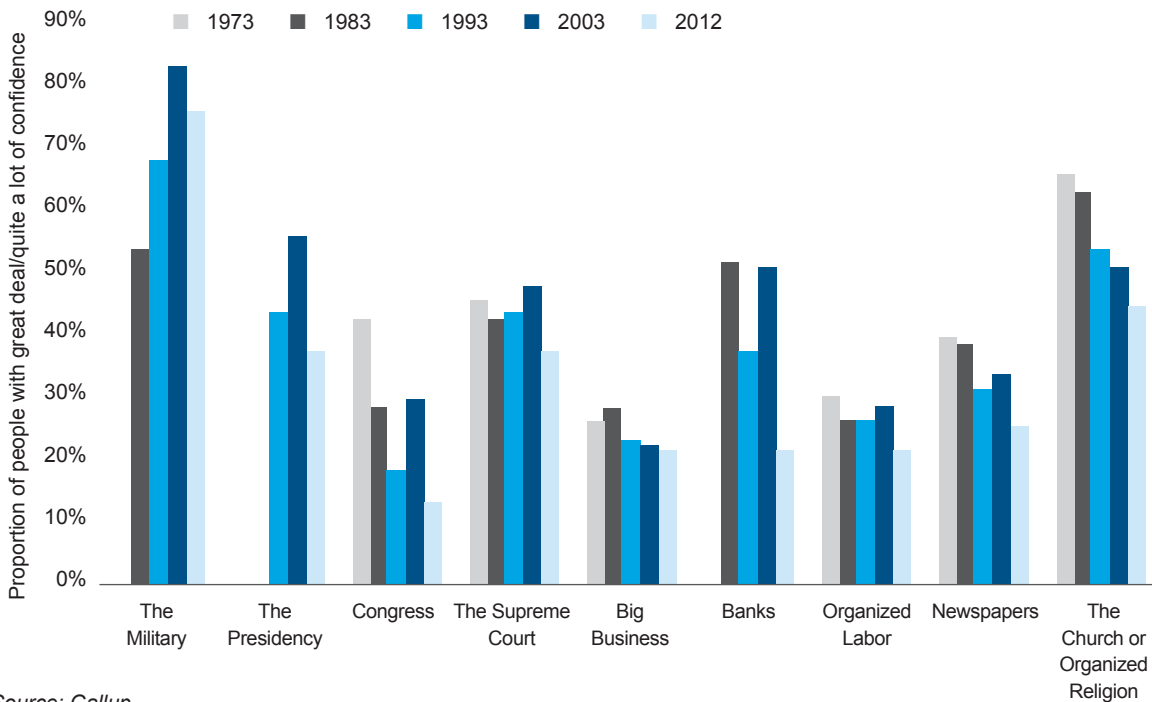
lapsed in the wake of the financial crisis. Unions are as distrusted as big business. The presidency is the most trusted of the major political institutions (but with a rating of only 37 percent), along with the Supreme Court (also 37 percent). Congress has always been especially unpopular, but has seen a further collapse in its approval ratings since 2004.

In part, these ratings reflect a broader trust deficit across society, with only 44 percent of Americans agreeing that “most people can be trusted.”¹⁴⁵ Trust has declined steadily since the mid-1960s and is currently lower among young people than older people, among nonwhites than whites, and among the less educated than those with a college degree.¹⁴⁶ Inequality appears to fuel distrust, as vulnerable groups react to their own insecurity by being less

willing to take the risk of placing their faith in others.¹⁴⁷ If the gulf between ethnic groups, the rich and poor, and the haves and have-nots remains wide, then levels of mistrust are likely to remain high in American society.

Although the combination of polarization, loss of trust in elites, and gridlock suggests that the U.S. government will continue to lack direction, this may create space for other actors to challenge the status quo. This challenge could take many forms, including protest movements such as Occupy or the Tea Party, innovation by for-profit or social entrepreneurs, or leadership from states or cities that emerge as laboratories for new approaches. The drivers of political and social change, in other words, may be more likely to come from the margins than from the center.

Figure 6: Confidence in U.S. Institutions Is Declining, 1973-2012



Source: Gallup.

A New Era of Global Leadership

Although the United States is certain to face headwinds in the coming decades, this does not mean that its stance will be a pessimistic one. Though fears of American decline will continue to surface, a more confident narrative is likely to predominate at most times.

Even during the crisis, a slim majority of Americans remained optimistic about the country's future over the next 50 years.¹⁴⁸ At the ballot box, meanwhile, they consistently reward optimistic politicians over negative ones.¹⁴⁹ A blind analysis of the speeches of presidential candidates between 1900 and 1984* showed that the candidate who sounded least pessimistic was elected on 80 percent of occasions, creating strong incentives for politicians to emphasize the potential for renewed American leadership.

At the same time, the United States will be able to draw on enduring *absolute* geopolitical strengths, even if its relative power continues to diminish due to the economic success of rising powers. It will continue to benefit from:

- Its position as a *dominant security actor*, which it seems certain to maintain for at least another generation, and its privileged position in most *global institutions*.¹⁵⁰
- Its *internal security*, which is more robust than that of countries such as India (currently tackling a Naxalite insurgency in 125 of its 640 districts)¹⁵¹ or China (reported to be spending as much on domestic security as it does on defense).¹⁵²
- Its *growth potential*, especially when compared with the EU, but more generally if it manages to use its leadership in key export sectors to exploit the purchasing power of a growing global middle class¹⁵³ or

if one or more of the emerging economies suffers an interruption to its growth.

Energy is set to become an additional source of American leadership. High prices send powerful market signals, as was last seen during the energy crisis of the 1970s, which led to both rapid increases in energy efficiency and a substantial growth in supply.¹⁵⁴ On the demand side, a similar shift in American demand is under way today in response to the price shocks of the past five years¹⁵⁵ and to government-mandated improvements in vehicle fuel efficiency standards that are expected to reduce U.S. CO₂ emissions by 4.7 billion metric tons by 2025.¹⁵⁶ As a result, despite population growth, the U.S. Energy Information Administration expects growth in energy use to slow to 0.3 percent per year between 2010 and 2035, with per capita consumption falling 0.6 percent in that period.¹⁵⁷

The supply response has been even stronger. As prices have risen, global investment in development has grown sharply. According to Barclays Capital, oil and gas companies are expected to spend nearly \$600 billion on exploration and production in 2012, a 10 percent increase on 2011 and more than double the level of six years previously, with investment increasingly directed toward unconventional and deep water oil and gas.¹⁵⁸ This investment is expected to bring significant new production on stream, with the United States one of five countries that account for slightly under two-thirds of the new development. American unconventional oil is now estimated to be profitable when the West Texas Intermediate benchmark for oil is at \$55 to \$65 per barrel (it has been above this level for most of the past five years).¹⁵⁹

The prospects for natural gas have been fundamentally transformed, in what has been described by one analyst as the “the greatest revolution in the United States energy landscape since the Second

* Zullof, H. M. & Seligman, M. E. P. (1990). Pessimistic rumination predicts defeat of presidential candidates, 1900–1984. *Psychological Inquiry*, 1(1), 52-61.

World War.”¹⁶⁰ Until recently, the United States was expecting to become increasingly dependent on imported gas, with Alan Greenspan warning the House of Representative’s Committee on Energy and Commerce that “earlier periods of relative [gas] abundance and low prices” were probably over, and that the United States should increase liquefied natural gas imports in order to reduce domestic price volatility.¹⁶¹ As late as 2006, the International Energy Agency (IEA) predicted that growth in production in the gas sector would be driven by the Middle East and Africa.¹⁶² However, U.S. reserves have grown by about 70 percent during the past decade.¹⁶³ Production increased by a factor of four between 2007 and 2010, with a gas glut leading to a substantial reduction in prices and to a growing gap between the cost of gas in North America and the price paid in Europe or Asia.¹⁶⁴

Although energy will provide a geopolitical boost for the United States, the environmental consequences of these rapid changes to the energy sector remain hard to predict. Global demand for energy is still expected to grow rapidly, despite gains in energy efficiency, whereas the diffusion of new techniques for extracting unconventional oil and gas will see a growth in estimates of remaining reserves of fossil fuels. The trajectory of emissions will depend on the quantity of “new carbon” that is successfully extracted, its price, and whether the energy source it replaces has higher (coal) or lower (nuclear, renewables) emissions. Pressure on United States’ emissions is likely to be downward, especially if combined with regulation (limiting coal, supporting renewables) and a carbon price.¹⁶⁵ At a global level, however, this could be offset by increased exports of American coal and by lower than expected energy prices. The IEA has modeled a “golden age of gas” and finds a marginal impact on emissions, leaving the world on a trajectory toward a 3.5°C increase in temperatures,

even before additional supplies of unconventional oil are factored into the mix.

Overall, it seems highly likely that the United States will continue to play an assertive global role, supported by a public that overwhelmingly believes that it is best for the United States to be active in global affairs.¹⁶⁶ This, however, is equally *unlikely* to translate into a willingness to see American sovereignty constrained by international agreements, especially in contentious areas such as the environment. Formal treaties, meanwhile, will prove almost impossible to ratify, as can be seen by the fate of the relatively anodyne United Nations Convention on the Law of the Sea, which remains far from Senate ratification even after 20 years,¹⁶⁷ and the recent failure in the Senate of a United Nations treaty banning discrimination against people with disabilities.¹⁶⁸ In a partisan age and where appeals to sovereignty still have political salience, gaining the support of two-thirds of the Senate to pass a treaty poses an almost insurmountable obstacle. If the United States is to contribute to international action on global challenges, it will seldom be via this formal route.

Moreover, the United States is likely to use its leadership to enhance its growth prospects, given the speed with which its population continues to grow. This is likely to bring it into conflict with those who believe that it needs to shift to a much less resource-intensive economic trajectory. Given the choice between fast growth and green growth, the United States remains likely to favor the former over the latter.

Scenarios for the Future

In the run-up to Rio+20, the High-Level Panel on Global Sustainability set out a plan of “global action ... to enable people, markets and governments to make sustainable choices.”¹⁶⁹ The priorities for the future,

the panel argued, were “to eradicate poverty, reduce inequality and make growth inclusive, and production and consumption more sustainable, while combating climate change and respecting a range of other planetary boundaries.” It called on all countries to adopt a strategy for sustainable development and to measure the implementation of this strategy through a set of goals that would reflect equally “the economic, social and environmental dimensions of sustainable development and the interconnections between them.”

A vision of this kind has no chance of adoption in the United States. In this paper, we have argued that there are powerful reasons for the United States to address threats to its current growth model, given the vulnerability of the current model to shocks, the failure of the American dream to deliver for a growing proportion of citizens, and the seriousness of climate change and other environmental challenges. However, we have also demonstrated that change will not be easy to achieve and will almost certainly not follow the pathway suggested by those who wish to see a substantial shift from growth to equity and environmental protection. American leaders are elected by a growing population that places a high value on prosperity. They are unlikely to be returned to office if they fail to deliver economic success, nor will they be rewarded at the ballot box if they are seen as being insufficiently assertive in advancing American interests on the international stage.

Change to the American system may be needed, but the approach recommended by the United Nations and endorsed at Rio+20 has little appeal to either the American public or its elite. Many Americans remain strongly resistant to any role for the international system in regulating or restraining American growth. If anything, this hostility is growing. Agenda 21, a voluntary action plan agreed to at the first Rio summit in 1992, was denounced at the Republican National

Committee *in 2012* in a resolution that condemned “extreme environmentalism, social engineering, and global political control” that was inherently hostile to the American way of life.¹⁷⁰

American policymakers therefore face a paradox. On the one hand, the need for—and perhaps also the demand for—a new growth model is strong. On the other hand, the obstacles to its creation are daunting. Although predicting the future is an invidious task, especially when levels of global uncertainty are so high and American politics is so finely divided, we see four broad scenarios that could result from the interplay of these contrasting forces.

- *Scenario 1: Muddle Through.* This scenario sees a continuation of business-as-usual, with a slight re-balancing of growth from the richest Americans to the middle classes, as a result of a combination of recovery, growth in high-value exports and an increase in income taxes for higher earners. A period of high energy prices stimulates significant gains in energy efficiency, but also sees the United States emerge as a major producer of unconventional oil as well as unconventional gas. This increases American energy security, but carbon emissions are only reduced slowly, as cheaper energy prices stimulate demand and reduce the competitiveness of renewables. Pressure is placed on China and India to discover and develop their own unconventional carbon reserves, with an inevitable impact on climate trajectories. Policymakers increasingly focus on adaptation to climate impacts and on geo-engineering as a potential route to reducing atmospheric concentrations of greenhouse gases.¹⁷¹ Internationally, levels of trust and cooperation between major powers is low, while a growing number of countries face powerful protest movements from both ends of the political spectrum.

