Economics and National Security: Issues and Implications for U.S. Policy

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Summary

As the world begins the second decade of the twenty-first century, the United States holds what should be a winning hand of a preeminent military, large economy, strong alliances, and democratic values. The nation's security should be secure. Yet the debate over national security seems to be both intensifying and broadening. The problem appears not only in the difficulty of finding a winning strategy in the long war against acts of terrorism but having to face economic constraints that loom large in the public debate. In addition, the global financial crisis and recession have highlighted the trade-off between spending to protect against external threats and spending to provide jobs and income for citizens at home. The United States has long been accustomed to pursuing a "rich man's" approach to national security. The country could field an overwhelming fighting force and combine it with economic power and leadership in global affairs to bring to bear far greater resources than any other country against any threat to the nation's security. The economy has always been there both to provide the funds and materiel for defense and to provide economic security for most households. Policies for economic growth and issues such as unemployment have been viewed as domestic problems largely separate from considerations of national security.

The world, however, has changed. Globalization, the rise of China, the prospect of an unsustainable debt burden, unprecedented federal budget deficits, the success of mixed economies with both state-owned and private businesses, huge imbalances in international trade and capital flows, and high unemployment have brought economics more into play in considerations of national security. Traditionally the economy has entered into the national security debate through its impact on the nation's hard power: the funding of defense, the efficacy of the defense industrial base, and the use of economic sanctions and other instruments as non-kinetic tools of warfare. The long-term efficacy of hard power, however, depends greatly on the ability of a country to provide for it through an ever growing and innovative economy.

National security depends also on soft power, the ability of a country to generate and use its economic power and to project its national values. This, in turn, depends on long-term factors that contribute to economic growth and increase the total resource base available not only for defense but to provide economic security in the form of income and business opportunities for individuals. Economic growth depends on building human capital. It also depends on science, technology, and innovation. In addition, the increased integration of the U.S. economy into global markets means that U.S. security also depends on global economic stability, on a balanced international economy, the ability to coordinate key economic policies with other leading nations, and deterring threats to the international financial system. Soft power also enables the country to project American values through diplomacy, economic assistance, fostering democracy and human rights, and promoting sustainable development abroad. Congress plays a major role in each of these elements of national security.

This analysis illustrates how disparate parts of the U.S. economy affect the security of the nation. Security is achieved not only by military means but by the whole of the American economy. In national security, the economy is both the enabler and the constraint. This report briefly addresses each of the above issues and provides a context and some possible alternatives to current policy. The purpose of this report is not to provide an exhaustive analysis but to survey the landscape, show how each issue relates to national security, examine possible Congressional actions, and refer the reader to relevant CRS products and analysts.

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National Security and the Congressional Interest[1]

U.S. national security underpins the system in which Americans live. National security is essential to an environment and geographical space in which people can reside without fear. It consists, first, of physical security on both the international and domestic sides. This includes protection from threats external to the country and safety in the homeland. These generally are accomplished through hard power and homeland security efforts. Second, it consists of economic security—the opportunity and means for people to provide for their own well being under an economic system that is vibrant, growing, and accessible. Third, U.S. national security involves outreach through soft power in an attempt to win the "hearts and minds" of people across the globe. Soft power complements hard power, and, in cases, may substitute for it. Also, the myriad links between governments, businesses, and people across national borders means that American security increasingly depends on countries and activities in far flung places on the globe.

Traditionally, the economy entered into the national security debate through four issues: the defense industrial base, base closures and program cuts, international economic sanctions, and export controls. These issues still garner much of the attention from the vantage point of the military. From the point of view of the nation as a whole, however, economic security takes on a broader meaning.

This report examines the role of the economy in national security from both macroeconomic and microeconomic points of view. The macroeconomic issues center on the budget and deficit reduction. The microeconomic issues focus on providing for the general well-being of the people and in supporting other components of national security. This report also examines the major sources of long-term economic growth and progress and policies that affect them. It further addresses the coordination of policies among nations, particularly the G-20, and foreign policies that affect human rights, the development of democracy, and U.S. economic assistance. This broad review of economics and national security illustrates how disparate parts of the U.S. economy affect the security of the nation and that security is something achieved not only by military means but by the whole of the American economy and how it performs. In national security, the economy is both an enabler and a constraint.

The economic issues related to national security are both broad and complex. In order to keep this report to a manageable length, this study takes the President's *2010 National Security Strategy* as a beginning construct and largely limits the analysis to the issues raised there. The purpose of this report is to provide an overview of the economic contributors to national security as well as to furnish links to further resources. Issues, such as reducing the federal budget deficit, immigration, international trade, or innovation, are related to national security in ways that are too numerous and complex to address fully here. Further information can be found in the CRS reports cited or can be obtained by contacting the CRS analysts indicated.

In the United States, the renewed public debate over national security appears to be generated primarily by three global changes. The first is the nature of the external threat to physical security—the rise of terrorism and militant Islam. The second is the aftermath of the global financial crisis, particularly the large federal budget deficit and slow rate of recovery. The third is

[1] Sections of this report without authorship indicated in footnotes were prepared by Dick K. Nanto, Specialist in Industry and Trade, Foreign Affairs, Defense, and Trade Division.

the growing presence of emerging nations, such as China, India, and Brazil, and the shift of economic power toward them. These changes have created gaps and trade-offs that arguably are undermining the sense of security of Americans. Some may say, "What good is protection from a future threat, when I am unemployed because my job just went to China?" Others may say, "What good is a high salary, if I am dead in a terrorist attack?

This debate over national security reaches deep into the fiber of American society. It is not merely political theater, and it is receiving a fillip by the weakened U.S. economy. A vibrant, growing, and dominant economy can hide a multitude of problems. Even though wealth and economic means cannot guarantee U.S. security, it can buy a comfortable sort of insecurity.

The economic issue of the day now centers on what measures to take to return the economy to its long-term growth path and reduce the gap between the potential and actual levels of U.S. gross domestic product. If the economy were to grow faster, many of the constraints on the federal budget would be eased. There are two major schools of thought on this matter. The Keynesian approach to growth is to continue government deficit spending through the recession and initial recovery phase in order to offset lower consumption by households and reduced levels of investment by businesses. When the economy recovers, the deficit can be reduced. The supply side approach is to cut the federal budget deficit now because deficits may discourage investment by causing uncertainty about future policy changes that will be needed to restore fiscal balance. The supply side approach also attempts to keep taxes on entrepreneurs low in order to induce them to invest more in productive capacity and create more jobs. Each approach recognizes that the long-term security of the nation depends greatly on having a vibrant and growing economy.

Congress plays a major role in each element of national security. Whether it be policies dealing with the military, economy, budget, education, economic growth, technology, international relations, or opening markets abroad, Congressional action is essential. Not only does Congress provide funding for these elements of national security, but it provides oversight, defines the scope of U.S. action, and provides a crucible in which U.S. policies are debated and often determined. Congress allocates the resources to respond to national security threats, and in so doing it plays a part in determining the relative strength of hard and soft power options and the roles individual agencies will play.

National Security Strategy

The Goldwater-Nichols Department of Defense Reorganization Act of 1986 (P.L. 99-433) required that the President provide a National Security Strategy (NSS) for Congress. This document presents the major national security concerns of the country and how the existing administration plans to deal with them. The George W. Bush Administration's issued its final NSS in March 2006,[2] and in May 2010, the Obama Administration released its first NSS.[3]

The 2010 NSS noted numerous world conditions, laid out a national security strategy, and set some goals, many of them economic. It began with three observations:

- the world is now in a moment of transition, of sweeping change;

[2] The White House, *The National Security Strategy of the United States of America*, Washington, DC, March 16, 2006.

[3] The White House, *National Security Strategy*, Washington, DC, May 2010. (Hereafter referred to as the *2010 National Security Strategy* or *2010 NSS*.)

- globalization has both opened opportunities and intensified the dangers Americans face from terrorism, the spread of deadly technologies, economic upheaval, and changing climate; and
- even as the war in Iraq ends and the focus of military action has turned to Afghanistan, a superior military is necessary as the United States faces multiple threats from nations, nonstate actors, and failed states.

The NSS then laid out some goals, both military and economic, along with policies deemed necessary to ensure a safe and secure United States. Those related to the economy were:

- in order to build an America that is stronger, more secure, and able to overcome challenges while appealing to aspirations of people around the world, the United States must foster economic growth, reduce the federal budget deficit, educate our people, develop clean energy alternatives, pursue science and innovation, and build capabilities and alliances to pursue interests shared with other countries and peoples;
- the United States seeks an international order and cooperation with other nations that will counter violent extremism and insurgency, stop the spread of nuclear weapons, combat climate change, sustain global growth, and help countries feed themselves; and
- the United States will continue to advocate for and advance human rights, economic development, and democracy as a bulwark against aggression and injustice.

Twenty-First Century Challenges to National Security

The challenge of the twenty-first century is to adapt U.S. policy to account for how the world has changed. These changes can be highlighted by reviewing some traditional perceptions that helped shape U.S. security policy. During the latter half of the twentieth century, five large ideas seemed to have permeated politics in the Western world writ large:

- peaceful settlement of issues was better than going to war (no more world wars, although regional conflicts persisted);
- other countries would tolerate U.S. hegemony in exchange for keeping the peace;
- the United States and Europe could determine policy on most major international issues;
- the United States could assist countries to democratize because democracies were more likely than dictatorships to have shared values and to keep the peace; and
- Western culture was appealing and more universal than any other.

These fundamental ideas played a large role in shaping and maintaining U.S. national security first in a bipolar world shrouded in the Cold War and then in a more multi-polar system in which countries, such as China, have gained relative economic power and have brought a different set of

interests and values to the table. While each of the above ideas has carried over to a certain extent into the twenty-first century, each also has eroded considerably.[4]

Similarly, in the economic and financial realm, four large ideas or priorities helped shape both U.S. domestic and international economic policy:

- market capitalism was superior to socialism (high standards of living, vibrant entrepreneurs, and innovation were nourished best by free markets);
- security considerations trumped economics (e.g., wars had to be won even at high economic cost; U.S. retaliation against allies in trade disputes [such as those with Japan and South Korea] had to be tempered by its potential impact on alliance relationships);
- economic growth and employment were best fostered by monetary and fiscal policy rather than by industrial policies that "picked winners and losers"; and
- imbalances in trade and capital flows were largely self correcting (foreign exchange rates determined by capital markets and appropriate government fiscal and monetary policy would bring balance into international accounts).

These economic and financial precepts still hold sway, but they are being challenged by an evolving and demanding security and economic environment. The rise of the Asian model of development with mixed market and socialist economies, large state-owned enterprises in China and the Middle East, government intervention into foreign exchange markets, and overt protection of domestic industries from import competition along with chronically large trade deficits and rising national debt of the United States and many European nations have called most of these economic ideas into question. In the globalized and conflicted world of today, the United States may require a more nuanced and direct approach to the economy in order to ensure the long-term security of the nation.

The Role of the Economy in U.S. National Security[5]

For several decades following World War II, providing national security was conceptually simple. The United States maintained the world's preeminent military backed by the world's largest economy and led the Western world by providing power-based leadership, serving as a beacon for democratic values, and maintaining a system of military alliances. The conventional wisdom was that Washington could provide security for the nation primarily by keeping Soviet bombs at bay and communist ideology from creeping across the planet. The economy always was there, both to fund the military and underpin the provision of economic security for households. Policies for economic growth and issues such as unemployment were viewed as domestic problems largely separate from considerations of national security.

As the world begins the second decade of the twenty-first century, the United States still has a preeminent military, large economy, strong alliances, and democratic values. However, the economy has come more into play because the country has long been accustomed to pursuing a

[4] For a discussion of many of these ideas, see Steven Weber and Bruce W. Jentleson, *The End of Arrogance, America in the Global Competition of Ideas* (Cambridge, MA: Harvard University Press, 2010).

[5] Prepared by Dick K. Nanto, Specialist in Industry and Trade, Foreign Affairs, Defense, and Trade Division.

"rich man's" approach to national security strategy. The United States could field an overwhelming fighting force and combine it with economic power and leadership in global affairs to bring to bear far greater resources than any other country against any threat to the nation's security.[6]

The world, however, has changed, and with it so have the challenges of providing U.S. national security. Setting aside questions concerning the size, composition, and capability of the U.S. military, the economy enters into the debate on national security through three overlapping roles. The first is the economy as the source of funds, materiel, and personnel for the military. The second is the economy as a provider of economic security and well-being for Americans. The third is the economy as the foundation for interaction among countries and of building shared or competing interests. This includes the flow of wealth generated by trade that allows countries to build their military and financial power, in particular the steady flow of oil revenues into the Middle East and the large trade surplus by China. It also includes U.S. legitimacy and resource availability as it strives to help other countries develop and to foster human rights and democracy abroad.