- *Scenario 2: Going for Growth.* This scenario builds on scenario 1 but assumes a singular focus on growing the economy. Unconventional oil and shale gas are rapidly exploited and often exported, with lower energy prices boosting the economy. Domestic coal demand continues to fall, but low-cost coal is sold aggressively to emerging markets. Consumption remains a key driver of economic growth, which is rapid but unevenly distributed, with some metropolitan areas prospering and others experiencing a steep decline in their wealth and population. The labor market performs strongly, but it does not generate the jobs needed to reduce income inequality. Economic mobility also remains low, but, on the whole, urban voters continue to support “growth first” politics. American greenhouse gas emissions fall, but only slowly, while its coal exports boost emissions in other countries. Declining federal government support for renewable energy means that gas does not become a bridging fuel to zero-carbon energy sources. American resilience to risk is strengthened by an improved fiscal position, but increased resources—diplomatic, military and economic—are used to react to, rather than manage, crises, both overseas and at home. America leads still, but in a highly competitive and often fractious world.
- *Scenario 3: Intelligent Design.* This scenario is also consistent with strong levels of economic growth but includes a more deliberate attempt to reinforce positive trends, restrain negative ones and increase American resilience to a range of risks. Successive presidents focus on employment through renewed public investment in education and training, additional support for sectors with high export potential, and innovative approaches to regulation, especially in the financial sector. The Federal Reserve places greater emphasis on its mandate to maximize employment, alongside its current focus on interest rates and price stability.¹⁷² In the energy sector, the government takes a strategic approach to maximizing the country’s new opportunities, with policies to maximize the potential of gas to reduce emissions (e.g., use in transportation) and some contribution from the energy sector to fiscal consolidation (through reduced fossil fuel subsidies and an increased use of taxation or market instruments).¹⁷³ None of these measures are especially dramatic, but taken together they have a measurable impact on sustainability and allow the United States to provide somewhat increased levels of leadership internationally. As a result, geopolitical outcomes are more cooperative, with some innovations in global governance, even though important stresses remain unaddressed.¹⁷⁴
- *Scenario 4: Emergency Response.* Policy is driven in unpredictable directions by a series of shocks, such as a further breakdown in global financial systems, serious conflict or state failure, or a series of extreme weather events or clear evidence of disruptive climate change. In response to one or more of these shocks, the United States becomes a highly directive actor as it mobilizes what it perceives to be an urgent threat to its security. At a global level, net economic impact is negative, possibly strongly so, as growth slows in a number of countries. The impact on sustainability is hard to predict. It is most likely to be positive if an environmental shock triggers the crisis, although even then outcomes will be highly dependent on the timing of the event and the extent to which appropriate technologies are primed for rapid diffusion. The impact on geopolitics will also be mixed, especially if the world divides into victims and villains (with the United States on either side) and if coercive measures (e.g., trade sanctions) are used to deliver change. This scenario becomes an increasingly likely successor to the previous scenarios, assuming that patterns of growth take the world further outside the “safe operating space for humanity.”¹⁷⁵

Determining the Future

These scenarios have very different probabilities of being realized. In the short term, *muddle through* is the most plausible course of action for the United States at the national level at least. Pockets of innovation will be found at state and metropolitan levels, and in the private sector, of course, but they are unlikely to have a decisive impact, given opposing trends in other states and business sectors. Fiscal tightening is likely to reduce space for the adoption of new policies, while any restriction on growth in existing industries will be strongly resisted while unemployment levels remain high. In his second term, President Obama may find that the rewards for United States' leadership are likely to be low, a product of an unsettled and often chaotic international environment. Increased strategic competition between the United States and China would be highly likely under this scenario.¹⁷⁶

The prospects of a resurgent American economy should not be discounted, however. Growth is currently quite strong,¹⁷⁷ and new housing construction has increased substantially.¹⁷⁸ Assuming some stabilization in the eurozone and no significant weakening in the emerging economies, the U.S. could now see a rapid recovery after a number of false starts. *Going for growth* is a plausible scenario in this case, especially if a growing number of metropolitan areas aggressively pursue growth strategies. Internationally, under this scenario, the United States will sit somewhere in between the rest of the West and the rising powers, with the wealth and established institutions of the former, but population growth, rapid urbanization and appetite for resources of the latter.

Shocks have the potential to make it impossible for the United States to continue to follow the *muddle through* scenario. In the short term, a returning financial crisis is the greatest risk, either in the eurozone or

in one or more emerging markets. Conflict—in Iran, for example—cannot be ruled out, and political disturbance in a major oil producer (Iran, Saudi Arabia, Russia, Venezuela) would have a dramatic impact on energy markets. Environmental shocks are inherently unpredictable, but they are expected to become more frequent as climate change intensifies. In the *emergency response* scenario, much will depend on the resilience of American society (defined as the capacity to *absorb disturbance and reorganize while undergoing change*) and on policies that aim to reinforce that resilience.¹⁷⁹ As was seen during the early phase of the Great Recession, the window in which reforms can be implemented is only a brief one. It is therefore critical that potential responses have already been developed and are ready for rapid deployment.

Intelligent design is the preferred scenario for those who are convinced of the importance of sustainable development. This scenario does not require a sudden and unrealistic change of political and economic direction. Instead, a set of disparate policies will have the cumulative effect of pushing the United States onto a growth trajectory that is somewhat more sustainable than the current one. Over time, a new economic model emerges as political and economic incentives shift and the new direction becomes self-reinforcing. This scenario is far from being an easy option, however. On the one hand, even in the best case, environmental sustainability would still be some way off. Climate stabilization, in particular, is likely to remain a distant goal, with the chance of global warming remaining below 2°C now remote. On the other hand, most of the policies that might underpin this scenario face daunting obstacles. Significant political skill will be needed to shift American society onto this path.

So what reforms or policy innovations are both consistent with the *intelligent design* scenario and likely

to gain traction within contemporary America, given the country's history, current preferences and future opportunities and risks? First, a future direction *cannot rely too heavily on the federal government*. Until the 1970s, postwar U.S. economic policy was underpinned by a form of Keynesian economics that relied on the market but also the government for distributional issues, and used fiscal policy to smooth economic cycles and achieve key social and environmental goals. Keynesian policies came under sustained pressure, however, as economic growth began to slow, the oil crisis fueled inflation, and a combination of the Vietnam War and the cost of social programs increased budgetary pressure.¹⁸⁰ The result was a shift to a monetarist economic underpinning for economic policy, based on a view that government intervention in the market was a source of instability, and with policy prescriptions that increased the role of the private sector through deregulation and the privatization of government-owned assets.

Today, the role of government appears to have hit another inflection point, but its future direction is hotly contested. There is strong support for a substantial further reduction in the size of government. *The Path to Prosperity*, a Republican budget proposal for 2012, envisaged reducing the size of government to 20 percent of GDP while placing a renewed emphasis on "the timeless principles of the American idea: free enterprise and economic liberty; limited government and spending restraint; traditional family and community values; and a strong national defense."¹⁸¹ The proposed budget argues for a reversal of a "shortsighted financial regulatory overhaul [that] failed to fix what was broken on Wall Street" and attacks the "environmental activism" of the federal government.

An alternative vision is more supportive of a return to a mixed model that delivers new approaches to service

delivery and regulation, while imposing more modest spending cuts. During its first term, the Obama administration created fewer regulations than its predecessors, but it has been more prepared to impose regulations in "economically significant" areas, where costs are above \$100 million.¹⁸² It has also established a new Consumer Financial Protection Bureau that is expected to take an aggressive approach to its mission, making "markets for consumer financial products and services work for Americans."¹⁸³ But even if these latter trends continue, the role of government will still remain constrained, given traditionally low levels of government expenditures, the need to tackle the deficit, and low levels of public confidence in the government's ability to deliver change.

Second, a new growth model is only likely to prosper if it *generates wealth for all segments of society*. U.S. citizens have a relatively high tolerance for inequality. Only a slim majority believe that it is the government's responsibility to take care of people who cannot take care of themselves, with support for a social safety net declining over the past 20 years.¹⁸⁴ It is highly unlikely that any political party will win support if it sets the reduction of inequality as a primary policy goal. However, it is equally unlikely that patterns of growth that fail to deliver benefits to the middle classes can be sustained indefinitely. The politically salient yardstick, therefore, is an absolute one (most Americans are seeing improvements in their living standards), not relative (the gap between rich and poor is closing), though the latter may follow from or be required to deliver the former.

Governments are therefore likely to place considerable emphasis on the ability to generate more and better employment, with 21 million new jobs needed by 2020 for unemployment to sink below 5 percent.¹⁸⁵ In addition, productivity gains must also support higher wages if household incomes are once again to

continue to increase. In part, this is likely to depend on the United States' ability to exploit emerging international export opportunities in societies with growing numbers of consumers. President Obama has set a target of doubling American export growth by 2014, with his National Export Initiative claiming that an additional 1.2 million jobs were supported by exports between 2009 and 2011.¹⁸⁶

Finally, policies will need to fulfill at least a *narrow vision of environmental sustainability*, based on two key areas:

- *Greater resilience in the face of crisis.* Federal, state and city governments will see their credibility undermined if they fail to manage risks effectively. The economic crisis is far from over, with the euro remaining under serious threat. The world also faces a number of significant geopolitical risks, including the aftermath of the Arab Spring and potential conflict with Iran, either of which could have a dramatic impact on energy markets. This suggests that the United States is highly unlikely to be able to avoid future shocks but will prosper to the extent it is adaptable in the face of them.
- *Protection from immediate environmental impacts.* American public opinion on climate change is influenced by short-term weather trends, with ab-

normal shifts in local temperature associated with a strengthened belief in global warming.¹⁸⁷ Natural and environmental disasters—such as Sandy and Katrina—also increase concern about climate change, with more than 80 percent of Americans saying that they experience an extreme weather event or natural disaster each year.¹⁸⁸ Action that explicitly aims to address these threats, either directly or indirectly, is therefore more likely to be supported than more general appeals to protect the planet, especially as weather extremes continue to increase.¹⁸⁹

On the basis of these criteria, we have developed a series of policy recommendations that are most likely to push the United States toward the more proactive approach outlined in the *intelligent design* scenario. Many of these policies would also push the United States toward the *going for growth* scenario, but without the social and environmental benefits of the preferred scenario.

We do not expect all these policies to be implemented in the short term, but even a handful of them would begin nudging the United States toward a more sustainable trajectory. This would, in turn, provide a foundation for a new era of leadership from the United States on issues that will have a decisive impact on global prosperity and security in the 21st century.

3. AMERICA'S FUTURE DIRECTION

In this paper, we have argued that the United States faces economic, social and environmental challenges that cannot be effectively managed given existing policies. There are, however, significant social and political factors that block many options for a future direction. In this section, we therefore set out policies that, though challenging to implement, are within the realm of the politically possible. Our expectation is that demand for new policies will grow as globalization continues to be gripped by its long crisis, and that the United States remains relatively well placed to pioneer new approaches, given its geopolitical position, wealth and appetite for innovation. We therefore expect opportunities to break the gridlock, although the windows for reform will often be fleeting.

We group recommendations into four areas, focusing on:

- *Employment*, which is the most urgent priority to accelerate American recovery from the Great Recession, while addressing underlying structural issues that have led to a decade of poor economic outcomes for most citizens.
- *Investment in the future*, as the key marker of whether the United States is prepared to make far-sighted decisions, or whether its resources and political attention are increasingly absorbed by current consumption and immediate crises.
- *Energy*, where there are new opportunities to make strategic use of an increased energy endowment, while reinforcing the trend towards reduced resource demand, with a significant resultant impact on the sustainability of the United States' growth model.
- *Fiscal rebalancing*, where the United States must insulate economic recovery from the process of fiscal reform while also reducing and stabilizing the debt.

Finally, we explore the implications of these policies for renewed American leadership internationally, arguing that President Obama and his successors after 2016 have the opportunity to re-energize the country's foreign policy if they build on a platform of domestic actions that enhance the sustainability of both America's society and economy.

Tackling the Jobs Crisis

Nearly 9 million jobs were lost in the Great Recession and its immediate aftermath.¹⁹⁰ During the recovery, policy has had a modest impact on increasing employment, with the Congressional Budget Office estimating that the Recovery and Reinvestment Act has led to between 0.2 and 1.2 million additional people in current employment, with a peak impact on employment at the end of 2010.¹⁹¹ At the state level, labor markets were strongest in those states that increased government expenditures fastest between 2007 and 2010.¹⁹² But the federal stimulus spending created jobs at an estimated cost of \$125,000 per job.¹⁹³

As noted by Ben Bernanke, chairman of the Federal Reserve, "the rate of improvement in the labor market has been painfully slow."¹⁹⁴ At the rate of job creation in the 2000s, it would take until 2020 to fill the current jobs gap, with Bernanke blaming the troubled housing sector, fiscal contraction at the federal and state levels, and financial stresses in the eurozone. The Federal Reserve, tired of waiting for Congress to act, launched a new round of quantitative easing (QE3) based on its expectation that economic growth will not otherwise "be strong enough to generate sustained improvement in labor market conditions."¹⁹⁵ This new commitment does not have a fixed end date but is tied to clear evidence that the labor market is improving. This marks an increased commitment from the Federal Reserve to "forward guidance," signaling that it is prepared to boost aggregate

demand (and, as a result, tolerate a higher inflation), until the economy has fully recovered.¹⁹⁶

Prospects for the United States' growth have improved though are still highly vulnerable to shocks. The housing market appears to have stabilized, deleveraging is advanced, and companies are sitting on large reserves of cash. The immediate priority, therefore, is to maintain QE3 and strengthen the signal sent to the market by underlining the importance of the dual mandate (in contrast to current legislative attempts to remove the Fed's goal of maximizing employment),¹⁹⁷ while maintaining the current consensus on the Federal Open Market Committee behind a "highly accommodative stance of monetary policy" until employment has increased substantially.¹⁹⁸ The key domestic threat to employment growth derives from the prospect of premature fiscal tightening (discussed below). Internationally, U.S. leadership is needed, especially within the G-20, for a more aggressive attempt to manage contagion within and from the eurozone and to respond to signs of economic fragility in the emerging powers.