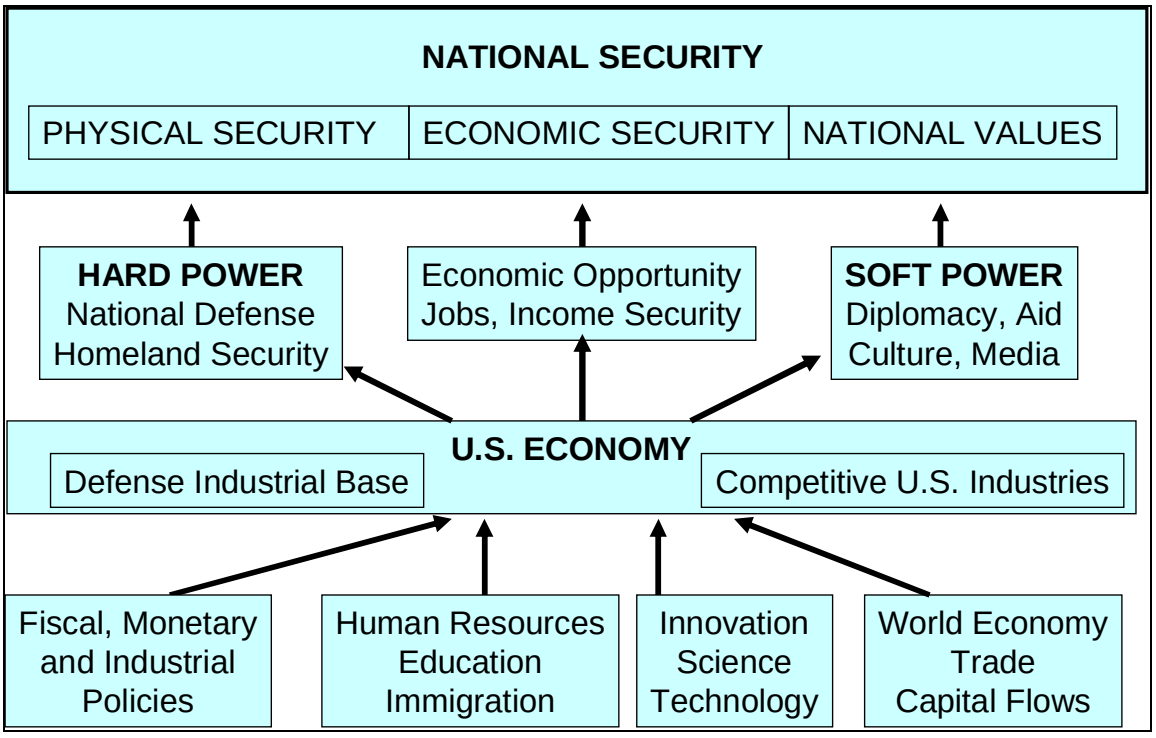
In the United States, the domestic economic policy debate is divided into two major areas. The first centers on how to divide the existing economic pie or how to allocate existing economic resources among competing interests. This debate focuses on the macroeconomy, specifically on the level of the federal budget and its deficit; on the ability of the economy to fund both national defense and social programs and on issues such as savings, investment, and international trade. This deficit issue involves both cost and opportunity cost—both the size of the budget and the alternatives foregone by allocating funds to one use instead of another. It also revolves around whether current costs should be shifted to future generations by borrowing today to cover the federal budget deficit and expecting future taxpayers to repay the resulting debt.

The second issue is how to enlarge the existing pie or how to increase economic growth and productivity in order to generate more resources for all programs. Growth depends both on sufficient aggregate demand by households, businesses, and government and by growing and productive supply. Over the long-term, the growth of supply depends on the microeconomic side of the economy and includes science and technology, education, business methods, natural resource use, and other elements of the economy that generate economic activity and progress.

Figure 1 provides a simplified overview of how the economy enters into national security considerations. National security is sought through a combination of hard power, soft power, and economic opportunity. The economy underpins each of these by providing funding, human and other resources, capital, products, and an appealing culture and economic model. The operation of the economy, in turn, relies on government fiscal, monetary, and industrial policies; on the quality and quantity of human resources; on progress in science and technology; and on the global economy through trade and capital flows.

[6] Andrew F. Krepinevich, Jr., "National Security Strategy in an Era of Growing Challenges and Resource Constraints," *Center for Strategic and Budgetary Assessments Perspective*, June 2010.

Figure 1.The Economy and National Security



Source: Congressional Research Service

Other Roles of the Economy in National Security

The issues in **Figure 1** comprise the focus of this report and are those emphasized in the *2010 National Security Strategy*. The economy and economic tools, however, enter into national security considerations in several other ways. These include economic sanctions, export controls, economic incentives, expeditionary economics, and economic issues as a cause of conflict. They are briefly presented here because of their relevance to current security policy.

Economic incentives or disincentives can be both an adjunct to and substitute for hard power. The use of hard power or the threat of using it by the military often is buttressed by economic tools such as financial and economic sanctions, financial incentives to change the behavior of potential enemies before or during combat, or reestablishing a local economy after combat (expeditionary economics).

Economic and financial sanctions lie between diplomacy and open warfare. They are used either to punish countries for some action or to induce them to change their behavior without resorting to kinetic means (shooting them). The sanctions on Iran and North Korea imposed by the United Nations are two prominent examples of the use of this tool. Sanctions tend to be coercive but not lethal and less likely to trigger open warfare. The efficacy of economic and financial sanctions, such as a trade embargo, however, depends greatly on cooperation by countries near the target country. In the North Korean case, although the trade and financial sanctions are being

implemented by nations, such as South Korea, Japan, and the United States, they cannot work well without the full cooperation of China.[7]

Related to economic sanctions are export controls. Under the Export Administration Act (P.L. 96-72) Congress delegates to the Executive Branch the authority to regulate foreign commerce by controlling exports of sensitive dual-use goods and technologies. These are exports that have both civilian and military applications and that may contribute to the proliferation of nuclear, biological, and chemical weaponry. Congress is considering reauthorizing and rewriting this act. In the policy debates, there are those who advocate that controls be liberalized in order to promote exports. Although exports of particular goods and technologies can adversely affect U.S. national security, some argue that current export controls are too strict and hinder U.S. businesses in competing for sales abroad. They claim that many products under export control are available from other exporting countries and that the resultant loss of market share and jobs can harm the U.S. economy. This, in turn, has a negative effect on U.S. national security. Others, however, argue that further liberalization of export controls may compromise national security goals by putting sensitive products into the hands of potential adversaries. Those in this camp tend to view security concerns as being paramount in the U.S. export control system and that such controls can be an effective method to thwart proliferators, terrorist states, and countries that can threaten U.S. national security interests.[8]

As for the role of financial incentives as a weapon in open combat, armies have long been able to buy loyalties, pay potential enemies not to fight, finance local security forces consisting of unemployed potential insurgents, or offer rewards for the capture or killing of particular enemy leaders. This goes beyond, for example, carrying sacks of money into meetings with tribal sheiks. Such financial incentives can complement direct military campaigns by establishing a reward-based system in which members of the local citizenry view siding with the U.S. military preferable to aiding, or actually becoming, the adversary. For example, the U.S. Marine Corps *Small Wars Manual* stresses the importance of focusing on the social, economic, and political development of the people as well as on destruction.[9] In Iraq, the use of financial incentives and the direct funding of armed Sunni militias as a key factor in the Awakening in Anbar province has been extensively debated.[10]

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[7] See CRS Report R40684, *North Korea's Second Nuclear Test: Implications of U.N. Security Council Resolution 1874*, coordinated by Mary Beth Nikitin and Mark E. Manyin. U.N. sanctions have resulted in several high-profile interdictions of both weapons-related shipments and luxury goods bound for North Korea. The financial sanctions also have made it more difficult for North Korea to operate in international markets. However, China constitutes a large gap in the circle of countries that have approved U.N. Security Council resolutions and are expected to implement them. China has interdicted some shipments of material to North Korea that were related directly to nuclear and ballistic missiles, and it has cancelled a joint industrial project with a North Korean entity on the prohibited list. Still, China takes a minimalist approach to implementing sanctions on North Korea. North Korea continues to use air and land routes through China with little risk of inspection, and luxury goods from China and from other countries through China continue to flow almost unabated to Pyongyang. In addition, North Korea reportedly uses front companies in China to procure items under sanction.

[8] Export controls are addressed in CRS Report RL31832, *The Export Administration Act: Evolution, Provisions, and Debate*, by Ian F. Fergusson.

[9] U.S. Marine Corps, *Small Wars Manual* (New York: Skyhorse Publishing, c2009), 1-1 to 1-31; Max Boot, "A Century of Small Wars Shows They Can be Won," *New York Times Week in Review*, July 6, 2003.

[10] See, for example, John A. McCary, "The Anbar Awakening: An Alliance of Incentives," *The Washington Quarterly*, January 2009, p. 45. Nir Rosen, *The Myth of the Surge*, New America Foundation, Washington, DC, March 6, 2008. American Forces Press Service, "U.S. Military Makes Last Payment to 'Sons of Iraq'," March 12, 2009. Roberto J. González, "Bribing the "Tribes," How Social Scientists Are Helping To Divide And Conquer Iraq," *Z Magazine*, (continued...)

An emerging field of economics addresses how to re-establish a viable economy during or after an invasion or counter-insurgency campaign. This is referred to as expeditionary economics. The chaos and destruction following hot battles present an economic condition ripe for corruption and extortion often with a security, economic, and governmental infrastructure that does not function. Yet during and in the aftermath of war, street markets often thrive, vendors can price gouge, and civilians have to go somewhere for food, water, and necessities. The questions of expeditionary economics include who should set up and govern such markets (particularly if the existing government has been toppled), how to allocate military resources between waging war and providing security for citizens, and eventually how to build a self-sustaining economy. This entails creating jobs, extending basic services to citizens, improving infrastructure, and making progress toward fiscal sustainability.[11] These are particularly difficult if they must be done while a war or counter-insurgency campaign is being conducted—as is the case currently in Afghanistan.

A further role of economics in national security centers on economic factors as a contributor to conflicts both among countries and within national borders. Access to resources, such as oil, diamonds, water, and territory, continues to create tensions and can be a *casus belli* that either may lead to overt hostilities between contesting countries or incite sectional and factional violence within nations. The list of territorial claims in dispute among nations is long, and history is replete with examples of conflicts over diamonds, oil, or other minerals. Even though the sharing of resources, such as river water by India and Pakistan, can necessitate cooperation between countries, it also holds the potential for conflict, although, so far, conflicts over water have been minimal.

Macroeconomic Issues in National Security

At the macroeconomic level, the recession of 2008-2009 in combination with the wars in Iraq and Afghanistan and rising costs for domestic social programs have pushed the U.S. budget deep into deficit. Alarm bells have been sounding from many quarters that the nation is on an unsustainable fiscal path.[12] The issues for Congress include whether to slow the growth of the budget deficit and how to do so without compromising national security, how to achieve a balance between military and civilian expenditures, and whether a "peace dividend" is forthcoming as expenditures for the wars in Iraq and Afghanistan diminish.

Economic growth requires both sufficient demand on the macroeconomic level and increased productivity at the microeconomic level. Microeconomic policies combine with monetary and fiscal policies at the macroeconomic level to attempt to enlarge the overall size of the economy in order to provide the "rising tide that lifts all ships."

(...continued)

December 2008.

[11] Leif Rosenberger, *Expeditionary Economics (EE): From Aid … to Market & Trade*, A presentation featured at the 2010 Topical Symposium: Economic Security: Neglected Dimension of National Security?, National Defense University, Washington, DC, August 25, 2010, http://www.ndu.edu/inss/docUploaded/Economic_Security_ROSENBERGER_PPT.pdf.

[12] See, for example, The White House Office of the Press Secretary, *President Obama Establishes Bipartisan National Commission on Fiscal Responsibility and Reform*, Press Release, Washington, DC, February 18, 2010.

The Federal Deficit and Military Spending[13]

The macroeconomic debate centers on the federal government's budget and its components in general and military expenditures in particular. The expectation is that the current and projected growth in the national debt is not sustainable and, given the slow recovery from the financial crisis, the nation is facing a period of increased austerity that will compel deep cuts in the federal budget. The question is when those cuts should be made and to what extent the Pentagon is to be included or exempt from budget cuts. In August 2010, Admiral Mike Mullen, Chairman of the Joint Chiefs of Staff, stated that the national debt is the single biggest threat to national security.[14]

In theory, the budget for the national security community, including the military and homeland security, should be sufficient to address foreign threats, defend the homeland, prevail in ongoing wars, and help define and advance U.S. interests abroad, including, to a certain extent, projecting U.S. democratic values and human rights.[15] In practice, there is considerable disagreement on how best to address these tasks and the ways and means necessary to carry them out. Without concurrence on the tasks, one can hardly expect a public policy consensus on the optimal size of the military budget and whether the amount being spent is too great or too small. The line of reasoning in the public debate, therefore, tends to be that the military budget is either too large or too small relative to what the country can afford, to past expenditures, to the overall federal budget, to what is spent on other programs, or to what other nations spend. Another line of reasoning is that the military budget also is too large or too small relative to current war fighting needs, to rising threats from non-state actors (such as terrorists) or from states with nuclear weapon programs (such as North Korea and Iran), or for its participation in alleviating the effects of natural disasters (such as earthquakes, tsunamis, infectious diseases, or climate change).

U.S. defense expenditures account for nearly $700 billion in annual budget outlays, including some $400 billion in contracts for goods and services.[16] The impact on U.S. gross domestic product exceeds $1 trillion. U.S. defense expenditures are roughly equal to those of the next 14 countries combined,[17] account for about 20% of the U.S. federal budget, and comprise an estimated 4.9% of U.S. gross domestic product.[18]

Since the debate over military spending is quite extensive, a detailed review of that debate lies beyond the purview of this report. Here we cite a statement from the Secretary of Defense plus two representative studies, one for increasing or maintaining defense expenditures and the other for considering cuts. We also present some relevant economic data.

In 2010, Defense Secretary Robert Gates called for significant cuts in defense spending. He has outlined some details of his plans to save $100 billion over the next five years. This includes new guidelines on how the Pentagon buys goods and services with more fixed price contracts, cutting

[13] Prepared by Dick K. Nanto, Specialist in Industry and Trade, Foreign Affairs, Defense, and Trade Division.

[14] Michael Cheek, "Mullen: National Debt is a Security Threat," *ExecutiveGov*, August 27, 2010.

[15] For the Pentagon's assessment of defense needs, see U.S. Department of Defense, *Quadrennial Defense Review Report*, Washington, DC, February 2010, http://www.defense.gov/qdr/.

[16] For details on the FY2011 defense appropriations bill, see CRS Report R41254, *Defense: FY2011 Authorization and Appropriations*, coordinated by Pat Towell.

[17] Stockholm International Peace Research Institute database.

[18] See CRS Report RL34424, *Trends in Discretionary Spending*, by D. Andrew Austin and Mindy R. Levit.

overhead, gaining efficiency, and closing the Joint Forces Command in Norfolk, Virginia.[19] (For further discussion, see the section below on "Defense Acquisition and Contracting Process.) Secretary Gates, however, has warned against sharp reductions in military spending, arguing that such cuts would be "catastrophic" to national security.[20]

In October 2010, the Heritage Foundation, American Enterprise Institute, and the Foreign Policy Initiative issued a report claiming that the arguments frequently made for Pentagon spending cuts are false and that the Pentagon is actually underfunded given the need for comprehensive military modernization and to prepare fully for the wars of the future. The argument rests primarily on the global reach and expanding responsibilities of the U.S. military, the need to update military hardware, and the fact that spending on entitlements, Social Security, Medicare, and Medicaid, has outstripped that of the Pentagon. The report noted that even if Pentagon spending of about $700 billion were eliminated entirely, it would only halve the fiscal deficit of around $1.3 trillion and hardly put a dent into the $13.6 trillion national debt.[21] The report was followed by an op-ed piece by the heads of the three authoring organizations that argued that a strong military is necessary to keep the peace, and peace is required for global prosperity. Hence, military spending is not a net drain on the U.S. economy.[22]

A counter view of the debate has been put forward by the Sustainable Defense Task Force.[23] On June 11, 2010, it issued a report that concluded that at a time of "growing concern over federal deficits, it is essential that all elements of the federal budget be subjected to careful scrutiny. The Pentagon budget should be no exception." The report presents options that the Task Force argues could save up to $960 billion between 2011 and 2020. The options include recommendations that focus on cutting programs based on unreliable or unproven technologies, missions and capabilities with poor cost-benefit relationships, capabilities that mismatch or over-match current and emerging challenges, and management reforms.[24] Based partly on this report, a group of 57 Members of Congress sent a letter to the Commission on Fiscal Responsibility calling on the Commission to subject military spending to the same rigorous scrutiny that non-military spending was to receive and to do it in a way that would not endanger national security.[25]

On December 1, 2010, the Commission released its proposals to reduce the budget deficit. These proposals included $828 billion in deficit reduction between 2012 and 2015 through cuts in discretionary spending, tax reform, health care cost containment, mandatory savings, Social

[19] Jim Garamone, "Gates Calls for Significant Cuts in Defense Overhead," *American Forces Press Service*, May 7, 2010. Dana Hedgpeth, "Gates starts outlining cuts to save $100 billion for defense," *The Washington Post*, September 14, 2010. Karen Parrish, "Defense Officials Testify on Cost-saving Measures," *American Forces Press Service*, September 28, 2010.

[20] Julian E. Barnes, "Gates Warns Against Defense Cuts," *WSJ Blogs, CEO Council*, November 16, 2010.

[21] The Heritage Foundation, American Enterprise Institute, and the Foreign Policy Initiative, *Defending Defense, Setting the Record Straight on U.S. Military Spending Requirements*, Washington, DC, October 2010.

[22] Arthur C. Books, Edwin J. Feulner, and William Kristol, "Peace Doesn't Keep Itself," *The Wall Street Journal*, October 4, 2010, p. 25.

[23] The Sustainable Defense Task Force was formed in response to a request from Representative Barney Frank (D-MA), working in cooperation with Representative Walter B. Jones (R-NC), Representative Ron Paul (R-TX), and Senator Ron Wyden (D-OR), to explore possible defense budget contributions to deficit reduction efforts that would not compromise the essential security of the United States.

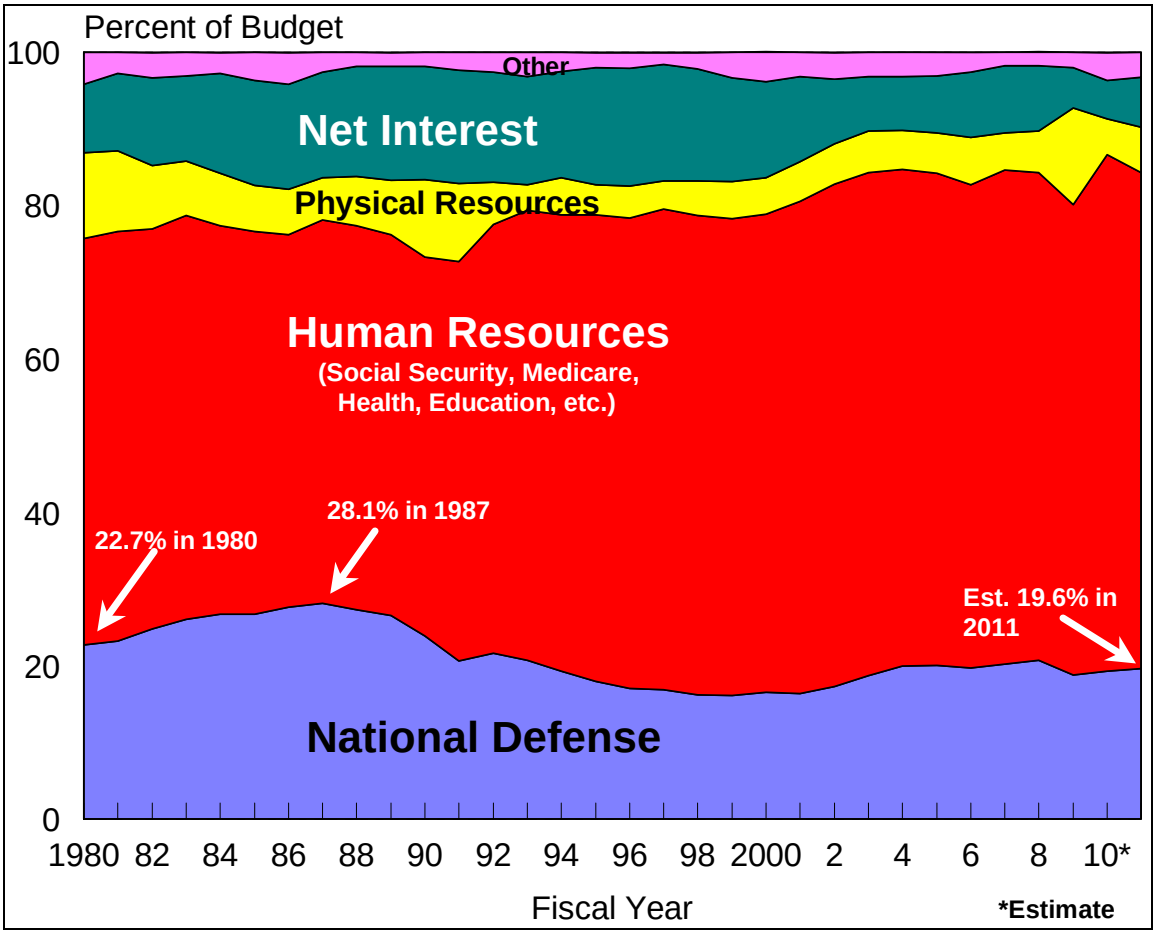
[24] Sustainable Defense Task Force, *Debt, Deficits, and Defense: A Way Forwrd*, Washinton, DC, June 11, 2010, p. v.

[25] Senator Ron Wyden, Rep. Barney Frank, et al., Letter to the National Commission on Fiscal Responsibility and Reform, October 13, 2010. Available at http://www.house.gov/frank/docs/2010/fiscalcommissiondefenseletter.pdf.

Security reform, and changes in the budget process. In particular, the Commission recommended that both security and non-security discretionary spending be cut by an equal percentage. Since security spending is twice as large as non-security discretionary spending, equal percentage cuts imply that the amount of cuts in security spending would be twice as large as that in non-security spending.[26]

As shown in **Figure 2**, since 1980, the share of national defense (excluding Veteran's Affairs) has been declining after a bulge in the late 1980s. From 22% in 1980 it is now around 20%. The figure also demonstrates the argument that defense alone will not solve the budget deficit problem. Human resources command a larger share of the budget (67% in 2010).

Figure 2. Shares of the Federal Budget by Major Function



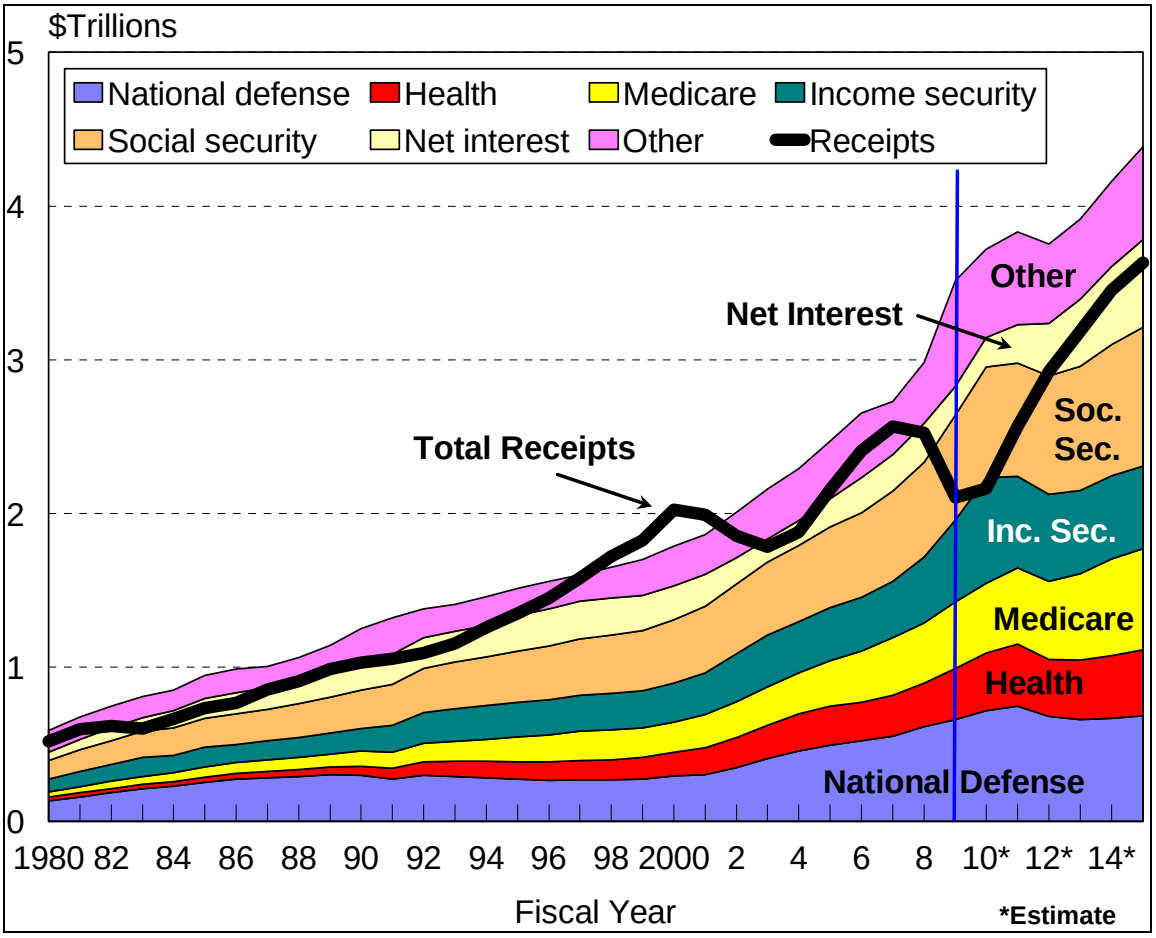
Source: Office of Management and Budget, The White House, "The Budget, Historical Tables, Table 3.1—Outlays by Superfunction and Function: 1940–2015."

Figure 3 shows federal government budget outlays and receipts in trillions of current dollars. This shows the dramatic impact of the global financial crisis on government revenues from 2008 and the gradual recovery expected through 2015. It also shows the steady increase across the

[26] National Commission on Fiscal Responsibility and Reform, *The Moment of Truth*, December 2010. http://www.fiscalcommission.gov/sites/fiscalcommission.gov/files/documents/TheMomentofTruth12_1_2010.pdf

budget that has occurred since 2000 and the futility of trying to cut outlays enough to reduce the budget deficit significantly without considering changes to entitlements (Health [mostly Medicaid], Medicare, Social Security, and Income Security) in addition to the Other[27] category and National Defense. Data in **Figure 3** are not adjusted for inflation to show how actual government outlays have changed relative to government receipts. While total receipts are projected to recover as the economy recovers, government outlays are projected to continue to rise. How much each will change depends greatly on actions by Congress.

Figure 3. Federal Government Budget Outlays and Receipts



Source: Office of Management and Budget, The White House, "The Budget, Historical Tables, Table 3.1—Outlays by Superfunction and Function: 1940–2015" and Table 1.1—Summary Of Receipts, Outlays, and Surpluses or Deficits (−): 1789–2015.