Beyond the immediate economic crisis, the focus needs to shift to structural factors, through efforts to tackle long-term unemployment and geographical and skills mismatches between the labor market and labor force. During the recession, there was a substantial increase in the mismatch between available jobs and the skills of the workers available to fill them, with industrial mismatch accounting for about a third of the increase in unemployment (geographical mismatch did not play a significant role).¹⁹⁹ Although this was primarily a cyclical phenomenon with levels of mismatch quickly returning to prerecession levels—mostly as a result of more rapid recovery in sectors such as construction, manufacturing and retail that were fastest to shed jobs during the downturn—workers with obsolete skills are disproportionately likely to lose their jobs during a

recession.²⁰⁰ Large numbers of workers have been unemployed for more than six months or have exited the labor force entirely.²⁰¹ Most of these potential workers will lose skills and motivation the longer they are out of work, leading to what Ben Bernanke has warned of as "modest increase in the sustainable, long-run rate of unemployment,"²⁰² with the natural rate of unemployment now estimated to have increased to between 5.2 and 6 percent.²⁰³

A related problem is the long-term failure to generate sufficient jobs that support a middle-class income. At least in its early stages, the recovery has seen a further shift toward low-wage jobs, with mid-wage jobs accounting for 60 percent of the jobs lost in the downturn, but only 22 percent of those added in its aftermath.²⁰⁴ Looking forward, the workforce faces significant structural challenges. During the next decade, it will continue to age, increasing the importance of participation rates of older workers. The skills gap is also likely to increase, with the McKinsey Global Institute projecting that in 2020 there will be about 6 million too few jobs for those who have not completed a high school education, though there is likely to be a shortage of workers able to fill jobs that require advanced technical degrees.²⁰⁵ The major priority is to address the skills gap (discussed below) while also:

- Implementing an emergency package for the long-term unemployed to increase their chances of finding work as the recovery proceeds, with the aim of bringing the natural rate of unemployment back down to about 5 percent.²⁰⁶ Options include targeted retraining schemes for the long-term unemployed or wage subsidies for employers who provide them with jobs, drawing on the more successful elements of Germany's Hartz Reforms.²⁰⁷
- Supporting the rebound of manufacturing after the recession, with the aim of creating middle-class jobs

and supporting robust local economies.²⁰⁸ The future for United States manufacturing is in high-end industries, which are likely to prosper as manufacturing becomes increasingly reliant on technology, less centered on mass production and less determined by access to cheap labor.²⁰⁹ This will require greater support for innovation (discussed further below).

- Capitalizing on the opportunities for growth that can be found in America's cities, especially as they continue to experience rapid population growth. They have the greatest ability to escape partisan gridlock at federal levels, offering what Bruce Katz calls a "historic opportunity to usher in a new era of pragmatic, collaborative federalism that capitalizes on the economic power of metropolitan areas and the policy creativity of state and local leaders."²¹⁰ Katz proposes that the federal government fund state and metropolitan development strategies on a competitive basis and based on their contribution to national objectives, such as the goal of doubling exports.

Investing for Tomorrow

A willingness to invest in future generations is critical to the long-term success of any society. In recent decades, however, the United States has seen a rise in consumption, an increase in debt and a failure to invest adequately in education, infrastructure and the innovation needed to sustain prosperity.

The American education system has important strengths, including its elite higher education sector. Its schools, however, are failing large numbers of students, with the American students ranking below average for science and only average for mathematics when compared with other OECD countries.²¹¹ The failure to provide a decent education to black and Latino students is especially consequential, given that

they lag two to three years behind their white counterparts.²¹² This will have an intensifying economic impact as the workforce becomes increasingly populated by these groups. Creating better and more affordable education opportunities means reducing costs, improving quality and ensuring that the education system is equipping graduates with the skills needed for the 21st century, with a particular focus on poorly performing groups of students. Challenges include high costs of elite institutions and higher education, lower access to scholarships and grants, mounting student debt and inequitable payback schemes.

Priorities include:

- Making higher education more affordable and accessible for a greater number of students, thus narrowing the educational opportunity gap. This can be done through an increase in state-sponsored financial aid and granting programs (i.e., further investment in Pell Grant scholarships), providing payments options for students at different income levels, or by freezing or cutting tuition rates.²¹³ Reform of the student loan payback system is especially important, enabling student loan borrowers to cap their payments at a percentage of income (i.e., at 10 percent of what they make every month).²¹⁴
- Improving educational outcomes by reviewing curricula and assessment systems to match outcomes relevant to future economic opportunities and social challenges. All the world's top-performing and rapidly improving systems have curriculum standards that set clear and high expectations for what students should achieve.²¹⁵
- Addressing the skills gap among adult workers through increased partnerships between businesses and educational institutions and focusing on workforce development. Investment could be increased

in the federal program Skills for America's Future, an industry-led initiative that improves industry partnerships with community colleges and builds a nationwide network to maximize workforce development strategies, job training programs and job placement.²¹⁶ There is also potential to focus federal and state assistance for training on firms and sectors that have the greatest potential to produce high-paid jobs (with randomized trials to measure what works).²¹⁷

Infrastructure is another area where the United States is falling behind, with a pronounced impact on future competitiveness.²¹⁸ According to the American Society of Civil Engineers, the United States should spend \$1.7 trillion by 2020 to upgrade infrastructure, and current investments are falling short of what is needed by \$94 billion a year.²¹⁹ It currently spends only 2.4 percent of GDP on infrastructure,²²⁰ compared with 5 percent in Europe and 9 percent in China.²²¹ As well as improving competitiveness, smart investment in infrastructure could put the U.S. economy on a lower carbon path.

The United States should develop a national infrastructure plan or strategy that strengthens federal support and improves cooperation between all levels of government and the private sector. For example, Obama has proposed a partnership to rebuild America that will leverage private capital to upgrade infrastructure. In order to increase the sustainability of America's infrastructure, specific priorities include:

- Increased investment in low-carbon mass transportation, thereby reducing fuel use, air pollution and greenhouse gas emissions, while improving the quality of urban life.²²² Moreover, by one estimate the economic gains are significant, with every \$1 spent on public transportation increasing GDP by up to \$3.50.²²³

- Promotion of innovative financial mechanisms to support green infrastructure investments, through entities such as Connecticut's Clean Energy Finance and Investment Authority, which helps to reduce pressure on public budgets,²²⁴ and the state of New York's proposed \$1 billion Green Bank to help fund clean energy investments.²²⁵
- Investment to make infrastructure more resilient to extreme weather events and other natural disasters, given the heightened vulnerability of many U.S. urban areas to a range of threats.²²⁶

Finally, policies are needed to increase innovation, especially in areas that will equip the United States to compete in industries with high growth potential. President Obama in his 2013 State of the Union address said that "now is the time to reach a level of research and development not seen since the height of the Space Race."^{***} Since the 1960s, the U.S. federal rate of investment in R&D as a percentage of GDP has declined from nearly 1.3 percent to 0.9 percent, damaging the global competitiveness of the United States' industries.²²⁷ The government therefore should increase federal funding for R&D, especially in clean energy and other low-carbon areas, but also in sectors where the United States holds significant research capacities, including biotechnology, genetics and nanotechnology. Priorities include:

- Enhancing the United States' attractiveness as a place for investment by removing barriers in the tax code, creating new financial mechanisms that combine public and private funding streams, and increasing investment in seed capital and technology funding programs, such as the Small Business Innovative Research Program, which provides about \$1 billion a year to U.S. small businesses for early-stage R&D projects.²²⁸

^{***}White House, Office of the Press Secretary, 2013. *Remarks by the President in State of the Union Address*, February 12, 2013. Available at <http://www.whitehouse.gov/the-press-office/2013/02/12/remarks-president-state-union-address>.

- Supporting entrepreneurship through effective immigration policies that attract a highly skilled labor force. H1-B visas are strongly associated with innovation in science, technology and engineering.²²⁹ The cap on these visas should therefore be raised to address skilled labor shortages.
- Supporting innovation in clean energy and low carbon technologies through a cohesive set of federal, state and local low-carbon economic growth strategies that will help increase the United States' leadership in these sectors.²³⁰

Fueling the Future

America's energy prospects have changed radically in recent years, as higher energy prices have combined with modest technological innovation to increase reserves of unconventional gas and, more recently, unconventional oil. This is already having an economic impact, with energy prices lower in the United States than in Europe or Asia. In his 2012 State of the Union address, President Obama claimed that shale gas alone will lead to the creation of 600,000 new jobs by 2020.²³¹ Gas production is likely to exceed consumption within a decade, though prices are already low (indicating a gas glut).²³² This creates the potential for exports, supporting the development of stronger and more resilient global liquefied natural gas markets.²³³ However, the extent of the long-term benefits from gas and in particular their impact on climate change are uncertain. Natural gas has been presented by the American Gas Association as a "bridge" to renewable energy technologies since the early 1980s, but it is unclear whether it remains a bridge to nowhere.²³⁴ Much will depend on the extent to which coal is displaced, whether investment in renewables is crowded out, how quickly tight oil production increases and the boost to demand from lower prices.

Policies are therefore needed to direct demand for gas, especially through faster switching from coal to gas for power generation. Coal is still projected to provide 38 percent of United States electricity in 2035, compared with 45 percent in 2010.²³⁵ Earlier decommissioning of inefficient coal plants should be encouraged through ongoing tightening of regulations.²³⁶ There is a real danger, however, that the decline in coal production will be limited by an increase in exports, displacing carbon emissions overseas. Exports in 2011 were almost double those of two years earlier and have continued to rise rapidly.²³⁷ New coal terminals are planned, with the Environmental Protection Agency calling for a study of the climate change effects of exporting coal from the United States to Asia.²³⁸ Europe—suffering comparative energy scarcity—is also a growing market for American coal.²³⁹

There is also potential for displacing oil in transportation, especially in heavy vehicle fleets (using compressed natural gas) or through greater use of electric cars (assuming the electricity comes from gas-powered generation). In the medium term, there may be potential for increased use of natural gas light vehicles, which are already made and sold abroad by most major manufacturers, including Ford and General Motors.²⁴⁰ Again, however, the net effect on emissions will be reduced if prices are lower than would otherwise have been expected.

As a zero-carbon base load source of electricity, there is renewed debate on the role nuclear energy should play in reducing U.S. greenhouse gas emissions. Nuclear energy is currently the fourth-largest source of energy production and provides more than 19 percent of the United States' electricity. However, since the Three Mile Island nuclear incident, building nuclear power plants has become increasingly costly, and no reactor has been built in the United

States since 1977. In addition, the nuclear meltdown at Fukushima Daiichi in 2011 again highlighted the costs of nuclear energy. The Obama administration has offered loan guarantees to support the construction of four new reactors, although it has faced difficulties finalizing terms with private sector partners.²⁴¹ The Nuclear Regulatory Commission has also received active applications for a total of 28 new reactors, though many are unlikely to ever be built.²⁴² President Obama's goal of generating 80 percent of future electricity from clean energy sources by 2035 probably cannot be met without at least some increased role for nuclear energy.

Carbon pricing (discussed below) remains a key priority for a more sustainable energy policy. It has the potential to ensure that recent shifts in patterns of energy demand are reinforced, while favoring the supply of low-carbon fuels.²⁴³ A carbon price, by increasing the costs for carbon-intensive industries, would be an incentive for innovation into green technologies that reduce CO₂ emissions, complementing other government policies supporting R&D in clean energy.²⁴⁴ However, a carbon price should be supplemented by:

- Better regulation of the shale gas industry, in particular to reduce methane leakage, which is essential if gas is to deliver the expected environmental benefits over coal.
- Promotion of investment in gas infrastructure (pipelines, refueling infrastructure/standards, etc.) and of standards for the use of gas in transportation.²⁴⁵
- A clean energy standard in the power sector equivalent to a target of 80 percent clean energy by 2035, which would reduce the sector's emissions by 60 percent by 2035.²⁴⁶

- Policies to promote higher-density urbanization, more energy efficient buildings, better public transportation links and a reduction of the reliance on automobiles.²⁴⁷
- Continued use of regulation to promote more efficient energy use and ensure rapid improvements in the efficient use of resources by energy-intensive sectors, where the government is able to demonstrate substantial environmental benefits at an acceptable cost.

Fiscal Rebalancing

In the medium term, the United States needs fiscal reform that puts the country on a pathway to sustainable economic growth. However, it must also avoid a sharp near-term fiscal contraction that could endanger the recovery.²⁴⁸

The first priority is to manage continued fiscal stalemate in the wake of the compromise deal struck on January 1, 2013, when Congress passed the American Taxpayer Relief Act. This made permanent the Bush-era income-tax cuts for those earning under \$400,000, while the Alternative Minimum Tax was permanently patched; emergency unemployment insurance benefits were extended for a year; scheduled cuts to Medicare payments to doctors were averted; and the large automatic cuts in discretionary spending were delayed by two months.²⁴⁹ The measures in this bill will not be enough to resolve the country's long-term budget problem, and \$1.4 trillion in additional savings are required to stabilize the public debt over this decade.²⁵⁰

The short-term nature of the deal on the debt ceiling, the need to set a new budget and the need to deal with the spending cuts under the sequester all ensure that fiscal issues will continue to dominate

American politics in 2013. Despite intense partisan differences on this issue, policymakers need to send a clear signal that expenditures will not be significantly cut until the recovery has become entrenched and the labor market has shown significant further signs of recovery. Medium- and long-term fiscal retrenchment should then be used as a “reverse stimulus” when growth is strong, restraining inflation and allowing interest rates to rise more slowly than would otherwise be the case.

A related priority is to address the fiscal crisis at the state and city levels, with 31 states facing a \$55 billion shortfall in the current fiscal year and a growing number of municipalities filing for bankruptcy.²⁵¹ As the State Budget Crisis Task Force has demonstrated, state budgets have become procyclical, while their deficits are now structural and will not necessarily be closed as the economy recovers.²⁵² Without action, fiscal pressures are likely to be a serious impact on regional and local labor markets and on education, health and social sector expenditures. In Alabama, for example, the Jefferson County bankruptcy has seen residents in some of the poorest districts cut off from water mains and sanitation.²⁵³

Beyond the overall aim of reducing public debt and putting the federal budget on a sustainable trajectory, a fiscal reform package should also aim to:

- Reform the tax code in ways that tackle income inequality by restructuring provisions for lower- and middle-income taxpayers. Allowing the Bush tax cuts to expire for incomes above \$400,000 was a first step toward addressing this challenge.
- Cut inefficient subsidies, especially those for fossil fuels, in line with the commitment made by leaders at the G-20 in Pittsburgh in 2009. The removal of these subsidies may be feasible as part of a broader fiscal package, raising up to \$52 billion in additional revenue at a time when the oil and gas sector is performing strongly and does not need public support.²⁵⁴
- Shift taxation from labor to carbon. Although a carbon tax is currently politically difficult, it may win support if it is revenue neutral or is used to prevent income taxes from rising. At \$15 per metric ton of CO₂ and rising 4 percent in real terms to 2050, it could raise revenues of \$80 billion initially and \$310 billion by 2050 while also reducing U.S. CO₂ emissions by 2.5 metric tons (34 percent) by 2050.²⁵⁵

CONCLUSION: RENEWING AMERICA'S GLOBAL LEADERSHIP

We live in an era of rapid change and great uncertainty. This crisis of globalization can best be understood as a crisis of unsustainability as the world struggles to provide a decent standard of living to more than 7 billion people at a time when resources are constrained, natural systems are under threat, and international and national institutions are ill equipped to manage contemporary risks.

This is not an easy world in which to lead. Trust is low within and between countries. Levels of uncertainty are high, complicating geopolitical calculations and hampering investment decisions. Governments spend much of their time firefighting and have little time to actively shape new policies, approaches and solutions. The United States' effectiveness in acting alone is diminished, particularly in non-defense-related areas such as economic and environmental challenges, where the rising powers have not yet been prepared to invest in global leadership. The result is a leadership deficit on the defining challenges of our age: building a more resilient economic system, productive employment for the world's young people, stable markets for food, energy and other natural resources, and climate stabilization.

Is America equipped to renew its leadership on these issues? It has huge potential for technological and social innovation. Its economy has global reach, and its policies and actions shape markets. Favorable demographics, a strengthening economy, growing energy reserves, and a robust and durable geopolitical position all provide the basis for it to take a more confident and assertive stance.

However, American global leadership needs to be underpinned by a robust economy that delivers outcomes

for a wider range of its population and at an acceptable environmental cost. Policies that address the key economic, environmental and social challenges outlined in this paper will ultimately be the main drivers and determinants of the scope and effectiveness of United States' global leadership.

These policies would provide a robust foundation for a new era of American leadership, helping President Obama and his successors to strengthen major alliances and to become a more effective actor in key international forums such as the G-20 and the United Nations. In particular, there are opportunities for international cooperation in the following areas:

- *Building the knowledge base needed to underpin international action.* Many of the world's leading scientists are American, and the United States' research centers have comparative advantage across multiple fields. New approaches to both "big" and "open" data have been pioneered in the United States, offering new opportunities to analyze complex crosscutting global issues. The U.S. should do more to deploy these resources internationally, establishing analytical resources that build consensus on the scope of problems and the nature of potential solutions.
- *Pivoting to the global jobs crisis.* It is not just America and Europe that lack jobs. The job crisis is a global one. It is most pressing in regions that have the largest proportion of young people in their populations and have the potential to collect a demographic dividend if they can expand their workforce at sufficient speed, but risk a destabilizing demographic disaster if they fail.²⁵⁶ For example, in Africa millions of youth are flooding into the workforce each year, while 60 percent of the continent's unemployed are between 15 to 24 years of age.²⁵⁷ American leadership on global employment and on the education and skills

needed to underpin it is essential, especially when the G-20 finally is able to turn its attention from the fallout of the 2008 financial crisis.

- *Strengthening the global trade system.* The United States continues to benefit significantly from global trade, and, as 95 percent of consumers reside outside the United States, access to the markets of large emerging economies such as China, India and Brazil will be increasingly important sources of growth for United States businesses. The U.S. should reinvigorate the World Trade Organization (WTO) as the key venue for trade liberalization, which first will require finishing enough of the WTO Doha Round to declare the round over, thus creating political space for the WTO to focus on new trade priorities such as green energy, food security and electronic commerce.
- *Demonstrating leadership on energy, food and other resources.* Resource markets are likely to remain volatile for some years, complicating relationships between major powers, weakening strategically significant fragile states and discouraging investors from making long-term commitments. The U.S., which is enjoying increasing resource security, has new potential to work with China and India, countries that are increasingly exposed to global resource markets. In particular, by exporting the technological and regulatory know-how that has underpinned its shale gas revolution, it can diversify global energy production while promoting a relatively clean energy source. It should also lead on extractive transparency, helping ensure that supplier countries are more likely to escape from the resource curse. Domestic action on energy subsidies, meanwhile, will make credible the G-20's commitment to global subsidy reduction, while the Obama administration should deepen its support for efforts to provide universal access to modern energy sources by 2030.²⁵⁸

- *Reframing action on climate change.* Concerted international action on climate change has no prospect of success without U.S. leadership. In his second term, President Obama will find his position on climate substantially strengthened by the fact that American emissions are falling and are projected to continue to do so. Countries are committed to once again trying to negotiate a new treaty on climate, this time by 2015. The Obama administration should provide an early signal of its level of ambition for this treaty and what it expects other large economies to contribute in terms of timelines and targets for reducing greenhouse gas emissions. It also has the opportunity to open up new space on issues such as black carbon, the Arctic and noncarbon greenhouse gases such as methane.

President Obama is likely to spend a growing proportion of his second term on foreign policy, especially after the midterm elections in 2014, when attention will begin to focus on electing his successor. He will find that many of America's partners face sustainability challenges that are often more pressing and far-reaching than those experienced by American citizens, sheltered as they are by prosperity, abundant natural resources and distance from most of the world's trouble spots. This will provide him with an opportunity to begin to forge a new consensus on tackling the most pressing global risks

As a second-term president, Barack Obama will benefit from the authority that accrues to leaders the longer they spend on the world stage. In his first speech to the United Nations, he told world leaders that they could be remembered for putting off hard choices and failing to adjust to the challenges of the 21st century, or they could be remembered for their willingness "to see the shoreline beyond the rough waters ahead." He now has an opportunity to help the world strike out for that shoreline, but like any American president after an election, his time is already running out.²⁵⁹

ENDNOTES

- 1 William J. Clinton, "Address Before a Joint Session of the Congress on the State of the Union," American Presidency Project, 2000, <http://www.presidency.ucsb.edu/ws/index.php?pid=58708#axzz1xmaikXTb>.
- 2 Charles P. Kindleberger, *Manias, Panics and Crashes: A History of Financial Crises* (New York: John Wiley & Sons, 2001).
- 3 Amy Belasco, *The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations since 9/11* (Washington: Congressional Research Service, 2011).
- 4 Federal Reserve, "Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances," *Federal Reserve Bulletin* 98, no. 2 (June 2012), <http://www.federalreserve.gov/pubs/bulletin/2012/PDF/scf12.pdf>.
- 5 White House, "Remarks by the President in State of the Union Address," January 27, 2010, <http://www.whitehouse.gov/the-press-office/remarks-president-state-union-address>.
- 6 Pew Research Center, *Partisan Polarization Surges in Bush, Obama Years: Trends in American Values, 1987–2012* (Washington: Pew Research Center for the People and the Press, 2012), <http://www.people-press.org/2012/06/04/section-1-understanding-the-partisan-divide-over-american-values/>.
- 7 Ibid; Council on Foreign Relations, "U.S. Opinion on the Global Economy," in *Public Opinion on Global Issues: A New Digest of U.S. and International Attitudes* (New York: Program on International Policy Attitudes, Council on Foreign Relations, 2009), <http://www.cfr.org/world/us-opinion-global-economy/p20137>.
- 8 Coleen Murray, "Treasury Notes: As U.S. Reaches Debt Limit, Geithner Implements Additional Extraordinary Measures to Allow Continued Funding of Government Obligations," U.S. Department of the Treasury, Washington, 2011, <http://www.treasury.gov/connect/blog/Pages/Geithner-Implements-Additional-Extraordinary-Measures-to-Allow-Continued-Funding-of-Government-Obligations.aspx>.
- 9 Congressional Budget Office, "Economic Effects of Reducing the Fiscal Restraint That Is Scheduled to Occur in 2013," 2012, <http://www.cbo.gov/publication/43262>.
- 10 Martin Wolf, "A Permanent Precedent," *Financial Times*, May 17, 2012.
- 11 Michael Pettis, "The Contentious Debate over China's Economic Transition," *Policy Outlook* (Carnegie Endowment for International Peace), March 25, 2011, http://www.carnegieendowment.org/files/china_econ_transition.pdf.
- 12 Alex Evans, Bruce Jones and David Steven, *Confronting the Long Crisis of Globalization: Risk, Resilience and International Order* (Washington: Brookings Institution, 2010).
- 13 BBC, "Rio Summit: Little Progress, 20 Years On," 2012, <http://www.bbc.co.uk/news/science-environment-18546583>.
- 14 Derek Headey, Sangeetha Malaiyandi and Shenggen Fan, *Navigating the Perfect Storm: Reflections on the Food, Energy, and Financial Crises* IFPRI Discussion Paper 00889 (Washington: International Food Policy Research Institute, 2009), <http://www.ifpri.org/sites/default/files/publications/ifpridp00889.pdf>.
- 15 Organization for Economic Cooperation and Development (OECD), *OECD Economic Outlook 2012* (Paris: OECD, 2012) table 1.3, <http://www.oecd.org/eco/economicoutlookanalysisandforecasts/economicoutlook.htm>.