Figure 4 shows the amount of gross federal debt and that held by the public (including the Federal Reserve). The difference between the two amounts is that debt held in government accounts. The total debt is the accumulation of federal budget deficits and surpluses. In 2009, at $11.9 trillion, the gross debt amounted to 83% of U.S. annual gross domestic product. How much

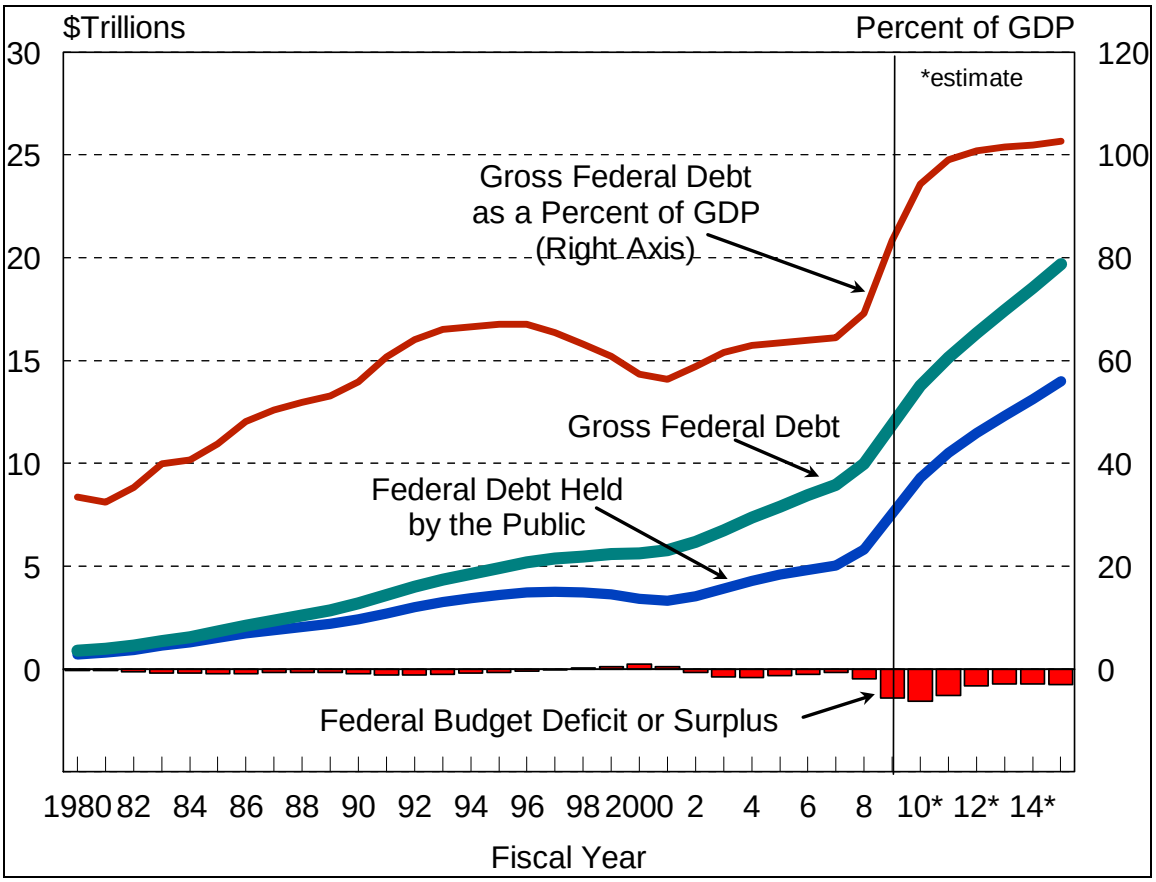
[27] Education, training, employment, social services, international affairs, general science, space and technology, agriculture, administration of justice, general government, environment, and allowances less undistributed offsetting receipts.

of a burden is this on the U.S. economy? Currently, the Treasury has few problems in issuing securities to fund the debt. Treasury securities are in such demand that in late October 2010, in some secondary markets, investors were willing to accept negative interest rates.[28] It is true that China and Japan combined hold about $1.6 trillion in U.S. Treasury securities, and they are being pressured to reduce their trade surpluses and, in the case of China, reduce their buying of dollar assets in order to strengthen the dollar vis-à-vis the renminbi. In the short-term, therefore, the financing of the deficit does not appear to be a problem. Over the medium- to long-term, however, interest payments will take an increasingly larger share of the federal budget, and, as world economies recover, investors may seek higher returns elsewhere. This could cause interest rates to rise throughout the economy and reduce U.S. well-being as Americans are taxed to make interest payments to foreign holders of U.S. debt and as fewer investments are made in U.S. manufacturing and infrastructure because of higher interest costs. The national debt crises in Iceland, Greece, and Ireland, moreover, have raised the specter of countries nearing default on sovereign debts and requiring large rescue packages. Although the situation in the United States is different, at some point markets could become greatly concerned over the large U.S. debt and take actions adverse to U.S. interests. History has shown that when investors decide to dump a country's securities or currency, the drop in confidence is fast and the downward slope steep.[29]

[28] "U.S. Department of the Treasury," *Daily Treasury Yield Curve Rates*, October 2010.

[29] Between 1970 and 2007, there were 63 sovereign debt crises and 208 currency crises in which the value of a country's currency fell by more than 30%. Luc Laeven and Fabian Valencia, *Systemic Banking Crises: A New Database*, International Monetary Fund, IMF Working Paper WP/008/24, Washington, DC, October 2008, p. 6.

Figure 4. U.S. Federal Debt and as a Percent of GDP



Source: Office of Management and Budget, The White House, Budget, Historical Tables, "Table 7.1—Federal Debt At The End Of Year: 1940–2015."

Notes: Gross Federal Debt is Debt Held by the Public (including the Federal Reserve) plus debt held in Government accounts.

Reducing the Federal Budget Deficit[30]

The federal budget is currently on an unsustainable path over the next several decades. This is primarily due to the impending retirement of baby boomers, rising life expectancy, and the increasing cost of medical care. Under current policies, federal debt, as a consequence of long-term and persistent budget deficits, is projected to grow to levels that may threaten the government's ability to meet its security and non-security obligations. As part of the *2010 National Security Strategy*, the President calls for achieving long-term fiscal sustainability. To accomplish this goal, he calls for creating a responsible federal budget that reduces the budget deficit by making the best use of taxpayer dollars and working with global partners and institutions.[31]

[30] Prepared by Mindy R. Levit, Analyst in Public Finance, Government and Finance Division.

[31] *2010 National Security Strategy*, p. 34.

The Administration initially proposed to work toward reducing the deficit using a multi-pronged approach. Components of this approach include placing a three-year freeze (in nominal dollar terms) on non-security discretionary spending, implementing a new fee on the largest financial services companies to recoup taxpayer losses for the Troubled Asset Relief Program (TARP), and eliminating "tax loopholes and unnecessary subsidies."[32] The Administration also created the above-mentioned bipartisan fiscal commission, which is tasked with providing recommendations to generate additional budgetary savings and further improve the budget outlook in the medium-term.[33] Together, these proposals, also included in the President's FY2011 Budget, are aimed at cutting the deficit in half by the end of the President's current term.

The current economic climate poses challenges to achieving the deficit reduction goals of the NSS. Numerous actions taken by the federal government in FY2008 and FY2009 have had major effects on the budget deficit, including two major economic stimulus measures and a variety of programs in response to the financial turmoil.[34] The impact of this legislation, along with health care reform and any additional legislation enacted, will affect deficit levels in FY2010 and beyond. The final costs of federal responses to the nation's economic turmoil will also depend on the pace of economic recovery, how well firms with federal credit guarantees weather future financial shocks, and government losses or gains on its asset purchases.

Most budget analysts agree that deficit reduction is key over the long-term in order to stabilize the economy and establish sound fiscal policy. However, the question over the short- to medium-term is how to ensure the continuation of economic recovery, while, at the same time, providing indications that the Administration and Congress are committed to improving the long-term budget outlook. If a more sustainable fiscal path is not achieved, high budget deficits and the resulting high levels of federal debt could limit the government's flexibility in meeting its obligations or in responding to the emerging national needs. Ultimately, failing to take action to reduce the projected growth in the debt could potentially lead to future insolvency or government default.

Traditional Microeconomic Issues in National Security

Microeconomics deals with individuals, households, businesses, and industrial sectors within the macroeconomy. In addition to providing resources for the defense community needed to provide physical security, the economy, itself, provides the means for Americans to attain economic security. Such economic security in the context of national security has received stronger emphasis in recent years.

[32] For more information on the President's proposal to freeze non-security discretionary spending, see CRS Report R41174, *Impact on the Federal Budget of Freezing Non-Security Discretionary Spending*, by Mindy R. Levit.

[33] By executive order, President Obama created the 18-member commission on February 18, 2010. The commission comprises 12 sitting Members of Congress, appointed by Senate and House leaders, and 6 additional members appointed by the President. The recommendations of the commission were required to be submitted to the President by December 1, 2010, with 14 out of 18 votes needed to report recommendations. President of the United States, *Executive Order 13531—National Commission on Fiscal Responsibility and Reform*, February 18, 2010, available at http://www.whitehouse.gov/the-press-office/executive-order-national-commission-fiscal-responsibility-and-reform. See also http://www.fiscalcommission.gov/.

[34] For more information, see CRS Report R41073, *Government Interventions in Response to Financial Turmoil*, by Baird Webel and Marc Labonte.

Economic security is the condition of having stable income, employment, or entrepreneurial support to maintain what one considers to be an acceptable standard of living. As is the case with physical security, economic security can be an elusive concept. It is of most concern, perhaps, in its absence: during recessions, periods of high unemployment and bankruptcy, and when there is a gap between economic expectations and reality. When economic times are difficult, the tradeoff between physical and economic security comes into clearer focus. Economic security depends greatly upon (1) an economic growth rate sufficient to keep the rate of unemployment low and provide opportunities for entrepreneurs, (2) U.S. industries able to compete in international markets, and (3) U.S. leadership in science, technology, and innovation.

Historically, three microeconomic issues related to defense spending have generated considerable political debate. The first is the sufficiency of the dedicated defense industry or what is often called the defense industrial and technological base. This includes whether sufficient civilian industrial capacity and relevant technology exists to support military procurement (particularly if there is a surge in needs or a shift in security-related technology that necessitates new capabilities such as in cyber warfare). The second deals with the Pentagon's procurement and contracting process and how to ensure the integrity of the defense supply chain. The third deals with how defense dollars are spent in local communities and the level of spending that supports jobs in specific areas—even if the expenditures are for products or roles deemed unnecessary by the Pentagon (e.g. bases identified for closure or continued procurement of certain big-ticket military hardware items).

In the following section, these three microeconomic issues are addressed. This is followed by a section dealing with microeconomic factors that contribute to economic growth. The final section deals with soft power issues: the international economy and foreign economic assistance, their role in U.S. national security, and relevant policy issues. Each of these sections contain brief overviews and provide some context and analysis. They are intended to serve both as a guide to how the issues relate to national security and to the CRS analysts and CRS reports that deal with the issues in greater detail.

The Defense Industrial Base and National Security

A post-World War II creation, the civilian defense industry maintains a reciprocal dependency relationship with the security community. The defense and intelligence community depend on the civilian defense industry to provide them with cost-effective and technologically sophisticated arms and equipment, while the industry depends on the government for contracts. Some current issues deal with dual-use technology, globalization, integrity of the supply chain (particularly for parts), the maintenance of unused industrial capacity unique to the military, mergers and acquisitions among suppliers, the availability of skilled technical workers, and the influence of the industry in security policy.

The Dedicated Defense Industry in the United States[35]

General perceptions and presidential cautions notwithstanding,[36] the "military-industrial complex" familiar to the casual reader of the *Wall Street Journal* is a relatively recent creation that took shape during the mid-20th century.

[35] Prepared by Daniel H. Else, Specialist in National Defense, Foreign Affairs, Defense, and Trade Division.

[36] See reference to President Dwight D. Eisenhower's farewell address at the end of this section.

For the first three quarters of the nation's history, its defense industry was wholly owned by the federal government, embodied in a number of federal arsenals operated by the War Department and government shipyards within the Navy Department. In the preindustrial United States, with small standing militaries and rare threats to the national defense, the output of this "arsenal system," augmented when necessary by purchases from foreign suppliers and contracts with private gunsmiths and boat builders, proved adequate to meet the nation's defense needs.

The advent of industrialization and mass mobilization for war, presaged by the nation's experience in the Civil War, initiated a gradual change in how the United States approached the task of providing itself with weapons of war. Throughout the latter half of the 19th century, neither the Army's Ordnance Department nor the Navy's Bureau of Construction and Repair could reasonably be considered leaders in the introduction of innovative military technologies. Outside reformers, such as the President or congressional committees, often had to push both the military departments and private industry to create a significant domestic war production capacity. Even so, the United States entered the 20th century with industrialization efforts focused on a rapidly expanding commercial market. World-class military hardware, when deemed necessary, was procured abroad from arms makers in the United Kingdom, France, and Germany.

The American entry into World War I in 1917 saw unprecedented mobilization of the industry and manpower for the national defense. In many respects, though, the experience provided more lessons in how not to mobilize industry than how to do so well. The sudden upsurge of material needs in the Army and Navy overwhelmed the existing military procurement bureaucracies and the government's production facilities. Private industries pursuing suddenly lucrative production contracts flooded the nation's transportation system and led to a meltdown of the Army's distribution network. The popular image of the American doughboy using French and British weapons in the trenches and flying French, Italian, and British aircraft can be seen as much a result of the inadequacy of Army procurement and distribution practices than the technical superiority of European industries.[37]

The lessons of the First World War were not lost on those who had to plan for a potential American involvement in World War II twenty-three years later. For the nation's industry, the impact of the Great War had been mixed. Though military contracts had proven profitable, procurement had been overestimated and uncoordinated, the level of technology incorporated in weapon designs had been low relative to European arms, and type of contracts used had left liability for early cancellation largely with the companies. The abrupt declaration of the Armistice in November 1918 had caught many unawares, led to the abrupt termination of many contracts, and precipitated thousands of court claims against the government.