- 16 U.S. Department of Agriculture, "U.S. Drought 2012: Farm and Food Impacts," November 9, 2012, <http://www.ers.usda.gov/topics/in-the-news/us-drought-2012-farm-and-food-impacts.aspx>.
- 17 United States Environmental Protection Agency (EPA), *Future Temperature Changes* (Washington DC: EPA), <http://www.epa.gov/climatechange/science/future.html>
- 18 Federal Advisory Committee, 2013, *Draft Climate Assessment Report*, National Climate Assessment and Development Advisory Committee, United States Global Change Research Program (Washington: Federal Advisory Committee January 2013), <http://ncadac.globalchange.gov/download/NCAJan11-2013-publicreviewdraft-fulldraft.pdf>
- 19 Carbon Dioxide Information Analysis Center, 2012, "Fossil-Fuel CO₂ Emissions," http://cdiac.ornl.gov/trends/emis/meth_reg.html; Oakridge National Laboratory, "Carbon Dioxide Emissions Rebound Quickly after Global Financial Crisis," December 5, 2011, http://www.ornl.gov/info/press_releases/get_press_release.cfm?ReleaseNumber=mr20111205-00.
- 20 International Environment Agency, Global Carbon-Dioxide Emissions Increase by 1.0 Gt in 2011 to Record High," May 24, 2012, <http://www.iea.org/newsroomandevents/news/2012/may/name,27216,en.html>.
- 21 Anthony D. Barnosky, Elizabeth A. Hadly, Jordi Bascompte, Eric L. Berlow, James H. Brown, Mikael Fortelius, Wayne M. Getz, John Harte, Alan Hastings, Pablo A. Marquet, Neo D. Martinez, Arne Mooers, Peter Roopnarine, Geerat Vermeij, John W. Williams, Rosemary Gillespie, Justin Kitzes, Charles Marshall, Nicholas Matzke, David P. Mindell, Eloy Revilla and Adam B. Smith, "Approaching a State Shift in Earth's Biosphere," *Nature* 486 (June 7, 2012): 52–58.
- 22 Homi Kharas, *The Emerging Middle Class in Developing Countries*, OECD Working Paper 285 (Paris: OECD Development Center, 2010), <http://www.oecd.org/social/povertyreductionandsocialdevelopment/44457738.pdf>.
- 23 Council on Foreign Relations, "U.S. Opinion on the Global Economy," in *Public Opinion on Global Issues: A New Digest of U.S. and International Attitudes* (New York: Program on International Policy Attitudes, Council on Foreign Relations, 2009), <http://www.cfr.org/world/us-opinion-global-economy/p20137>.
- 24 Chris Borick and Rabe Barry, *Continued Rebound in American Belief in Climate Change: Spring 2012 NSAPOCC Findings*, Brookings Institution, Washington, June 11, 2012, http://www.brookings.edu/research/papers/2012/06/~/media/Research/Files/Papers/2012/6/11%20climate%20rabe%20borick/NSAPOCC_Belief_Spring%20Formatted.pdf.
- 25 "Eqecat Sees Sandy-Insured Losses Up to \$20 Billion in U.S.," Reuters, November 1, 2012, <http://www.reuters.com/article/2012/11/01/us-storm-sandy-losses-idUSBRE8A00V620121101>.
- 26 M. Fischetti, "Did climate change cause Hurricane Sandy?" *Scientific American*, October 30, 2012. <http://blogs.scientificamerican.com/observations/2012/10/30/did-climate-change-cause-hurricane-sandy/>. See also C. H. Greene, "An Arctic Wildcard in the Weather," *Oceanography* 25, no. 2 (2012), http://www.tos.org/oceanography/archive/25-2_greene.html.
- 27 White House, "Remarks by the President on Election Night," November 7, 2012, <http://www.whitehouse.gov/the-press-office/2012/11/07/remarks-president-election-night>.
- 28 Jordi Vaquer, "Reclaiming Democratic Demands from the Populists," *openDemocracy*, July 10, 2012, <http://www.opendemocracy.net/jordi-vaquer/reclaiming-democratic-demands-from-populists>.

- 29 Conor Friedersdorf, "The Cult of Smartness: How Meritocracy Is Failing America," *The Atlantic*, June 14, 2012.
- 30 White House, *National Security Strategy*, 2010, http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf.
- 31 "National Economic Accounts: Gross Domestic Product," Bureau of Economic Analysis, U.S. Department of Commerce, 2012, <http://www.bea.gov/national/index.htm>; "Historical National Population Estimates: July 1, 1900, to July 1, 1999," Population Estimates Program, Population Division, U.S. Census Bureau, <http://www.census.gov/popest/data/national/totals/pre-1980/tables/popclockest.txt>.
- 32 These data are for 1948–2011; U.S. Bureau of Labor Statistics, 2012, <http://data.bls.gov/cgi-bin/surveymost?bls>.
- 33 Michael Greenstone and Adam Looney, "Trends," *Milken Institute Review*, Third Quarter 2011, 11.
- 34 World Economic Forum, *The Global Competitiveness Report 2012–2013* (Geneva: World Economic Forum, 2012).
- 35 European Commission, "Eurostat: R&D Expenditure," data compiled using OECD figures, 2011, http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/R_%26_D_expenditure; OECD, *OECD Economic Outlook 2012*; World Bank, *World DataBank: World Development Indicators* (Washington: World Bank, 2012), <http://databank.worldbank.org/ddp/home.do>.
- 36 Times Higher Education, *World University Rankings 2011–12*, 2011, <http://www.timeshighereducation.co.uk/world-university-rankings/2011-2012/top-400.html>; National Science Foundation, *Science and Engineering Indicators 2012* (Washington: National Science Foundation, 2012), "Chapter 5: Academic Research and Development," <http://www.nsf.gov/statistics/seind12/c5/c5h.htm>; U.S. Patent and Trademark Office, "Extended Year Set: Patents by Country, State and Year—All Patent Types," 2011, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_allh.htm.
- 37 Mitch Waldrop, *DARPA and the Internet Revolution: 50 Years of Bridging the Gap*, (Washington: Defense Advanced Research Projects Agency, U.S. Department of Defense, 2008).
- 38 Lauren Setar and Matthew MacFarland, "Top 10 Fastest-Growing Industries," *IBISWorld*, Special Report, April 2012, <http://www.ibisworld.com/Common/MediaCenter/Fastest%20Growing%20Industries.pdf>.
- 39 Abdul Ali, Candida Brush, Julio De Castro, Julian Lange, Thomas Lyons, Moriah Meyskens, Joseph Onochie, Ivory Phinisee, Edward Rogoff, Al Suhu and John Whitman, *National Entrepreneurial Assessment for the United States of America: 2010 United States Report* (Babson Park, Mass.: Global Entrepreneurship Monitor, 2010); Kelly Services, *Talent Mobility: The Evolving Workforce*, KellyOCG, 2011, http://www.kellyocg.com/Knowledge/Kelly_Global_Workforce_Index/Talent_Mobility_-_The_Evolving_Workforce/.
- 40 Dane Stangler and Robert E. Litan, "Where Will the Jobs Come From?" *Kauffman Foundation Research Series: Firm Foundation and Economic Growth*. 2009; Ewing Marion Kauffman Foundation, Kansas City.

- 41 Amar Bhide, *The Venturesome Economy: How Innovation Sustains Prosperity in a More Connected World* (Princeton, N.J.: Princeton University Press, 2008).
- 42 Ibid.
- 43 National Bureau of Economic Research, *U.S. Business Cycle Expansions and Contractions*, 2010, <http://www.nber.org/cycles.html>.
- 44 C. K. Elwell, *Economic Recovery: Sustaining U.S. Economic Growth in a Post-Crisis Economy* ((Washington: Congressional Research Service, 2012), <http://www.fas.org/sgp/crs/misc/R41332.pdf>).
- 45 World Economic Forum, *The Global Competitiveness Report 2012–2013* (Geneva: Klaus Schwab for the World Economic Forum, 2012), http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf
- 46 Ibid.
- 47 Michael E. Porter and Jan W. Rivkin, *Prosperity at Risk: Findings of Harvard Business School's Survey on U.S. Competitiveness* (Cambridge, Mass.: Harvard Business School, 2012).
- 48 James Manyika, Susan Lund, Byron Auguste, Lenny Mendonca, Tim Welsh and Sreenivas Ramaswamy, *An Economy That Works: Job Creation and America's Future* (San Francisco: McKinsey Global Institute, 2011).
- 49 World Bank, *World DataBank*.
- 50 Greenstone and Looney, "Trends."
- 51 World Economic Forum, *Global Competitiveness Report 2012–2013*.
- 52 American Society of Civil Engineers, *Report Card for America's Infrastructure* (Reston, Va.: American Society of Civil Engineers, 2009), 7, http://infrastructurereportcard.org/sites/default/files/RC2009_full_report.pdf.
- 53 OECD, *Lessons from PISA for the United States: Strong Performers and Successful Reformers in Education* (Paris: OECD, 2011).
- 54 Federal Reserve Bank of New York, *Quarterly Report on Household Debt and Credit*, November 2012, http://www.newyorkfed.org/research/national_economy/householdcredit/DistrictReport_Q32012.pdf
- 55 Charles Roxburgh, Susan Lund, Tony Wimmer, Eric Amar, Charles Atkins, Ju-Hon Kwek, Richard Dobbs and James Manyika, *Debt and Deleveraging: The Global Credit Bubble and Its Economic Consequences: Updated Analysis* (San Francisco: McKinsey Global Institute, 2011).
- 56 Ibid.
- 57 Karen Dynan, *Is A Household Debt Overhang Holding Back Consumption?* (Washington: Brookings Institution, 2012; U.S. Department of Commerce, *National Data: GDP & Personal Income*, 2012, http://www.bea.gov/iTable/index_nipa.cfm).
- 58 USGovernmentSpending.com, *U.S. Total Government Debt*, 2012, http://www.usgovernmentspending.com/spending_chart_1940_2016USp_13s1li011lcn_H0t_US_Total_Government_Debt.
- 59 Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2012 to 2022*, 2012, http://www.cbo.gov/sites/default/files/cbo-files/attachments/01-31-2012_Outlook.pdf.
- 60 Congressional Budget Office, *Economic Effects of Policies Contributing to Fiscal Tightening in 2013*, November 2012.
- 61 Federal Reserve, "Chairman Ben S. Bernanke at the Banque de France Financial Stability Review Launch Event, Paris," February 18, 2011, <http://www.federalreserve.gov/newsevents/speech/bernanke20110218a.htm>.

- 62 Department of Economics and Social Affairs (UN-DESA), United Nations, *World Population Prospects, the 2010 Revision*, 2010, <http://esa.un.org/unpd/wpp/index.htm>.
- 63 Ibid.; U.S. National Center for Education Statistics, "Digest of Education Statistics: Table 276, College Enrollment of Recent High School Completers," 2011, <http://www.census.gov/compendia/statab/2012/tables/12s0276.xls>.
- 64 Bureau of Economic Analysis, "National Income and Product Accounts Tables," 2012, <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1>; Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez, "Top Incomes in the Long Run of History," *Journal of Economic Literature* 49, no. 1 (2011): 3–71, <http://elsa.berkeley.edu/~saez/atkinson-piketty-saezJEL10.pdf>.
- 65 Atkinson, Thomas and Saez, "Top Incomes," table 2.3.5.
- 66 OECD, "Better Life Index," 2012, <http://www.oecd-betterlifeindex.org>.
- 67 Federal Reserve Bank of New York, *Quarterly Report on Household Debt and Credit*, May 2012, http://www.newyorkfed.org/research/national_economy/householdcredit/DistrictReport_Q12012.pdf.
- 68 Ibid.
- 69 OECD, "Income Distribution: Inequality Measure," <http://stats.oecd.org/Index.aspx?DatasetCode=INEQUALITY>. Congressional Budget Office data are based on market income, before taxes and government transfers.
- 70 Uri Dadush, Kemal Dervis, Sarah Puritz Milsom and Bennett Stancil, *Inequality in America: Facts, Trends, and International Perspectives* (Washington: Brookings Institution Press, 2012), 14.
- 71 U.S. Department of the Treasury, *Income Mobility in the U.S. from 1996 to 2005* (Washington: U.S. Government Printing Office, 2007), <http://www.treasury.gov/resource-center/tax-policy/Documents/incomemobilitystudy03-08revise.pdf>.
- 72 OECD, "A Family Affair: Intergenerational Social Mobility across OECD Countries," chap. 5 in *Economic Policy Reforms: Going for Growth 2010* (Paris: OECD, 2010).
- 73 OECD, "Growing Income Inequality in OECD Countries: What Drives It and How Can Policy Tackle It?" paper presented at Forum on Tackling Inequality, Paris, May 2, 2011; Pew Research Center, *Partisan Polarization Surges*.
- 74 Linda Levine, *The U.S. Income Distribution and Mobility: Trends and International Comparisons* (Washington: Congressional Research Service, 2012), <http://www.fas.org/sgp/crs/misc/R42400.pdf>.
- 75 OECD, *Divided We Stand: Why Inequality Keeps Rising* (Paris: OECD, 2011).
- 76 International Monetary Fund, "IMF e-Library Data," 2011, <http://elibrary-data.imf.org/>. This figure represents imports in goods to the U.S. from developing countries, excluding the BRICS. The figure is substantially higher for emerging and developing countries, at 55 percent, which includes the BRICS.
- 77 Paul Krugman, *Trade and Inequality Revisited*, 2007, <http://www.voxeu.org/index.php?q=node/261>; OECD, *Divided We Stand*.
- 78 World Bank, *World DataBank*.
- 79 OECD, *Divided We Stand*.
- 80 Levine, *U.S. Income Distribution*.
- 81 Tax Policy Center, "Historical Effective Federal Tax Rates for All Households, April 4, 2011, <http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=456>.

- 82 U.S. Bureau of Labor Statistics, *Economic News Release: Union Membership (Annual)*, 2012, <http://www.bls.gov/news.release/union2.toc.htm>.
- 83 OECD, *Divided We Stand*.
- 84 Bureau of Transportation Statistics, Research and Innovative Technology Administration, "4-2 Average Household Expenditures by Major Spending Category: 2010," http://www.bts.gov/publications/pocket_guide_to_transportation/2012/html/figure_04_02_table.html.
- 85 OECD, "OECD Health Data: How Does Germany Compare?" 2012, <http://www.oecd.org/health/healthpoliciesanddata/BriefingNoteGERMANY2012.pdf>.
- 86 Council of Economic Advisers, Executive Office of the President, "The Economic Effects of Health Care Reform on Small Business and Their Employees," July 25, 2009, <http://www.whitehouse.gov/assets/documents/CEA-smallbusiness-july24.pdf>.
- 87 Atlantic/Aspen Institute, "The Atlantic/Aspen Institute American Values Survey," 2012, <http://www.slideshare.net/BMGlobalNews/the-atlanticaspen-institute-american-values-survey>.
- 88 Pew Charitable Trusts, *Economic Mobility and the American Dream: Where Do We Stand in the Wake of the Great Recession?* (Washington: Pew Charitable Trusts, 2011), http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Economic_Mobility/Economic_Mobility_Post_Recession_Poll.pdf.
- 89 White House, *The Council on Environmental Quality: About*, 2012, <http://www.whitehouse.gov/administration/eop/ceq/about>; U.S. Environmental Protection Agency, "EPA History," 2012, <http://www.epa.gov/history/>.
- 90 U.S. Environmental Protection Agency, "Clean Air Act," 2012, <http://www.epa.gov/air/caal/>; U.S. Environmental Protection Agency, "Clean Water Act," 2012, http://cfpub.epa.gov/npdes/cwa.cfm?program_id=45.
- 91 Jan-Peter Voss, "Innovation Processes in Governance: The Development of Emissions Trading as a New Policy Instrument," *Science and Public Policy* (Ingentaconnect) 5, no. 34 (2007–6): 329–43.
- 92 Gabriel Chan, Robert Stavins, Robert Stowe and Richard Sweeney, "The SO₂ Allowance Trading System and the Clean Air Act Amendments of 1990: Reflections on Twenty Years of Policy Innovation," Harvard Kennedy School, Cambridge, Mass., 2012, http://www.hks.harvard.edu/m-rcbg/heap/papers/SO2-Brief_digital_final.pdf; Clean Air Market Programs, "Cap and Trade: Acid Rain Program Results," n.d., www.epa.gov/capandtrade/documents/ctresults.pdf.
- 93 U.S. Environmental Protection Agency, "Six Common Pollutants," in *Our Nation's Air: Status and Trends through 2010*, Report EPA-454/R-12-001, 2012.
- 94 U.S. Environmental Protection Agency, "Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment," 2000, <http://water.epa.gov/polwaste/wastewater/treatment/benefits.cfm>.
- 95 U.S. Energy Information Administration, *Country Analysis Brief: Total Primary Energy (Quadrillion Btu)*, 2012, <http://www.eia.gov/countries/country-data.cfm?fips=US&trk=m#tpe>.
- 96 Scott Barrett, *Why Cooperate? The Incentive to Supply Global Public Goods* (Oxford: Oxford University Press, 2007).
- 97 Pew Research Center, *Partisan Polarization Surges*.
- 98 Ibid.

- 99 Joint Economic Committee, U.S. Congress, *The 1990 Economic Report of the President: Hearings Before the Joint Economic Committee, Congress of the United States, One Hundred First Congress, Second Session, January 24 and 30, February 2 and 8, and March 15, 1990*, 212, http://openlibrary.org/b/OL1986428M/1990_Economic_report_of_the_President; Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, "Preparation of a Framework Convention on Climate Change: Set of Informal Papers Provided by Delegations, Related to the Preparation of a Framework Convention on Climate Change, Note by the Secretariat," Second Session, June 19–28, 1991, ref A/AC.237/Misc.1, 13, 94, http://unfccc.int/documentation/documents/advanced_search/items/6911.php?preref=600000014.
- 100 Ibid., 2.
- 101 White House, "Text of a Letter from the President to Senators Hagel, Helms, Craig, and Roberts, March 13, 2001," <http://georgewbush-whitehouse.archives.gov/news/releases/2001/03/20010314.html>.
- 102 Worldwatch Institute, *The State of Consumption Today*, 2011, <http://www.worldwatch.org/node/810>.
- 103 James D. Hamilton, "Oil Prices, Exhaustible Resources and Economic Growth," October 18, 2011, http://dss.ucsd.edu/~jhamilto/handbook_climate.pdf.
- 104 Joachim von Braun, "High and Rising Food Prices: Why Are They Rising, Who Is Affected, How Are They Affected, and What Should Be Done?" paper presented at U.S. Agency for International Development (USAID) conference on "Addressing the Challenges of a Changing World Food Situation: Preventing Crisis and Leveraging Opportunity," April 11, 2008, <http://www.ifpri.org/sites/default/files/pubs/presentations/20080411jvbfoodprices.pdf>; U.S. Energy Information Administration, "Short-Term Energy Outlook," July 10, 2012, <http://www.eia.gov/forecasts/steo/index.cfm>.
- 105 Muriel Boselli, "Oil Price Still Serious Risk to Global Recovery: IEA." Reuters, May 16, 2012.
- 106 John Elder and A. Serletis, "Oil Price Uncertainty," *Journal of Money, Credit and Banking*, 2010, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=908675.
- 107 International Monetary Fund, *World Economic Outlook: Tensions from the Two Speed Recovery—Unemployment, Commodities, and Capital Flows* (Washington: International Monetary Fund, 2011), <http://www.imf.org/external/pubs/ft/weo/2011/01/index.htm>.
- 108 U.S. Energy Information Administration, "International Energy Statistics: Per Capita Carbon Dioxide Emissions from the Consumption of Energy (Metric Tons of Carbon Dioxide per Person)," 2012, <http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=90&pid=45&aid=8&cid=regions&syid=2006&eyid=2010&unit=MMTCD>.

- 109 U.S. Energy Information Administration, "Total Carbon Dioxide Emissions from the Consumption of Energy (Million Metric Tons), 1980 to 2010, 2012, <http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=90&pid=44&aid=8&cid=US,&syid=1980&eyid=2010&unit=MMTCD>; Office of the Special Envoy for Climate Change, U.S. Department of State, "Letter to Mr Yvo de Boer regarding the Copenhagen Accord," January 28, 2010, http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/unitedstatescophaccord_app.1.pdf.
- 110 United Nations Environment Program, *The Emissions Gap Report: Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2°C or 1.5°C? A Preliminary Assessment* (Nairobi: United Nations Environment Program, 2010).
- 111 Sven Harmeling, *Global Climate Index 2011: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2009 and 1990 to 2009* (Bonn: Germanwatch, 2011).
- 112 Roger A. Pielke Jr., Joel Gratz, Christopher W. Landsea, Douglas Collins, Mark A. Saunders and Rade Musulin, "Normalized Hurricane Damage in the United States: 1900–2005," *Natural Hazards Review* 9, no. 1 (2008): 29–42. For GDP Projections, see Congressional Budget Office, "Budget and Economic Outlook: Fiscal Years 2011 to 2021," 2011, <http://www.cbo.gov/publication/21999>.
- 113 James Hansen, Makiko Sato and Reto Ruedy, "Perceptions of Climate Change: The New Climate Dice," 2012, http://www.columbia.edu/~jeh1/mailings/2012/20120105_PerceptionsAndDice.pdf.
- 114 Yale Project on Climate Change Communication and George Mason University Center for Climate Change Communication, *Extreme Weather, Climate & Preparedness In the American Mind* (New Haven, Conn.: Yale University, 2012).
- 115 Maplecroft, "Maplecroft Index Identifies Bahrain, Qatar, Kuwait and Saudi Arabia as World's Most Water-Stressed Countries," May 25, 2011, http://maplecroft.com/about/news/water_stress_index.html.
- 116 Office of the Director of National Intelligence, "Global Water Security, 2012, http://www.dni.gov/files/documents/Newsroom/Press%20Releases/ICA_Global%20Water%20Security.pdf.
- 117 Natural Resources Defense Council, "Climate Change, Water and Risk: Current Water Demands Are Not Sustainable," NRDC Factsheet, 2010, <http://www.nrdc.org/globalWarming/water-sustainability/files/WaterRisk.pdf>.
- 118 National Climatic Data Center, National Oceanic and Atmospheric Administration, "State of the Climate: National Overview, June 2012," <http://www.ncdc.noaa.gov/sotc/national/2012/6>.
- 119 "GRAINS-U.S. Corn Firm, Soybeans Slip on Rain Forecasts," Reuters, August 2, 2012; Economic Research Service, U.S. Department of Agriculture, "U.S. Drought 2012: Farm and Food Impacts," 2012, <http://www.ers.usda.gov/newsroom/us-drought-2012-farm-and-food-impacts.aspx>.
- 120 Answers to this question vary from 53 to 74 percent saying the wrong track; 26 to 43 percent say the right track in various polls conducted this year. See Marist College Institute for Public Opinion, "McClatchy-Marist Poll National Survey, March 26, 2012," <http://s3.documentcloud.org/documents/328329/mcclatchy-marist-poll-politics.pdf>; Rasmussen Reports, "Right Direction or Wrong Track: 29% say U.S. Heading in Right Direction," August 1, 2012, http://www.rasmussenreports.com/public_content/politics/mood_of_america/right_direction_or_wrong_track/; and Naftali Bendavid, "Country Is Headed in Wrong Direction, 74% Say," *Wall Street Journal*, October 13, 2011, <http://online.wsj.com/article/SB10001424052970204774604576627180456112672.html>.

- 121 John Maynard Keynes, *The Great Slump of 1930* (London: Nation & Athenæum, 1930).
- 122 Group of Twenty, "London Summit: Leaders' Statement," April 3, 2009, http://www.canadainternational.gc.ca/g20/summit-sommet/g20/declaration_010209.aspx?view=d.
- 123 Ibid.; International Monetary Fund, *World Economic Outlook: Growth Resuming, Dangers Remain* (Washington: International Monetary Fund, 2012).
- 124 Gary Burtless, "Employment Gains Keep Pace with Population Growth, but Leave Job Deficit Unchanged," August 3, 2012, Brookings Institution, Washington, <http://www.brookings.edu/blogs/jobs/posts/2012/08/03-jobs-burtless>.
- 125 White House, "Blueprint for An America Built to Last," January 24, 2012, http://www.whitehouse.gov/sites/default/files/blueprint_for_an_america_built_to_last.pdf; Mitt Romney, "Mitt Romney Delivers Remarks: Freedom and Opportunity," March 30, 2012, <http://www.mittromney.com/blogs/mitts-view/2012/03/mitt-romney-delivers-remarks-wisconsin-freedom-and-opportunity>.
- 126 UNDESA, *World Population Prospects*.
- 127 U.S. Census Bureau, "The Older Population: 2010," November 2011, <http://www.census.gov/prod/cen2010/briefs/c2010br-09.pdf>.
- 128 Congressional Budget Office, "The 2012 Long-Term Budget Outlook: Federal Debt Held by the Public, 1912 to 2037," June 2012, http://www.cbo.gov/sites/default/files/cbofiles/attachments/06-05-Long-Term_Budget_Outlook.pdf.
- 129 UNDESA, *World Population Prospects*.
- 130 Congressional Budget Office, "2012 Long-Term Budget Outlook."
- 131 UNDESA, *World Urbanization Prospects, the 2011 Revision*, <http://esa.un.org/unpd/wup/index.htm>; Negative Population Growth, "Historical U.S. Population Growth by Year 1900–1998," 2012, http://www.npg.org/facts/us_historical_pops.htm.
- 132 Michele Hoyman and Christopher Faricy, "It Takes a Village: A Test of the Creative Class, Social Capital and Human Capital Theories," *Urban Affairs Review*, January 2009, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1313563; S. Kratke, "Creative Cities' and the Rise of the Dealer Class: A Critique of Richard Florida's Approach to Urban Theory," *International Journal of Urban and Regional Research* 34 (2010): 835–53, <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2427.2010.00939.x/abstract><http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2427.2010.00939.x/abstract>.
- 133 Edward L. Glaeser and Matthew E. Kahn, *Sprawl and Urban Growth*, NBER Working Paper 9733 (Cambridge, Mass.: National Bureau of Economic Research, 2003), <http://people.missouristate.edu/davidmitchell/Urban/Sprawl%20and%20Urban%20Growth.pdf>.
- 134 Federal Highway Administration, U.S. Department of Transportation, "Highway Statistics 2008: Licensed Drivers, Vehicle Registrations and Resident Population," 2008, <http://www.fhwa.dot.gov/policyinformation/statistics/2008/dv1c.cfm>.
- 135 David Leonhardt, "Old vs. Young," *New York Times*, June 22, 2012, http://www.nytimes.com/2012/06/24/opinion/sunday/the-generation-gap-is-back.html?_r=1.
- 136 U.S. Census Bureau, U.S. Department of Commerce, "Voting and Registration: Historical Time Series Tables," 2012, <http://www.census.gov/hhes/www/socdemo/voting/publications/historical/index.html>.
- 137 Mark Hugo Lopez and D'Vera Cohn, "Hispanic Poverty Rate Highest in New Supplemental Census Data," Pew Hispanic Center, November 8, 2011, <http://www.pewhispanic.org/2011/11/08/hispanic-poverty-rate-highest-in-new-supplemental-census-measure/>.