Between the world wars, defense appropriations plummeted to relatively miniscule levels. Industry demobilized, turning again to satisfying civilian demand, and the needs of the Army and Navy could once again be satisfied largely by government arsenals and shipyards.

Paradoxically, the Great Depression helped to set the stage for the creation of a dedicated defense industry. Military appropriations fell further—to the point that Congress authorized new Navy construction one ship at a time—and the funds that were made available went to basic

[37] By the end of 1917, the long-serving uniformed chiefs of both the Army's Ordnance (procurement) and Quartermaster (transportation) Departments had been sacked.

procurement, not innovative technology development.[38] The rapid rearmament of Europe in the mid-1930s and the large-scale Japanese assault on China provoked little response from the U.S. government until the end of the decade, when Congress began increasing defense appropriations and the War Department undertook to place as many procurement contracts with as wide a supplier base as possible.

Even with a rapidly expanding domestic war materials market and major armed conflict raging in Europe and Asia, private enterprise proved reluctant to invest in the war-specific productive capacity needed to meet the potential demand. Instead, manufacturers remembered the industrial dislocations of 1918 and 1919 and preferred to focus on a slowly recovering, but more reliable, civilian market. Nevertheless, with both the Administration and Congress preparing for a potential military conflict of unprecedented scale, industry had little choice but to negotiate plans for potential war mobilization. The methods upon which the government agencies and corporations eventually settled minimized corporate risk while retaining flexibility to meet unanticipated demands: emphasis on subcontracting, temporary conversion of existing civilian production capacity to war manufacturing, expansion of existing private plants, and construction of government-financed, government-owned facilities that would be staffed and operated by private corporations. While the war effort followed all four paths, the government-financed expansion of private factories and the government construction of contractor-operated facilities (the GOCOs) endured to form the core of the post-war military-industrial complex.

When the storm broke at the end of 1941 and the United States entered the conflict, the vastly expanded production needs of the war again overwhelmed the production capacity of the government's arsenal system. This opened war material development and production to a number of new, primarily civilian, players. Prominent among them, the Office of Scientific Research and Development, independent of both War and Navy Departments, contracted for military research and production of innovative weapons such as the proximity fuse, airborne radar, and the bazooka. Congress encouraged industrial development by liberalizing private corporate financing through accelerated asset depreciation and allowed the government to guarantee corporate debt. The Defense Plant Corporation, a government corporation, purchased or built production facilities operated by contractors. The Office of Production Management—later the War Production Board—prioritized war material deliveries and controlled nonessential (nondefense) production.

As the war neared its conclusion, procurement wound down, contracts were terminated, temporary civilian agencies disbanded, and government controls on labor, finance, and industry were eased. At war's end, both armed services and industry demobilized. Defense appropriations plummeted, and privately owned manufacturing capacity shifted back to civilian production, straining to satisfy consumer demand held in check by a decade of depression and four years of war.

But the U.S. could not return to its prewar posture. The nation's position in world politics and economics had changed fundamentally by 1945, having assumed worldwide responsibilities in defense—as demonstrated by the Berlin Crisis, the rise of Communist governments in Europe and Asia, and in an unexpected war in Korea. The problem, as seen by both the Truman and the

[38] In 1934, allegations of misconduct in the award of airmail contracts to commercial air services prompted President Franklin Roosevelt to cancel all outstanding contracts and ordered the Army Air Corps to take on the responsibility. The military aircraft and crews proved unable to fly safely in poor weather, forcing the Post Office to resume using civilian operators after only a few months.

Eisenhower administrations, was to create a global defense at a price that would not cripple the domestic economy. The solution that both presidents pursued was technology as a substitute for high-cost manpower. U.S., indeed Western, defense would rely on a strategy of containing the influence of the enemy, the Soviet Union, within a defined geographic area.

The military component of this containment strategy would not take the form of large, expensive standing armies ringing the communist world. Rather, the threat of Soviet-inspired expansion would be met with the threat of immediate, devastating attack with atomic, later thermonuclear, weapons delivered by new aircraft, missiles, ships, and submarines.

The ensuing competition among the various military services to establish claims on this unprecedented approach to high-technology warfare encouraged the rapid rise of something not seen before, a peacetime civilian sector of industry dedicated to providing the Army, Navy, Air Force, and Marine Corps with high-quality, cutting edge military systems. The focus on a nuclear first line of defense combined with strategic alliances prompted a spirited competition among the military services as each laid claim to some portion of the nuclear mission. The late 1940s and 1950s saw the creation of the Air Force's Strategic Air Command and development of the intercontinental bombers—later missiles—able to carry nuclear bombs and warheads to any point in the Soviet Union. Likewise, the Navy doubled the threat to Soviet targets, buying nuclear-capable aircraft and missiles and the large ships and submarines able to carry them close to the Soviet border. Even the Army staked a claim, creating a doctrine for fighting a contaminated ground war that would employ smaller nuclear weapons. Referred to as the Pentomic Army, these atomic soldiers needed both weapons and specialized equipment to operate on the nuclear battlefield.

The desire to minimize manpower and cost and maximize the effectiveness of firepower helped to create an expectation that each new military system would perform significantly better than the one it succeeded. This expectation eventually came to be shared by the military that conceived of, managed, and used the systems, the legislators who paid for them, and the private corporations that actually built them. Two important factors reinforced that expectation—the enduring presence of the Soviet Union, a powerful, sophisticated peer adversary that could project its presence globally, and the continued strengthening and consolidation of budgeting and program control in the Office of the Secretary of Defense.

For the next half-century, each military department would have a well-defined protagonist against whom it could plan a war, and each would be competing within a centralized budgeting process for the wherewithal to fight it. As a result, the military departments demanded ever more capable and sophisticated weapons and supporting systems, and private industry strove to meet the needs of "the customer."

As the Cold War continued, some companies, such as Lockheed, General Dynamics, Raytheon, and others, devoted significant portions of their activities to defense projects. A number of corporations came to specialize in serving particular defense niches. Grumman Aircraft Engineering Corporation (later Grumman Aerospace Corporation), for example, became known as the premier builder of fixed wing aircraft for the Navy. Thus, President Dwight D. Eisenhower could be moved to devote a significant portion of his 10-minute farewell address to the nation on January 17, 1961 to this new phenomenon.

> Until the latest of our world conflicts, the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer risk emergency improvisation of national defense; we have been

> compelled to create a permanent armaments industry of vast proportions. Added to this, three and a half million men and women are directly engaged in the defense establishment. We annually spend on military security more than the net income of all United States corporations.
>
> This conjunction of an immense military establishment and a large arms industry is new in the American experience. The total influence—economic, political, even spiritual—is felt in every city, every state house, every office of the Federal government. We recognize the imperative need for this development. Yet we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society.
>
> In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.
>
> We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing for granted. Only an alert and knowledgeable citizenry can compel the proper meshing of huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together.[39]

Defense Acquisition and Contracting Processes[40]

As part of the 2010 National Security Strategy, the Obama Administration expressed concern over the perceived lack of management and oversight over Department of Defense procurement spending, an amount which "accounts for approximately 70% of all Federal procurement spending"[41] and has stated its intention to reform "Federal contracting and strengthen contracting practices and management oversight with a goal of saving Federal agencies $40 billion dollars a year."[42]

The Secretary of Defense's Approach to DOD Business Operations Reform

Facing two wars, a large defense budget, spiraling contracting costs, and a decline in the breadth and depth of the civilian, organic defense workforce, Secretary of Defense Robert M. Gates has made several announcements that are intended to fundamentally change DOD operations. In April 2009 the Secretary announced his intention to embark on a plan to rebalance the workforce by reducing the number of contractors and the percentage of contracted services, and, at the same time, increase the size of the organic defense workforce.[43]

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[39] Farewell address by President Dwight D. Eisenhower, January 17, 1961; Final TV Talk 1/17/61 (1), Box 38, Speech Series, Papers of Dwight D. Eisenhower as President, 1953-61, Eisenhower Library; National Archives and Records Administration.

[40] Prepared by Valerie Grasso, Specialist in Defense Acquisition, Foreign Affairs, Defense, and Trade Division.

[41] *2010 National Security Strategy*, *op cit*., p. 34.

[42] Ibid, p. 35.

[43] Defense Budget Recommendation Statement, As Prepared for Delivery by Secretary of Defense Robert M. Gates, Arlington, VA, Monday, April 06, 2009, available at http://www.defenselink.mil/speeches/speech.aspx?speechid=1341.

On August 9, 2010, Secretary Gates unveiled a direct and significant push to change the strategic direction of the Department and improve the Department's performance, oversight, and control of critical services.[44] To accomplish this, he has proposed a reorganization and restructuring of the Department's business operations by taking the following actions: (1) shifting overhead costs to force structure and future modernization accounts, (2) inviting outside experts to suggest ways the Department can be more efficient, (3) conducting front end assessments to inform the FY2012 budget request, and (4) reducing excess and duplication across the defense enterprise.[45]

To achieve his objectives, the Secretary has announced a series of targeted, budget-cutting initiatives designed to "reduce duplication, overhead and excess, and instill a culture of savings and restraint across DOD."[46] The impact of these initiatives could be significant and include (but are not limited to) the following reductions.[47]

- Reducing funding for service support contractors by 10% a year for each of the next three years, and no longer automatically replacing departing contractors with full-time personnel.

- Freezing the number of Office of the Secretary of Defense, Defense Agency and combatant command positions at the FY2010 levels for the next three years. Other than changes planned for FY2010, no more full-time positions in these organizations will be created after this fiscal year to replace contractors. Some exceptions can be made for critical areas such as the acquisition workforce.

- Freezing at FY2010 levels the number of senior positions—civilian senior executive and active General and Flag Officers. A senior task force is to assess the number and location of senior positions, as well as the overhead and accoutrements that go with them, with results due by November 1, 2010. Gates expected the task force to recommend cutting at least 50 General and Flag-officer positions and 150 senior civilian executive positions over the next two years.

- Authorizing each of the military departments to consider consolidation or closure of excess bases and other facilities where appropriate.

- Freezing the overall number of DoD-required oversight reports. Immediately cutting the dollars allocated to advisory studies by 25%, and henceforth, publishing the actual cost of preparing each report and study prepared by DoD. Conducting a comprehensive review of all oversight reports, and using the results to reduce the volume generated internally.

- Directing an immediate 10% reduction in funding for intelligence advisory and assistance contracts and freezing the number of senior executive positions in defense intelligence organizations. Conducting a zero-based review of the department's intelligence missions, organizations, relationships, and contracts.

[44] Garamone, Jim, "Gates Puts Meat on Bones of Department Efficiencies Initiative," *American Forces Press Service*, August 9, 2010.

[45] U.S. Department of Defense. *Department of Defense Efficiency Initiatives, Memorandum for Secretaries of the Military Departments.* Robert M. Gates, August 16, 2010.

[46] Ibid, p. 1.

[47] For the complete list of initiatives, see U.S. Department of Defense. *Department of Defense Efficiency Initiatives. Memorandum for Secretaries of the Military Departments.* Robert M. Gates, August 16, 2010. The complete list of proposed efficiency initiatives can be viewed at http://www.defense.gov/home/features/2010/0810_effinit/.

- Eliminating organizations that perform duplicative functions or have outlived their original purpose, including the Office of the Assistant Secretary of Defense for Networks and Information Integration, also known as NII, and organization within the Joint Staff's J6 Command, Control, Communications and Computer Systems, the Business Transformation Agency, and the Joint Forces Command.

Analysis[48]

The NSS objective for procurement reform reflects the view that the federal government has to become more fiscally accountable to its citizens, and that the policies of past Administrations—through outsourcing, privatization, competitive sourcing, and managed competitions through Office of Management and Budget (OMB) Circular A-76—have largely resulted in an increased presence and use of private sector contractors. In spite of the increased use of contractors, the federal government has not to date produced a complete and detailed analysis of the costs and footprint of the contractor workforce or the range of services that contractors perform for the federal government. This NSS objective also reflects the Obama Administration's stated view that DOD, like the rest of the federal government, should carefully identify ways to reduce its overhead, eliminate wasteful and duplicative programs, and pursue ways to economize and increase the efficiency of its business operations.

The Secretary's planned budget reductions as described here represent a significant attempt to restructure and reduce DOD business operations. These reductions would affect every aspect of DOD operations and particularly highlight those contracted services that have been the subject of public scrutiny largely because the nature of the contracts make transparency difficult—such as the 25% reductions in funding for advisory studies, studies conducted by existing boards and commissions, and a 10% reduction in funding for intelligence advisory and assistance contractors.

It is difficult to fully evaluate the efficacy of the Secretary's plan given that the plan was not accompanied with specifics on how DOD arrived at these budgeting and programmatic decisions. The impact of such reductions on the efficiency and effectiveness of DOD business operations remains uncertain. Whether these reductions will achieve real budget savings or improve DOD business operations is a question that will be raised by both proponents and opponents.

Eliminating DOD agencies and components will, in all likelihood, result in a reduction of personnel as some positions and possibly functions will be eliminated. However, critical and inherently governmental functions will need to shift to other DOD agencies and components. The extent to which this happens will affect the size of the reductions in the defense budget. The 10% reduction for all service support contractors would reduce the size of the contractor workforce and might shed light on the breadth and scope of services actually rendered by the contractor workforce. Without a clear sense of the long-term costs of all DOD personnel—be they contractor, civilian, or uniformed military—as well as which personnel would be most affected by the proposed reductions—the question remains as to the impact of the Secretary's proposed reductions on the long-term personnel costs and on the future performance of the Department of Defense.