- 138 Pew Charitable Trusts, "Economic Mobility and the American Dream: Examining Racial and Ethnic Differences," Fact Sheet, March 2012, http://www.pewtrusts.org/uploadedFiles/wwwpewtrusts.org/Reports/Economic_Mobility/Pew-Economic-Mobility-Race.pdf.
- 139 Frank Newport, Jeffrey M. Jones and Lydia Saad, "Democrats More Liberal, Less White Than in 2008: Party Generally Looks Demographically Similar to 2008," November 7, 2011, Gallup Politics, <http://www.gallup.com/poll/150611/democrats-liberal-less-white-2008.aspx>; Pew Research Center, "American Values Survey: Question Database—40e: It Is the Responsibility of the Government to Take Care of People Who Can't Take Care of Themselves, 2012," <http://www.people-press.org/values-questions/q40e/government-should-care-for-people-who-cant-care-for-themselves/#race>.
- 140 Nolan McCarty, Keith T. Poole and Howard Rosenthal, *Polarized America: The Dance of Ideology and Unequal Riches (Walras-Pareto Lectures)* (Cambridge, Mass.: MIT Press, 2006).
- 141 Brookings Institution, "The Negative Impact of the Use of Filibusters and Holds," June 23, 2010, <http://www.brookings.edu/research/testimony/2010/06/23-filibuster-mann>.
- 142 Atif Mian, Amir Sufi and Francesco Trebbi, "Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crisis," June 2012, <http://faculty.arts.ubc.ca/ftrebbi/research/mst4.pdf>.
- 143 Bob Woodward, *Maestro: Greenspan's Fed and the American Boom* (New York: Simon & Schuster, 2000).
- 144 Financial Crisis Inquiry Commission, "The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States," January 2011, <http://www.gpo.gov/fdsys/pkg/GPO-FCIC>.
- 145 Harvard Kennedy School, "2006 Social Capital Community Survey, National Sample," 2006, <http://www.hks.harvard.edu/saguaro/pdfs/2006SCCSbanner.pdf>.
- 146 Ibid; Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000).
- 147 Paul Taylor, Cary Funk and April Clark, *Americans and Social Trust: Who, Where and Why* (Washington: Pew Research Center, 2006), <http://pewresearch.org/assets/social/pdf/SocialTrust.pdf>.
- 148 Pew Research Center, "Economy Dominates Public's Agenda, Dims Hopes for Future: Less Optimism about America's Long-Term Prospects," January 20, 2011, <http://www.people-press.org/2011/01/20/section-2-views-of-long-term-future-past/>.
- 149 Pew Research Center for the People & the Press, "The Generation Gap and the 2012 Election: Angry Silents, Disengaged Millennials," November 3, 2011, <http://pewresearch.org/pubs/2122/generation-gap-barack-obama-mitt-romney-republicans-democrats-silent-generation-millennials-genxers-baby-boomers>.
- 150 White House, *National Security Strategy*.
- 151 Shrey Verma, *Far-Reaching Consequences of the Naxalite Problem in India: Understanding the Maoist Problem* (Santa Clara, Calif.: Rakshak Foundation, 2011), <http://www.rakshakfoundation.org/wp-content/uploads/2011/08/White-Paper-on-Naxalite-Movement-in-India.pdf>.
- 152 "Spending Shows Focus on Internal Threats," *Wall Street Journal*, March 5, 2012, <http://blogs.wsj.com/chinarealtime/2012/03/05/china-spending-shows-focus-on-internal-threats/>.

- 153 Uri Dadush and William Shaw, *Juggernaut: How Emerging Markets are Reshaping Globalization* (Washington: Carnegie Endowment for International Peace, 2011), <http://carnegieendowment.org/2011/05/31/juggernaut-how-emerging-markets-are-reshaping-globalization/10a2>.
- 154 International Energy Agency, *Worldwide Trends in Energy Use and Efficiency* (Paris: International Energy Agency, 2008).
- 155 U.S. Energy Information Administration, "Total Carbon Dioxide Emissions."
- 156 National Highway Traffic Safety Administration, U.S. Department of Transportation, "Corporate Average Fuel Economy for MY 2017–MY 2025 Passenger Cars and Light Trucks," Final Regulatory Impact Analysis, August 2012, 55.
- 157 U.S. Energy Information Administration, *Annual Energy Outlook 2012 with Projections to 2035* (Washington: U.S. Government Printing Office, 2012), [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf).
- 158 Barclays Capital, *Global 2012 E&P Spending Outlook: Spending to Reach Record Levels*, December 5, 2011, <http://www.scribd.com/doc/75004809/Global-2012-E-P-Spending-Outlook-BarCap-12052011>.
- 159 Leonardo Maugeri, *Oil: The Next Revolution—The Unprecedented Upsurge of Oil Production Capacity and What It Means for the World*, Discussion Paper 2012-10 (Cambridge, Mass.: Belfer Center for Science and International Affairs, Harvard Kennedy School, 2012), <http://belfercenter.ksg.harvard.edu/publication/22144/oil.html>.
- 160 Florence Gény, "Can Unconventional Gas Be a Game Changer in European Gas Markets?" December 2010, Oxford Institute for Energy Studies, Oxford, <http://www.sbc.slb.com/SBCInstitute/Publications/~media/Files/Point%20of%20View%20Docs/Can%20Unconventional%20Gas%20be%20a%20Game%20Changer%20in%20European%20Gas%20Markets.ashx>.
- 161 Federal Reserve Board, "Testimony of Chairman Alan Greenspan: Natural Gas Supply—Before the Committee on Energy and Natural Resources, U.S. Senate, July 10, 2003," <http://www.federalreserve.gov/boarddocs/testimony/2003/20030710/default.htm>.
- 162 International Energy Agency, *World Energy Outlook 2006* (Paris: OECD and International Energy Agency, 2006).
- 163 U.S. Energy Information Administration, "U.S. Proved Reserves Increased Sharply in 2010," August 2, 2012, <http://www.eia.gov/todayinenergy/detail.cfm?id=7370>.
- 164 U.S. Energy Information Administration, "Natural Gas—Shale Gas Production (Billion Cubic Feet)," 2012, http://www.eia.gov/dnav/ng/ng_prod_shalegas_s1_a.htm; U.S. Energy Information Administration, "Global Natural Gas Prices Vary Considerably," September 30, 2011, <http://www.eia.gov/todayinenergy/detail.cfm?id=3310>.
- 165 Henry D Jacoby, Francis O'Sullivan and Sergey Paltsev, *The Influence of Shale Gas on U.S. Energy and Environmental Policy*. Report 207 (Cambridge, Mass.: MIT Joint Program on the Science and Policy of Global Change, 2011), http://globalchange.mit.edu/files/document/MITJPSPGC_Rpt207.pdf.
- 166 Pew Research Center, *Partisan Polarization Surges*.

- 167 Andrew Hart, Bruce Jones and David Steven, *Chill Out: Why Cooperation Is Balancing Conflict among Major Powers in the New Arctic* (Washington: Brookings Institution Press, 2012).
- 168 Jennifer Steinhauer. "Dole Appears, but G.O.P Rejects a Disabilities Treaty". *New York Times*, December 4, 2012. http://www.nytimes.com/2012/12/05/us/despite-doles-wish-gop-rejects-disabilities-treaty.html?_r=0
- 169 United Nations Secretary-General's High-Level Panel on Global Sustainability, "Resilient People, Resilient Planet—A Future Worth Choosing," 2012, http://www.un.org/gsp/sites/default/files/attachments/GSP_Report_web_final.pdf.
- 170 National Federation of Republican Assemblies, "RNC Adopts Resolution Exposing Agenda 21," January 18, 2012, <http://www.republicanassemblies.org/rnc-adopts-resolution-exposing-agenda-21/>.
- 171 Jason Blackstock, "Researchers Can't Regulate Climate Engineering Alone," *Nature* 486 (June 14, 2012).
- 172 Marc Labonte, *Changing the Federal Reserve's Mandate: An Economic Analysis* (Washington: Congressional Research Service, 2012), <http://www.fas.org/sgp/crs/misc/R41656.pdf>.
- 173 U.S. Senate Committee on Energy and Natural Resources, "Natural Gas for Transportation," July 24, 2012, http://www.energy.senate.gov/public/index.cfm/democratic-news?ContentRecord_id=123ecf9c-af80-4dbb-b6d4-e328cd0a53ab; Alternative Fuels Data Center, U.S. Department of Energy, "Federal Incentives and Laws for Natural Gas," 2012, <http://www.afdc.energy.gov/laws/laws/US/tech/3253>.
- 174 Warwick J. McKibbin, Adele Morris and Peter J. Wilcoxon, "The Potential Role of a Carbon Tax in U.S. Fiscal Reform," Brookings Institution, Washington, July 24, 2012, <http://www.brookings.edu/research/papers/2012/07/carbon-tax-mckibbin-morris-wilcoxon>.
- 175 Barnosky et al., "Approaching a State Shift in Earth's Biosphere."
- 176 Kenneth Lieberthal and Wang Jisi, *Addressing U.S.-China Strategic Distrust*, John L. Thornton China Center Monograph 4 (Washington: Brookings Institution, 2012).
- 177 Bureau of Economic Analysis, "National Income and Product Accounts GDP: Third Quarter 2012," <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>.
- 178 A. Kowalski and P. Gopal, "Housing Starts Jump 15% to Four-Year U.S. High," Bloomberg, October 17, 2012, <http://www.bloomberg.com/news/2012-10-17/housing-starts-in-u-s-surged-in-september-to-four-year-high.html>.
- 179 Evans, Jones and Steven, *Confronting the Long Crisis*.
- 180 Labonte, *Changing the Federal Reserve's Mandate*.
- 181 House Committee on the Budget, "The Path to Prosperity: Restoring America's Promise: Fiscal Year 2012 Budget Resolution," 2012, <http://www.gop.gov/resources/library/documents/budget/path-to-prosperity.pdf>.
- 182 John M. Broder, "Powerful Shaper of U.S. Rules Quits, with Critics in Wake," *New York Times*, August 3, 2012, http://www.nytimes.com/2012/08/04/science/earth/cass-sunstein-to-leave-top-regulatory-post.html?_r=1.
- 183 Consumer Financial Protection Bureau, "Learn about the Bureau," 2012, <http://www.consumerfinance.gov/the-bureau/>.

- 184 Pew Research Center, *Partisan Polarization Surges*.
- 185 Manyika et al., *An Economy That Works*.
- 186 International Trade Administration, "Jobs Supported by Exports: An Update," March 12, 2012, <http://www.trade.gov/press/press-releases/2012/jobs-supported-by-exports-031212.pdf>.
- 187 P. J. Egan and M. Mullin, "Turning Personal Experience into Political Attitudes: The Effect of Local Weather on Americans' Perceptions about Global Warming," *Journal of Politics* 74, no. 3 (July 2012): 796–809.
- 188 Yale Project on Climate Change Communication and George Mason University Center for Climate Change Communication, *Extreme Weather*.
- 189 Hansen, Sato and Ruedy, "Perceptions of Climate Change."
- 190 Center on Budgets and Policy Priorities, "Chart Book: The Legacy of the Great Recession," September 11, 2012, <http://www.cbpp.org/cms/index.cfm?fa=view&id=3252>.
- 191 Congressional Budget Office, "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from April 2012 through June 2012," 2012, <http://cbo.gov/sites/default/files/cbofiles/attachments/08-23-2012-RecoveryAct.pdf>.
- 192 Michael Greenstone and Adam Looney, "The Role on of Fiscal Stimulus in the Ongoing Recovery," Brookings Institution, Washington, 2012, <http://www.brookings.edu/blogs/jobs/posts/2012/07/06-jobs-greenstone-looney>.
- 193 Daniel J. Wilson, *Fiscal Spending Jobs Multipliers: Evidence from the 2009 American Recovery and Reinvestment Act*, Working Paper 2010-17 (San Francisco: Federal Reserve Bank of San Francisco, 2011), <http://www.frbsf.org/publications/economics/papers/2010/wp10-17bk.pdf>.
- 194 "Speech by Chairman Ben S. Bernanke at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, Wyoming," August 31, 2012, <http://www.federalreserve.gov/newsevents/speech/bernanke20120831a.htm>.
- 195 Federal Reserve Bank, "Press Release," September 13, 2012, <http://www.federalreserve.gov/newsevents/press/monetary/20120913a.htm>.
- 196 Scott Sumner, "e-Targeting the Fed," *National Affairs*, issue no. 9 (Fall 2011), <http://www.nationalaffairs.com/publications/detail/re-targeting-the-fed>.
- 197 Robin Harding and James Politi, "Fed Risks Political Fallout from QE3," *Financial Times*, September 14, 2012, <http://www.ft.com/intl/cms/s/0/b7de9070-fe77-11e1-8028-00144feabdc0.html#axzz26TJAxKZu>.
- 198 Federal Reserve Bank, "Press Release."
- 199 Ayşegül Şahin, Joseph Song, Giorgio Topa and Giovanni L. Violante, "Mismatch Unemployment," 2012, <http://www.newyorkfed.org/research/economists/sahin/USmismatch.pdf>.
- 200 Nir Jaimovich and Henry E. Siu, "The Trend Is the Cycle: Job Polarization and Jobless Recoveries," March 31, 2012, <http://faculty.arts.ubc.ca/hsiu/research/polar20120331.pdf>.
- 201 Bureau of Labor Statistics, U.S. Department of Labor, "Economics News Release: Table A-15. Alternative Measures of Labor Underutilization," September 7, 2012, <http://www.bls.gov/news.release/empst.t15.htm>.
- 202 Federal Reserve Bank, "Testimony of Chairman Ben S. Bernanke at the Committee on the Budget, U.S. House of Representatives, Washington, D.C.—The Economic Outlook and the Federal Budget Situation," February 2, 2012, <http://www.federalreserve.gov/newsevents/testimony/bernanke20120202a.htm>. Chairman Bernanke presented identical remarks before the Committee on the Budget, U.S. Senate, on February 7, 2012.

- 203 Ibid.
- 204 National Employment Law Project, *The Low-Wage Recovery and Growing Inequality*, Data Brief, August 2012, http://www.nelp.org/page/-/Job_Creation/LowWageRecovery2012.pdf?nocdn=1.
- 205 Manyika et al., *An Economy That Works*.
- 206 Justin Weidner and John C. Williams, "What Is the New Normal Unemployment Rate?" *FRBSF Economic Letter*, February 14, 2011, <http://www.frbsf.org/publications/economics/letter/2011/el2011-05.html>.
- 207 Lena Jacobi and Jochen Kluge, "Before and After the Hartz Reforms: The Performance of Active Labour Market Policy in Germany," 2007, http://doku.iab.de/zaf/2007/2007_1_zaf_jacobi_kluve.pdf.
- 208 Martin Neil Baily, *U.S. Manufacturing Makes a Comeback*, Brookings Institution, Washington, 2012, <http://www.brookings.edu/research/opinions/2012/05/18-manufacturing-comeback-katz-baily>.
- 209 "A Third Industrial Revolution," *The Economist*, April 21, 2012, <http://www.economist.com/node/21552901>.
- 210 Bruce Katz, "Will the Next President Remake Federalism?" Brookings Institution, Washington, March 18, 2012, <http://www.brookings.edu/research/articles/2012/03/18-federalism-katz>.
- 211 OECD, *Pisa 2009 Results: Executive Summary* (Paris: OECD, 2010), figure 1, <http://www.oecd.org/pisa/46643496.pdf>.
- 212 McKinsey & Company, *The Economic Impact of the Achievement Gap in America's School* (New York: McKinsey & Company, 2009, http://mckinseysociety.com/downloads/reports/Education/achievement_gap_report.pdf.
- 213 Meghan Brenneman, Patrick Callan, Peter Ewell, Joni Finney, Dennis Jones and Stacey Zis, *Good Policy, Good Practice II: Improving Outcomes and Productivity in Higher Education: A Guide for Policymakers*, Joint Report from National Center for Public Policy and Higher Education and National Center for Higher Education Management Systems, November 2010.
- 214 Democratic National Committee, "2012 Democratic National Platform: Moving America Forward," <http://www.democrats.org/democratic-national-platform>.
- 215 McKinsey & Company, *How the World's Best-Performing School Systems Come Out on Top* (New York: McKinsey & Company, 2007), http://mckinseysociety.com/downloads/reports/Education/Worlds_School_Systems_Final.pdf.
- 216 Office of the Press Secretary, White House, "President Obama to Announce Launch of Skills for America's Future," October 2010.
- 217 Harry J. Holzer, *Raising Job Quality and Skills for American Workers: Creating More-Effective Education and Workforce Development Systems in the States*, Discussion Paper 2011-10 (Washington: Hamilton Project, 2011), http://www.hamilton-project.org/files/downloads_and_links/11_workforce_holzer_paper.pdf.
- 218 World Economic Forum, *Global Competitiveness Report 2011–2012*.
- 219 American Society of Civil Engineers, *Report Card for America's Infrastructure*.
- 220 Congressional Budget Office, *Public Spending on Transportation and Water Infrastructure*, Congressional Budget Office Study (Washington: Congressional Budget Office, 2010), <http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/119xx/doc11940/11-17-infrastructure.pdf>.

- 221 Pinaki Chakraborty and Yan Zhang, *Economic Reforms and Infrastructure Spending: Evidence from China and India*, United Nations University Research Paper 2009/43 (Tokyo: United Nations University, 2009), http://www.wider.unu.edu/publications/working-papers/research-papers/2009/en_GB/rp2009-43/.
- 222 World Resources Institute, "EMBARQ: The WRI Center for Sustainable Transport," 2012, <http://www.wri.org/project/embarq>.
- 223 Glen Weisbrod and Arlee Reno., *Economic Impacts of Public Transportation Investment*, prepared for the American Public Transportation Association, October 2009.
- 224 Ken Berlin, Reed Hundt, Mark Muro and Devan-shree Saha, *State Clean Energy Finance Banks: New Investment Facilities for Clean Energy Deployment*. Report by the Brookings-Rockefeller Project on State and Metropolitan Innovation (Washington: Brookings Institution, 2012).
- 225 "Governor Cuomo Proposes \$1 billion New York Green Bank". *Environment News Service*, January 10, 2013. <http://ens-newswire.com/2013/01/10/governor-cuomo-proposes-1-billion-new-york-green-bank/>.
- 226 Stephanie Chang, "Infrastructure Resilience to Disasters," *The Bridge* (National Academy of Engineering), Winter 2009, <http://www.nae.edu/File.aspx?id=17673>.
- 227 Ibid.
- 228 Michael Rambert and Sidney Wigfall, "Leveraging Private Equity with Government Business Incentive Programs," *American Venture Magazine*, July 2002.
- 229 William Kerr and William Lincoln, *The Supply Side of Innovation: H-1B Visa Reforms and U.S. Ethnic Invention*, NBER Working Paper 15768 (Cambridge, Mass.: National Bureau of Economic Research, 2010).
- 230 Hendricks, Bracken, Sean Pool and Lisbeth Kaufman, *Low-Carbon Innovation: A Uniquely American Strategy for Industrial Renewal*, Report for the Center for American Progress and Global Climate Network, May 2011.
- 231 White House, *2012 State of the Union Address*, <http://www.whitehouse.gov/photos-and-video/video/2012/01/25/2012-state-union-address-enhanced-version#transcript>.
- 232 U.S. Energy Information Administration, *Annual Energy Outlook 2012*.
- 233 Michael Levi, *A Strategy for U.S. Natural Gas Exports*, Discussion Paper 2012-04 (Washington: Hamilton Project, 2012), http://www.brookings.edu/~media/research/files/papers/2012/6/13%20exports%20levi/06_exports_levi.pdf.
- 234 Joe Romm, "Natural Gas Is a Bridge to Nowhere—Absent a Serious Price for Global Warming Pollution," *Think Progress*, January 24, 2012, <http://thinkprogress.org/climate/2012/01/24/407765/natural-gas-is-a-bridge-to-nowhere-price-for-global-warming-pollution/>.
- 235 U.S. Energy Information Administration, "Projected Retirements of Coal-Fired Power Plants," July 31, 2012, <http://www.eia.gov/todayinenergy/detail.cfm?id=7330>.
- 236 Ibid. U.S. Energy Information Administration, "27 Gigawatts of Coal-Fired Capacity to Retire over Next Five Years," July 27, 2012, <http://www.eia.gov/todayinenergy/detail.cfm?id=7290>.
- 237 U.S. Energy Information Administration, *Quarterly Coal Report*, October 2012, <http://www.eia.gov/coal/production/quarterly/>.
- 238 Ben Jervy, "Coal Train to Boardman: EPA Warns of 'Significant' Public Health Threats in Northwest Coal Export Proposal," *Desmogblog.com*, April 26, 2012, <http://desmogblog.com/coal-train-boardman-epa-warns-significant-public-health-threats-northwest-coal-export-proposal>.

- 239 Ed Crooks and Sylvia Pfeifer, "U.S. Coal Exports to Europe Soar," *Financial Times*, October 3, 2012, <http://www.ft.com/cms/s/0/fbf0b9fa-0d63-11e2-97a1-00144feabdc0.html#axzz291Mf1lxR>.
- 240 Natural Gas Vehicles for America, "United States Senate Energy and Natural Resources Committee—Opportunities for Current Level of investment in, and Barriers to, the Expanded Usage of Natural Gas as a Fuel for Transportation," July 24, 2012, NGV America, Washington, http://www.ngvc.org/pdfs/Statement_of_NGVA_SperawFinal.pdf.
- 241 White House, "Obama Administration Announces Loan Guarantees to Construct New Nuclear Power Reactors in Georgia," February 16, 2010, <http://www.whitehouse.gov/the-press-office/obama-administration-announces-loan-guarantees-construct-new-nuclear-power-reactors>; J. Snyder and K. Klimasinska, "Constellation Nuclear Loan Pullout Tests Obama Resolve to Revive Industry," *Bloomberg*, October 12, 2010, <http://www.bloomberg.com/news/2010-10-12/constellation-nuclear-loan-guarantee-pullout-tests-obama-s-taste-for-risk.html>.
- 242 U.S. Energy Information Administration, "Energy in Brief," 2012, http://www.eia.gov/energy_in_brief/nuclear_industry.cfm.
- 243 Some useful sources are given by Brad Plumer, "The U.S. Is Getting More Oil-Efficient—but Not Quickly Enough," *Washington Post*, February 24, 2012, http://www.washingtonpost.com/blogs/ezra-klein/post/americas-getting-more-oil-efficient-but-not-quickly-enough/2012/02/24/gIQAvV6IXR_blog.html.
- 244 Richard G. Newell, Adam B. Jaffe and Robert N. Stavins, "The Induced Innovation Hypothesis and Energy-Savings Technological Change," in *Technological Change and the Environment*, edited by Arnulf Grubler, Nebojsa Nakicenovic and William D. Nordhaus (Washington: Resources for the Future, 2002), 97.
- 245 Christopher R. Knittel, *Leveling the Playing Field for Natural Gas in Transportation*, Discussion Paper 2012-03 (Washington: Hamilton Project, 2012), http://www.hamiltonproject.org/files/downloads_and_links/06_transportation_knittel.pdf.
- 246 *Promoting Clean Energy in the American Power Sector*, Policy Brief 2011-04 (Washington: Hamilton Project, 2011), http://www.hamiltonproject.org/files/downloads_and_links/05_clean_energy_aldy_brief.pdf.
- 247 William E. Rees, "Building More Sustainable Cities," *Scientific American*, March 12, 2009, <http://www.scientificamerican.com/article.cfm?id=building-more-sustainable-cities>.
- 248 "Speech by Chairman Ben S. Bernanke at the Federal Reserve Bank of Kansas City Economic Symposium."
- 249 Greenston, Michael and Adam Looney, 2013, *The Fiscal Cliff and Our Long-Run Budget Challenge* (Washington, Brookings Institution) January 4, 2013 <http://www.brookings.edu/blogs/jobs/posts/2013/01/04-fiscal-cliff-budget-greenstone-looney>
- 250 Richard Kogan, *To Stabilize the Debt, Policymakers Should Seek Another \$1.4 trillion in Deficit Savings*, Center on Budget and Policy Priorities, January 9th, 2013
- 251 Phil Oliff, Chris Mai and Vincent Palacios, "States Continue to Feel Recession's Impact," Center on Budget and Policy Priorities, Washington, 2012, <http://www.cbpp.org/files/2-8-08sfp.pdf>.
- 252 State Budget Crisis Task Force, *Report of the State Budget Crisis Task Force* (New York: State Budget Crisis Task Force, 2012), <http://www.statebudgetcrisis.org/wpcms/report-1>.
- 253 Brian Wheeler, "The Scandal of the Alabama Poor Cut Off from Water," *BBC News*, December 14, 2011, <http://www.bbc.co.uk/news/magazine-16037798>.

- 254 Oil Change International, "The Price of Oil," 2012, <http://priceofoil.org/fossil-fuel-subsidies/>.
- 255 McKibbin, Morris and Wilcoxon, "Potential Role of a Carbon Tax." An additional estimate of possible tax revenues from a carbon tax was presented by the Congressional Research Service in September 2012. See Ramseur et al. and this paper's international policy recommendations for further information (Ramseur, Jonathan, Jane Leggett and Molly Sherlock, 2012. *Carbon Tax: Deficit Reduction and Other Considerations*. Congressional Research Service (CRS) Report for Congress, September 17 2012.)
- 256 David Bloom and David Canning, 2000. "The Health and Wealth of Nations". In *Science*, 18 February 2000. Available at <http://www.sciencemag.org/content/287/5456/1207.short>
- 257 African Development Bank, OECD, United Nations Development Program and United Nations Economic Commission for Africa, *African Economic Outlook 2012: Promoting Youth Employment*. (Abidjan: African Development Bank, 2012), http://www.iza.org/conference_files/worldb2012/rielaender_j8363.pdf.
- 258 U.S. Department of State, 2012. *Energy Diplomacy in the 21st Century*. Speech by the Secretary of State Hilary Clinton at Georgetown University, October 18 2012. Available at <http://www.state.gov/secretary/rm/2012/10/199330.htm>
- 259 "Obama's Speech to the United Nations General Assembly," *New York Times*, September 24, 2009, <http://www.nytimes.com/2009/09/24/us/politics/24prexy.text.html?pagewanted=all>.



The views expressed in this working paper do not necessarily reflect the official position of Brookings, its board or the advisory council members.

© 2013 The Brookings Institution

ISSN: 1939-9383

BROOKINGS

1775 Massachusetts Avenue, NW
Washington, DC 20036
202-797-6000
www.brookings.edu/global