Given the challenges facing the Department, these proposed reductions could (and may likely) serve as a starting point to consider deeper cuts and perhaps help the Department to prepare itself

[48] Prepared by Valerie Grasso, Specialist in Defense Acquisition, Foreign Affairs, Defense, and Trade Division.

for additional restructuring and reshaping. Many of the initiatives proposed will take months, if not years, to develop and will likely take longer to begin to harvest the benefits and savings.

Base Closures and the Local Impact of Defense Spending[49]

Even though the primary purpose of the U.S. defense establishment is to provide security from foreign threats, expenditures both for procurement and by service personnel, themselves, have a significant impact on many local communities. When bases are closed or procurement contracts or programs are cancelled, the employment and expenditure multiplier effects often can be large and usually generate considerable political pressures.

In September 2005, a Base Realignment and Closure (BRAC) Commission submitted its final report to the Administration and implementation is proceeding.[50] Congress can override the recommendations by disapproving the list of closures as a whole, but the President can veto the action.

The issue with base closures and loss of defense contracts often has less to do with protecting the nation than with defending the economic security of those affected. What can be said is that the economic impact, in general, is proportional to the size of the facility or contract relative to the size and resources of the local economy, the types of workers involved (whether they have the skills to find jobs in other industries), and whether the loss is primarily of household expenditures by military personnel (groceries, gasoline, rents, etc.) or of contracts needed to maintain capital- and skill-intensive manufacturing facilities (e.g. shipbuilding or aircraft production).

Economic impact studies of such actions often rely on multiplier effects. These are defined either as the number of jobs in the community generated by each job paid for by the military or by how much economic activity is generated in the local community by a dollar spent by the military. For the employment multiplier, the concept is that each direct job created generates indirect employment by those industries that support that job holder. For the income multiplier, the concept is that a dollar spent in the local community is then re-spent as purchases are made through the relevant supply chain. The more of each dollar that is spent (not saved) at each round and the less that is spent on imports the higher the multiplier effect. These multipliers can range from less than 1 to as much as 2.5 or 3.0 depending on the nature of the military expenditure, and the economic conditions in the community. When considering a base closure or loss of large procurement program, the multiplier also depends on the resiliency of the workforce and the length of the period of adjustment.[51] The more quickly the bases are converted to civilian use, the higher the value of underlying real estate, the lower the clean-up costs, and the more vibrant the local and national economy, the lower the impact of the base closure on the local communities.

[49] Prepared by Dick K. Nanto, Specialist in Industry and Trade, Foreign Affairs, Defense, and Trade Division.

[50] For information on BRAC, see CRS Report RS22291, *Military Base Closures: Highlights of the 2005 BRAC Commission Report and Its Additional Proposed Legislation*, by Daniel H. Else and David E. Lockwood. For information on Ft. Belvior, VA, and other effects on the region, see Center for Regional Economic Competitiveness and Center for Regional Analysis, *Assessing the Impact of BRAC in the Northern Virginia Workforce Investment Board Region*, Executive Summary, July 21, 2007; and Jim Turkel, *Fort Belvoir BRAC*, U.S. Army Corps of Engineers, February 2, 2009, Power Point Presentation.

[51] For further information, see CRS Report RS22147, *Military Base Closures: Socioeconomic Impacts*, by Tadlock Cowan and Oscar R. Gonzales.

For communities that are adversely affected by a base closure or loss of a large procurement contract or program, the adjustment period for securing new jobs can be difficult and is normally longer than four years, with some communities requiring up to 20 years.[52] Base realignments or program cuts also have a fiscal effect on local governments as they deal with changes in their revenue base and issues such as a mismatch between existing infrastructure (particularly roads and schools) and the needs of the military. A Government Accountability Office study of 73 base closures over the 1988 to 2003 period found that the percent of jobs recovered by local communities ranged from 0% to more than 1,000%.[53]

The Office of Economic Adjustment serves as the Defense Department's primary source for assisting communities that are adversely affected by changes in Defense programs. The Office offers technical and financial assistance and coordinates the involvement of other federal agencies.[54]

Economic Growth and Broad Conceptions of Security

A microeconomic issue that equally falls into the macroeconomic realm is the rate of economic growth of the whole economy. The rate of economic growth stems from both demand and supply. On the demand side are macroeconomic policies that affect total household consumption, business investment, government spending, and the balance of trade. The above discussion of the federal budget and total military expenditures is part of the demand side of the economic debate. On the supply side are microeconomic policies that affect labor productivity, innovation, and the efficient use of labor and capital. The government policies that affect the supply side of the economy range from taxes to education, to research and development, and to immigration. In the following analysis, we exclude discussion of tax policy, an important component of U.S. industrial competitiveness and entrepreneurship but beyond the purview of this report.[55] Instead, we focus on those items that have been addressed in the *2010 National Security Strategy of the United States* and tend to be more directly related to U.S. national security.

On a global basis, the importance of economic growth to national security was demonstrated in the 2008-2009 global financial crisis. In February 2009, Director of National Intelligence Dennis C. Blair stated in a congressional hearing that instability in countries around the world caused by the current global economic crisis, rather than terrorism, was the primary near-term security threat to the United States. The slowdown in growth was causing instability in governments, and he feared that U.S. allies and friends would not be able to fully meet their defense and humanitarian obligations. He also saw the prospect of increased refugee flows and a questioning of American

[52] Department of Defense, Office of Economic Adjustment, *Economic Transition of BRAC Sites, Major Base Closure and Realignments 1988 -2005*, Washington, DC, December 2006, p. 3. The spreadsheets with updated data are available at http://140.185.104.240/index.php?option=com_content&view=article&id=220&template=modal.

[53] U.S. Government Accountability Office, *Military Base Closures, Updated Status of Prior Base Realignments and Closures*, GAO-05-138, January 5, 2005, pp. 35-37.

[54] The Office of Economic Adjustment's home page is at http://www.oea.gov/.

[55] For an analysis of business taxes, see CRS Report R41117, *Business Tax Issues in 2010*, by Donald J. Marples and Mark P. Keightley.

economic and financial leadership in the world.[56] While this report focuses on the sources of U.S. economic growth, these factors operate to promote growth in other countries as well.

Human Capital

Economic growth is highly dependent on increasing the productivity of workers. In this era of a knowledge-based economy, this increase in productivity depends as much on education and training as in traditional investments in hardware and equipment. Knowledge is not only a product that can be bought and sold, but it is a tool that can be used to produce economic and security benefits. It depends greatly on the ability of workers to generate and use knowledge in the production process, which, in turn, depends on the skill and education of workers.

Education also plays into national security concerns through the ability of Americans to understand foreign countries and cultures and to speak certain foreign languages, such as Arabic and Chinese. In addition, technical and engineering education provides the United States with workers who can provide direct security benefits, such as technological innovation that keeps the military at the forefront of technological capabilities and engineering skill that provides advanced weaponry as well as a secure infrastructure.

U.S. Student Performance

In the Organisation for Economic Co-operation and Development's annual survey of the knowledge and skills of 15-year-old students in 70 countries, the United States ranked 14th out of 34 OECD countries for reading skills, 17th for science, and 25th for mathematics. China was ranked ahead of the United States in all three categories.[57]

College, K-12, and Early Childhood Education[58]

The *2010 National Security Strategy* proposes that the United States would benefit from improving education at all levels so that American children can succeed in a global economy. The NSS supports a comprehensive, developmental approach to education, which includes early childhood education, elementary and secondary education, postsecondary education, and job training. The NSS states that one major goal of improving education is to restore U.S. leadership in higher education by having the highest proportion of college graduates in the world by 2020.

Context

The federal government supports early childhood care and general education programs from birth through adulthood. Major congressional efforts to enact legislation and support education at all levels took place in the 1960s.[59] To date, Congress has enacted legislation that supports early

[56] Walter Pincus and Joby Warrick, "Financial Crisis Called Top Security Threat to U.S.," *Washington Post*, February 13, 2009, Internet edition.

[57] Organisation for Economic Co-operation and Development, *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I)*, Comparing Countries' and Economies' Performance, July 10, 2010, http://www.oecd.org/document/53/0,3343,en_32252351_46584327_46584821_1_1_1_1,00.html.

[58] Prepared by Erin Lomax, Analyst in Education Policy, Domestic Social Policy Division.

[59] Legislation supporting some education programs (e.g., early childhood programs, vocational education, and some job training programs) was enacted before the 1960s. The expansion of federal support for these programs generally occurred in the 1960s.

childhood education, elementary and secondary education, career and technical education, postsecondary education, and adult education and job training. The remainder of this section outlines the legislative context of support for education from early childhood education to adult education and job training programs.

Federal support for early childhood programs comes in many forms, ranging from grant programs to tax provisions. Some programs serve as specifically dedicated funding sources for child care services or education programs. For other programs, child care is just one of many purposes for which funds may be used.[60] Until recently, support for early childhood care and education programs have been separate from general education programs for older children, youth, and adults. For example, the largest source of federal funding for comprehensive early childhood education is the Head Start program,[61] which is administered by Health and Human Services. A recent congressional hearing, however, indicated some interest in incorporating early childhood education programs into traditional elementary schools.[62]

The primary legislation supporting elementary and secondary education is the Elementary and Secondary Education Act (ESEA), most recently amended by the No Child Left Behind Act of 2001 (NCLB; P.L. 107-110).[63] Congress has employed a variety of strategies to support elementary and secondary education, including (1) compensatory education programs, in which federal funding is provided to support the education of disadvantaged students; (2) civil rights statutes, which prohibit discrimination among students according to criteria such as race, color, national origin, or sex, and which require that a free appropriate public education be made available to students with disabilities; (3) standards-based reforms, under which recipients of federal education funding are required to implement challenging educational standards and assessments; and (4) market-based reforms, which permit parents to signal their educational preferences by choosing their children's schools.

The Carl D. Perkins Vocational and Technical Education Act of 1998 (Perkins Act; P.L. 105-332) is the main source of specific federal funding for vocational education.[64] Vocational education programs provide occupational preparation mostly at the high school level and at less-than-four-year postsecondary institutions, such as community colleges. At the high school level, vocational courses can be classified into three groups: (1) consumer and homemaking education, (2) general labor market preparation providing general skills that are not related to a particular occupational field, and (3) specific labor market preparation in occupational fields. At the postsecondary level, community colleges provide vocational courses that are more broad and can cover areas such as computer programming and engineering technology.

[60] For more information on early childhood care and education programs, see CRS Report R40212, *Early Childhood Care and Education Programs: Background and Funding*, by Karen E. Lynch and Gail McCallion.

[61] The Head Start program is authorized by P.L. 110-134.

[62] U.S. Congress, Senate Committee on Health, Education, Labor, and Pensions, *ESEA Reauthorization: Early Childhood Education*, 111th Cong., 2nd sess., May 25, 2010.

[63] Other major laws relevant to elementary and secondary education include the Individuals with Disabilities Education Act (IDEA; P.L. 108-446), and Section 504 of the Rehabilitation Act (P.L. 93-112). For more information on the ESEA, see CRS Report RL33960, *The Elementary and Secondary Education Act, as Amended by the No Child Left Behind Act: A Primer*, by Rebecca R. Skinner.

[64] Considerably more federal funding is provided indirectly for postsecondary vocational education through loans and grants to students attending community colleges and proprietary schools who may enroll in vocational programs. For more information on the Perkins Act, see CRS Report RL31747, *The Carl D. Perkins Vocational and Technical Education Act of 1998: Background and Implementation*, by Rebecca R. Skinner.

The largest federal postsecondary education programs are the federal student aid programs authorized under the Higher Education Act (HEA), federal tax benefits administered through the Internal Revenue Code (IRC), and veterans' education assistance programs.[65] The federal government also supports postsecondary education through a number of targeted programs. For example, several HEA programs authorize the provision of direct assistance to institutions of higher education that serve large proportions of low-income individuals and individuals from minority populations. Other HEA programs support the provision of services and incentives to help disadvantaged students increase their secondary or postsecondary educational attainment. The HEA also provides some support for the education and training of workers in certain fields or occupations, such as teaching and science and engineering occupations.

The Workforce Investment Act (WIA; P.L. 105-220) is the primary federal workforce development legislation that aims to increase coordination among federal workforce development and related programs. The majority of WIA funding provides support for job training programs, which provide a combination of education and training services to prepare individuals for work and to help them improve their prospects in the labor market. WIA also provides funding for the Adult Education and Family Literacy Act (AEFLA), which supports an array of literacy programs targeted to help adults obtain literacy and complete secondary education.[66]

Analysis

In the 2010 NSS President Obama proposes to ensure national security by providing a "complete and competitive" education for all Americans, from early childhood through adulthood. The NSS provides limited detail on the legislative means by which education would be supported; it is unclear whether the NSS proposes to support existing programs, design new programs, or work to align current education programs from early childhood through adulthood.

The primary, measureable education goal stated in this section of the NSS is "to restore U.S. leadership in higher education by seeking the goal of leading the world in the proportion of college graduates by 2020." At face value, this measureable goal seems to focus on supporting early childhood education, elementary and secondary education, and postsecondary education. It is not directly linked to promoting or supporting career and technical education or adult education and job training programs. While some career and technical education programs lead to college degrees from less-than-four-year postsecondary institutions, it is unclear whether these degrees are included in the stated NSS goal. If the primary goal is to increase the proportion of college graduates by 2020, the Administration may seek to focus on college-readiness in elementary and secondary education[67] and promoting access to postsecondary education.[68]

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[65] For more information on campus-based financial aid programs, see CRS Report RL31618, *Campus-Based Student Financial Aid Programs Under the Higher Education Act*, by David P. Smole.

[66] For more information on WIA, see CRS Report R41135, *The Workforce Investment Act and the One-Stop Delivery System*, by David H. Bradley

[67] The Administration has expressed support for "college- and career-readiness" in elementary and secondary education. In the Administration's proposal to reauthorize the ESEA, states must adopt academic standards that promote college- and career-readiness for all students. For more information, see U.S. Department of Education, *A Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act*, Washington, DC, March 2010, http://www2.ed.gov/policy/elsec/leg/blueprint/blueprint.pdf.

[68] The Administration has requested significant changes and increases in appropriations to the Federal Pell Grant program, which helps insure access to postsecondary education by providing grant aid to low-and middle-income undergraduate students. For more information, see the U.S. Department of Education's FY2011 Budget Justifications at (continued...)

One potential disadvantage of focusing on increasing the proportion of college graduates by 2020 is the possibility of losing focus on job training and worker retraining programs. With record unemployment rates and a changing economy, the workforce may require more job training and worker retraining programs in order to promote high-demand skills in emerging industries. The NSS recognizes that promoting job training programs and high-demand skills in emerging industries is an important factor in our national security; however, without a stated measureable objective, the extent to which these programs would be supported is unclear.

Science, Technology, Engineering, and Mathematics Education[69]

The *2010 National Security Strategy* includes several science, technology, engineering, and mathematics (STEM) education provisions. As a question of domestic policy, the STEM education provisions are relatively generic in nature, consistent with existing federal policy, and likely to reflect consensus opinion. Nevertheless, policymakers continue to debate how to assure a capable national scientific and technological workforce and the role of the U.S. STEM education system in that process. A number of CRS reports explore various aspects of these issues in greater detail.[70]

Context

American innovations in science and technology played a central role in ensuring national prosperity and power over the last century. From the first mechanically propelled flight of the Wright brothers in 1903 to the development of Google in the 1990s, U.S. scientific and technological innovations have reshaped the global economy and provided economic mobility and security for generations of Americans.

Many analysts believe a combination of internal weaknesses and external threats now call the nation's historic edge in science and technology into question. In an influential report, *Rising Above the Gathering Storm*,[71] the National Academies asserted that the United States is at risk of losing its comparative advantage in science and technology. In support of this claim, the Academies cited indications of weakness in the domestic STEM education system and of a growing threat from other nations in STEM education and achievement.

A suite of data capturing trends in education outputs (e.g. graduation rates) and inputs (e.g. teacher training) drive concerns about the performance of the U.S. STEM education system.[72]

(...continued)

http://www2.ed.gov/about/overview/budget/budget11/justifications/o-saoverview.pdf.

[69] Prepared by Heather Gonzales, Analyst in Science and Technology Policy, Resources, Science, and Industry Division.

[70] For additional information see CRS Report R41231, *America COMPETES Reauthorization Act of 2010 (H.R. 5116) and the America COMPETES Act (P.L. 110-69): Selected Policy Issues*, coordinated by Heather B. Gonzalez; CRS Report 98-871, *Science, Engineering, and Mathematics Education: Status and Issues*, by Christine M. Matthews; and CRS Report RL33434, *Science, Technology, Engineering, and Mathematics (STEM) Education: Background, Federal Policy, and Legislative Action*, by Jeffrey J. Kuenzi.

[71] National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, Committee on Prospering in the Global Economy of the 21st Century: An Agenda for America Science and Technology, and Committee on Science, Engineering, and Public Policy, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National Academies Press, 2007, http://www.nap.edu/catalog/11463.html.

[72] For a comprehensive view of these data, see National Science Board, *Science and Engineering Indicators 2010*, (continued...)

Among the data most frequently cited as worrisome are U.S. student achievement on science and mathematics tests and STEM degree attainment. On average, U.S. elementary and secondary students lag behind other nations on international STEM tests.[73] The percentage of U.S. 24-year-olds with STEM degrees is lower than that of many other nations.[74] Many analysts believe this data suggests challenges for the future scientific and technological workforce and the nation's capacity for innovation.

Achievement gaps in mathematics and science between various demographic groups also raise concerns. For example, the average scores of white and Hispanic 17-year-olds on a 2008 nationwide mathematics test[75] differed by 21 points. [76] Many analysts believe that traditionally underrepresented groups must increase their STEM achievements in order to ensure a stable domestic supply of scientific and technological labor as the national demographic profile shifts over the next century.

Analysis

In the 2010 *National Security Strategy* President Obama proposes to ensure national security partly by investing in STEM education, improving the quality of mathematics and science teaching, and by expanding education and career opportunities for underrepresented groups. The President argues these provisions will strengthen human capital and contribute to national prosperity and security.

As a matter of national security policy, the inclusion of STEM education in the President's 2010 *National Security Strategy* represents a change from similar statements produced by the George W. Bush Administration. This change may be significant to national security analysts, whose opinions on the inclusion of domestic concerns in national security policy differ.[77]

Considered through a domestic policy lens, the STEM education provisions of the President's *2010 National Security Strategy* may have little practical effect on federal policy. Both the Obama and Bush Administrations[78] have supported federal policies that seek to improve U.S. STEM

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National Science Foundation, January 15, 2010, http://www.nsf.gov/statistics/seind10/start.htm.

[73] Ibid.

[74] Ibid. This is a standard metric for measuring degree attainment among the college-age population.

[75] Bob Rampey, Gloria Dion, and Patricia Donahue, *NAEP 2008 Trends in Academic Progress*, U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, NCES 2009–479, April 2009, http://nationsreportcard.gov/ltt_2008/ltt0005.asp?subtab_id=Tab_3&tab_id=tab3#chart.

[76] Some education analysts estimate that ten points on the National Assessment of Educational Progress (NAEP) represents approximately a single grade level.

[77] For several perspectives on this debate, see Samuel (Sandy) R. Berger, "Obama's National Security Strategy: A Little George Bush, A Lot of Bill Clinton," *Washington Post*, May 30, 2010, http://www.washingtonpost.com/wp-dyn/content/article/2010/05/28/AR2010052804466.html; Donald Losman, "Economic Security: A National Security Folly?," Cato Institute, *Policy Analysis No. 409*, August 1, 2001, http://www.cato.org/pub_display.php?pub_id=1268; Michael Gerson, "The Promise of National Security, with a Straight Face," *Washington Post*, June 3, 2010, http://www.washingtonpost.com/wp-dyn/content/article/2010/06/01/AR2010060102505.html; and Peter Feaver, "Obama's National Security Strategy: Real Change or Bush Lite?," Shadow Government Blog (*Foreign Policy*), May 27, 2010, http://shadow.foreignpolicy.com/posts/2010/05/27/obama_s_national_security_strategy_real_change_or_just_bush_lite.

[78] For an example, see Domestic Policy Counsel, Office of Science and Technology Policy, *American Competitiveness Initiative*, February 2006, http://www.nsf.gov/attachments/108276/public/ACI.pdf.

education as a means to strengthen the economy. Congressional support for the 2007 America COMPETES Act (P.L. 110-69), which in part sought to improve economic competitiveness through STEM education, reflects a similar position. In this sense, the STEM education provisions of the *National Security Strategy* are broadly consistent with existing federal policy.

Nevertheless, many issues in federal STEM education policy remain contentious. While the STEM education provisions of the President's *2010 National Security Strategy* reflect consensus positions by and large, generally speaking, opinions vary on how to implement these objectives.

For example, observers disagree about whether the problem with the U.S. scientific and technological workforce is on the supply side or the demand side. The general consensus seems to be that the U.S. is not producing enough STEM graduates and scientifically literate citizens.[79] As a result, policymakers have paid much attention to policies that seek to increase the supply of STEM-trained workers, such as reforms to improve STEM teaching or increase financial aid for STEM college students.

Other analysts argue that the pursuit of supply side solutions fails to address demand side factors like the limited attractiveness of scientific careers[80] and differential employment rates in certain STEM fields (for example, surpluses in the life sciences and shortages in engineering).[81] These analysts argue that the U.S. STEM education system may actually produce too many scientists. They suggest more attention to policies addressing demand side factors, such as increasing the number of tenure-track jobs and providing grants for early-career scientists.

Beyond the supply-demand debate are other questions about the relative value of STEM education data, the interpretation of that data, and implications for policymaking. Reformers sometimes argue that poor student performance on mathematics and science tests, among other things, indicates a need to overhaul the U.S. STEM education system.[82] Other analysts dispute claims that poor performance *on average* should be interpreted as suggesting general reform of the U.S. STEM education system. The data, they argue, show that the U.S. is a top producer of the highest- and lowest-scoring students. This distinction, they claim, merits a subtler policy response targeting only low-performing students.[83]

Other issues in STEM education policy include debates about whether STEM education reform can or should be undertaken outside of general education reform. The scope and scale of federal STEM education programs is also an open question. Some studies have found a lack of coordination, or even of an accurate count of federal STEM education programs. STEM advocates have also advanced a variety of policy options—for example, hands-on learning,

[79] This includes both STEM majors who go on to become scientists and scientifically literate non-STEM majors. For one example of proponents of this position, see American Electronics Association and others, *Tapping America's Potential*, July 2005, http://library.uschamber.com/sites/default/files/reports/050727_tapstatement.pdf.

[80] For example, see Beryl Lieff Benderly, "Does the U.S. Produce Too Many Scientists?" *Scientific American*, February 22, 2010, http://www.scientificamerican.com/article.cfm?id=does-the-us-produce-too-m.

[81] Ron Hira, "U.S. Policy and the STEM Workforce System," *American Behavioral Scientist*, vol. 53: no. 7 (2010), pp. 949-961.

[82] For example, see U.S. Department of Education, National Mathematics Advisory Panel, *Foundations for Success: The Final Report of the National Mathematics Advisory Panel*, March 2008, http://www2.ed.gov/about/bdscomm/list/mathpanel/report/final-report.pdf.

[83] Hal Salzman and Lindsey Lowell, "Making the Grade," *Nature*, vol. 453: no. 1 (May 2008), http://www.nature.com/nature/journal/v453/n7191/full/453028a.html.

specialty schools, or teacher training—designed to address various perceived deficiencies. However, in some cases a dearth of definitive research establishing underlying assumptions adds a degree of uncertainty to these recommendations.

International Education and Exchange[84]

According to the 2010 *National Security Strategy*, notwithstanding the "pervasiveness of the English language and American cultural influence," the United States must increase its efforts to promote international education and exchange in order to succeed in the global economy. To this end, the Administration proposes to "support programs that cultivate interest and scholarship in foreign languages and intercultural affairs, including international exchange programs … [and] welcome more foreign students to our shores."[85] Policy recommendations beyond this general support for current programs are not specified in this section of the NSS.

Context

According to the Interagency Working Group (IAWG) of Government-Sponsored International Exchange and Training, the federal investment in this area was over $1.5 billion in FY2008.[86] That year, 250 programs supporting international exchange and training were administered by 15 cabinet-level departments and 51 independent agencies and commissions. Over 2.4 million people participated in these programs worldwide in FY2008; roughly 55,000 were "U.S. participants."[87] The IAWG found that programs administered by the State Department accounted for 45% of all FY2008 U.S. participants.[88]

The Bureau of Educational and Cultural Affairs Office administers the State Department's numerous exchange programs, most of which are authorized by the Mutual Education and Cultural Exchange Act of 1961 (also known as the Fulbright-Hayes Act). The two largest of these programs, the Citizen Exchange and Fulbright Programs, sent nearly 10,000 Americans abroad in FY2008.[89] The number of Americans studying abroad through federally sponsored programs is dwarfed by the number that do so without federal support. During the 2007-2008 school year, a total of 262,416 U.S. students studied abroad.[90] This is more than double the number studying

[84] Prepared by Jeff Kuenzi, Specialist in Education Policy, Domestic Social Policy Division. For more information on these issues see CRS Report RL31625, *Foreign Language and International Studies: Federal Aid Under Title VI of the Higher Education Act*, by Jeffrey J. Kuenzi, and CRS Report R40989, *U.S. Public Diplomacy: Background and Current Issues*, by Kennon H. Nakamura and Matthew C. Weed.

[85] *NSS*, p. 29.

[86] Maura M. Pally, *FY 2009 Annual Report (Includes FY 2008 Inventory of Programs)*, Interagency Working Group on United States Government-Sponsored International Exchanges and Training, Washington, DC, 2009, p. 14. It should be noted that the IAWG "define[s] these programs broadly, collecting data on programs that include individuals who receive training in their home countries or who benefit from alternative technological approaches…(such as digital video conferences, distance learning programs, and other remote communications," *FY2009 Annual Report*, p. 13. Moreover, the inventory includes programs supporting a wide range of activities from year-long fellowships to half-day seminars. All annual inventories are available at http://www.iawg.gov/reports/annual/.

[87] Ibid, p. 14.

[88] Ibid, p. 17.

[89] Ibid, pp. 199-200.

[90] Institute of International Education, *Open Doors 2009*, New York, NY, 2009, Table 20.

abroad a decade earlier (113,959 in 1997-1998) and over five times the number (48,483) doing so during the 1985-1986 school year.[91]

The major federal programs supporting foreign language and area studies at U.S. colleges and universities originated in the National Defense Education Act of 1958. These programs were consolidated into Title VI of the Higher Education Act of 1965 (HEA) by the Education Amendments of 1980 and are administered by the U.S. Education Department (ED). The impact of federal assistance to post-secondary institutions may be evident in the growth of foreign language bachelor's degrees awarded since enactment. The number of such degrees increased from 4,527 at the end of the 1959-1960 school year to 19,457 in 1969-1970.[92] Foreign language degree output began to dwindle by the late 1970s, falling to 11,550 in 1985-1986, and has since steadily increased to 20,977 in 2007-2008.[93] Meanwhile, bachelor's degrees awarded in area studies increased from 2,492 in 1970-1971 to 7,202 in 2007-2008.[94]

Since the Immigration Act of 1924, the United States has expressly permitted foreign students to study in U.S. institutions. To do so, such students must be issued visas from one of three non-immigrant categories: F visas for academic study, M visas for vocational study, and J visas for cultural exchange. The number of non-immigrants admitted have more than doubled over the past two decades. In FY1989, the total number of F, M, and J visas issued by the State Department was 322,385, in FY1999 the number was 480,131, and in FY2009, 654,835 such visas were issued to non-immigrants.[95]

Analysis

The proposals in this section of the NSS reflect long-held priorities in federal policy that encourage international education and exchange in recognition of "the benefits that can result from deeper ties with foreign publics and increased understanding of American society."[96] However, the NSS does not provide specific policy recommendations beyond general support for, and perhaps expansion of, current federal programs for this purpose. In this sense, the current administration's strategy is not a major break with that of previous administrations, although some have claimed otherwise.[97] Some concerns and questions that may be raised in response to the NSS are discussed below.

[91] Institute of International Education, *Open Doors 2000*, New York, NY, 2000, p. 58. Data are not available on the number of U.S. students studying abroad for school years prior to 1985-1986.

[92] U.S. Department of Education, National Center for Education Statistics, *1995 Digest of Education Statistics*, Table 279, Washington, DC, 1996, available at http://nces.ed.gov/programs/digest/d95/dtab279.asp.

[93] U.S. Department of Education, National Center for Education Statistics, *2009 Digest of Education Statistics*, Table 271, Washington, DC, 2010, available at http://nces.ed.gov/programs/digest/d09/tables/dt09_271.asp?referrer=list.

[94] U.S. Department of Health, Education, and Welfare, Office of Education, 1973 *Digest of Education Statistics*, Table 112, Washington, DC, 1974 and U.S. Department of Education, National Center for Education Statistics, *2009 Digest of Education Statistics*, Table 271, Washington, DC, 2010, available at http://nces.ed.gov/programs/digest/d09/tables/dt09_271.asp?referrer=list.

[95] U.S. Department of State, Bureau of Consular Affairs, http://www.travel.state.gov/visa/statistics/nivstats/nivstats_4582.html. For more information on this issue, see CRS Report RL31146, *Foreign Students in the United States: Policies and Legislation*, by Chad C. Haddal.

[96] *NSS*, p. 29.

[97] Peter Baker, "Obama Offers Strategy Based in Diplomacy," *New York Times*, May 22, 2010.

The large number of federally sponsored programs raises concerns about program coordination and possible duplication of effort. To address such concerns, Congress amended the Fulbright-Hayes Act in 1998 to establish the IAWG and require that it conduct a "duplication assessment."[98] The IAWG defines programmatic duplication as "activities sponsored by different organizations that direct resources toward the same target audiences, using similar methodologies to achieve the same goals, and which result in duplicative—as opposed to complementary—outcomes."[99] The analysis concluded that federal international exchange and training programs are typically specific in their theme, geographic focus, and target audience and therefore involve a low risk of duplication. Though not specifically charged with assessing coordination, the IAWG also concluded that interagency funding transfers tend to promote transparency and enhance coordination. Such transfers account for roughly 19% ($278 million) of all ($1.5 billion) federal spending in this area.

Although the volume of U.S. students studying abroad has grown substantially in recent years, the regional distribution has remained steady. In 2007-2008, over half (56.3%) of all students studying abroad went to countries in Europe; Latin America was the second largest destination (15.3%), followed by Asia (11.1%). Study in Europe dropped about six percentage points since 1988-89 (62.7%) and was replaced almost entirely by a five percentage point increase in travel to Asia; which stood at 6.0% in 1988-89. Meanwhile study in the Middle East (where security is often a concern) dropped from 2.8% of all students in 1988-1989 to 1.3% in 2007-2008; slightly up from its low of 0.4% in 2002-2003.[100] Given the emerging role of non-European nations in U.S. security concerns, some may question whether the federal government should do more to influence students' destination of study and encourage them to choose regions of greatest relevance to national security.

Similar concerns can be raised with regard to the languages U.S. students choose to learn. The number of foreign language degrees awarded at U.S. higher education institutions nearly doubled in the last two decades; however, two-thirds of this growth occurred in one language, Spanish. While degrees awarded in the two other major European languages (French and German) saw large declines during this period and non-European languages (e.g., Chinese and Arabic) achieved notable percentage gains, the absolute number of bachelor's degrees awarded in the three major European languages is many times greater than all other world languages combined; in 2007-2008, 12,895 and 2,210 respectively.[101] Again, given that current security concerns are in regions largely composed of non-European language speakers, some may assert that more federal support should be directed at building the nation's capacity in languages other than those commonly spoken in Europe.

Recent growth in the number of non-immigrant visas issued for academic/vocational study and cultural exchange indicates that the United States is welcoming more foreign students to the country following the downturn in numbers after the terrorist attacks on September 11, 2001. In 2008, the largest number of F-1 visas went to students from China (56,258), South Korea

[98] 22 USC 2460, Sections (f) and (g).

[99] Maura M. Pally, *FY 2009 Annual Report (Includes FY 2008 Inventory of Programs)*, Interagency Working Group on United States Government-Sponsored International Exchanges and Training, Washington, DC, 2009, p. 347.

[100] Institute of International Education, *Open Doors 2009*, New York, NY, 2009, Table 20.

[101] Non-specific language degrees such as those classified as "foreign language and literature, general" are omitted, U.S. Department of Education, National Center for Education Statistics, *2009 Digest of Education Statistics*, Table 275, Washington, DC, 2010, available at http://nces.ed.gov/programs/digest/d09/tables/dt09_275.asp?referrer=list.

(50,078), and India (36,149).[102] This suggests that students worldwide continue to see U.S. higher education institutions as attractive places to advance their education. Some feel that these institutions have a finite growth capacity and that foreign students prevent some Americans students from being accepted for entry. Moreover, there is a subsequent "brain drain" of talent as foreign students return to their home country after graduation (or perhaps a year or two of work in the United States). Others argue that K-12 schools have not been able to provide native-born talent to fill all slots in U.S. institutions, particularly in high-demand subjects, and that to maintain U.S. competitiveness, we must draw the best and brightest students the world has to offer.

Immigration[103]

The 2010 NSS states: "Our ability to innovate, our ties to the world, and our economic prosperity depend on our nation's capacity to welcome and assimilate immigrants and a visa system which welcomes skilled professionals from around the world.... Ultimately, our national security depends on striking a balance between security and openness. To advance this goal, we must pursue comprehensive immigration reform that effectively secures our borders, while repairing a broken system that fails to serve the needs of our nation."

There is a broad-based consensus that the U.S. immigration system is broken. This consensus erodes, however, as soon as the options to reform the U.S. immigration system are debated. Substantial efforts to reform immigration law have failed in the recent past, prompting some to characterize the issue as a "zero-sum game" or a "third rail." The challenge inherent in reforming legal immigration is balancing the hopes of employers to increase the supply of legally present foreign workers, longings of the families to re-unite and live together, and a widely shared wish among the various stakeholders to improve the policies governing legal immigration into the country.[104]

Context

Four major principles underlie current U.S. policy on permanent immigration: the reunification of families, *the admission of immigrants with needed skills*, the protection of refugees, and the diversity of admissions by country of origin. The Immigration and Nationality Act (INA) specifies a complex set of numerical limits and preference categories that gives priorities for permanent immigration reflecting these principles. Legal permanent residents (LPRs) refer to foreign nationals who live lawfully and permanently in the United States. During FY2009, a total of 1.1 million aliens became LPRs of the United States. Of this total, employment-based LPRs

[102] U.S. Department of State, *F-1 Visa Issuances by Nationality*, F-1 Student Visa Statistics, FY2006, FY2007, FY2008, Washington, DC, accessed December 9, 2010, http://immigrationroad.com/visa/f1-student/f1-student-visa-statistics.php.

[103] Prepared by Ruth Ellen Wasem, Specialist in Immigration Policy, Domestic Social Policy Division. This section addresses the human capital aspects of immigration policy and does not address other important immigration-related elements of national security, such as border control, visa policy, and immigration enforcement. For discussions of these issues see CRS Report R41237, *People Crossing Borders: An Analysis of U.S. Border Protection Policies*, by Chad C. Haddal; CRS Report R41104, *Immigration Visa Issuances and Grounds for Exclusion: Policy and Trends*, by Ruth Ellen Wasem; CRS Report RL33351, *Immigration Enforcement Within the United States*, coordinated by Alison Siskin.

[104] CRS Report R40501, *Immigration Reform Issues in the 111th Congress*, by Ruth Ellen Wasem.

(including spouses and children) accounted for 12.7%. Most LPRs (66.1%) entered on the basis of family ties.

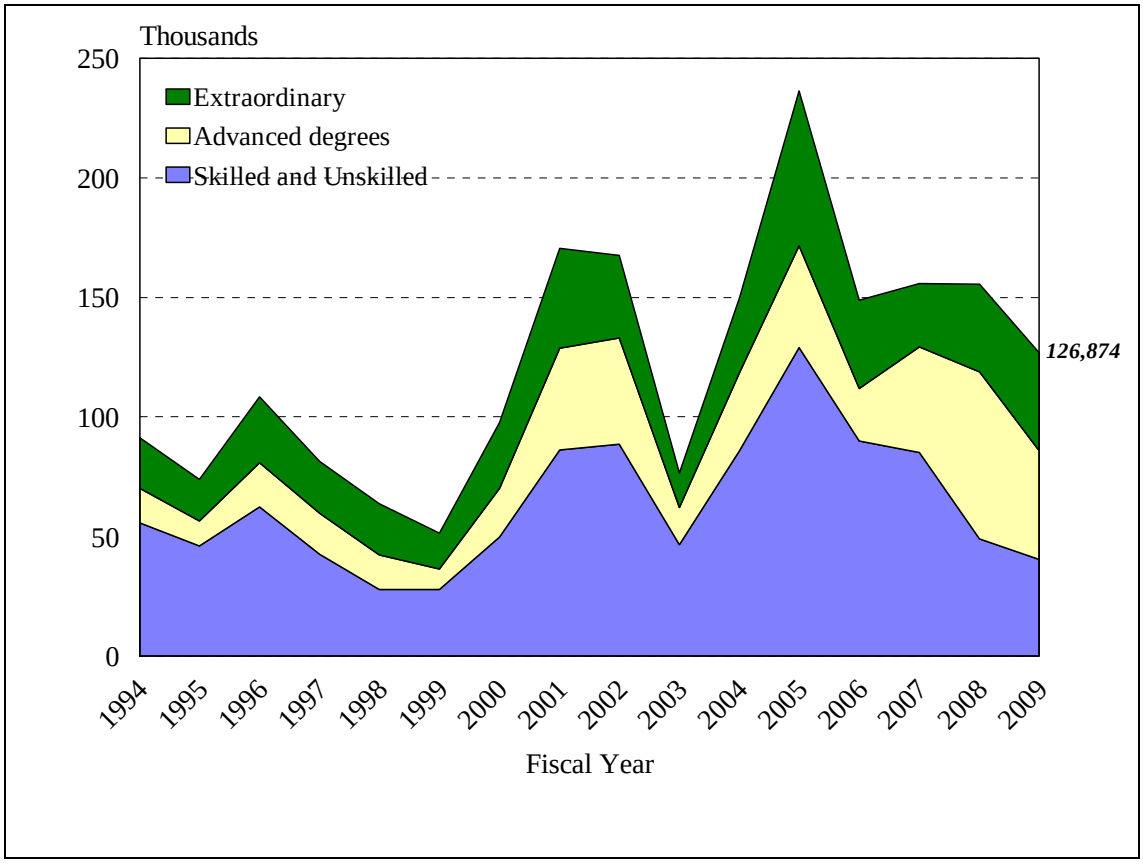
Currently, annual admission of employment-based preference immigrants is limited to 140,000 plus certain unused family preference numbers from the prior year. As **Figure 4** displays, LPR admissions for the first (i.e., extraordinary persons), second (i.e., exceptional persons with advanced degrees) and third (i.e., professionals, skilled and shortage workers) employment-based preferences have exceeded the ceilings several times in recent years.[105] Although there were almost the same number of first, second, and third preference employment-based LPRs in FY2007 and FY2008 (155,889 and 155,627, respectively), the number of employment-based LPRs in the extraordinary and exceptional categories rose in FY2008, particularly among those with advanced degrees. Despite the dip to 126,874 employment-based LPRs in FY2009, the first preference extraordinary category rose slightly. In FY2009, the number of skilled and unskilled LPRs was at its lowest level of admissions since FY1999.[106]

[105] For an explanation of these trends, see CRS Report RL32235, *U.S. Immigration Policy on Permanent Admissions*, by Ruth Ellen Wasem.

[106] For detailed tables presenting these data, see Office of Immigration Statistics, *Yearbook of Immigration Statistics: 2009*, U.S. Department of Homeland Security, Table 6, http://www.dhs.gov/files/statistics/publications/LPR09.shtm.

Figure 5. Permanent Employment-Based Admissions, First, Second, and Third Preferences

1994-2009



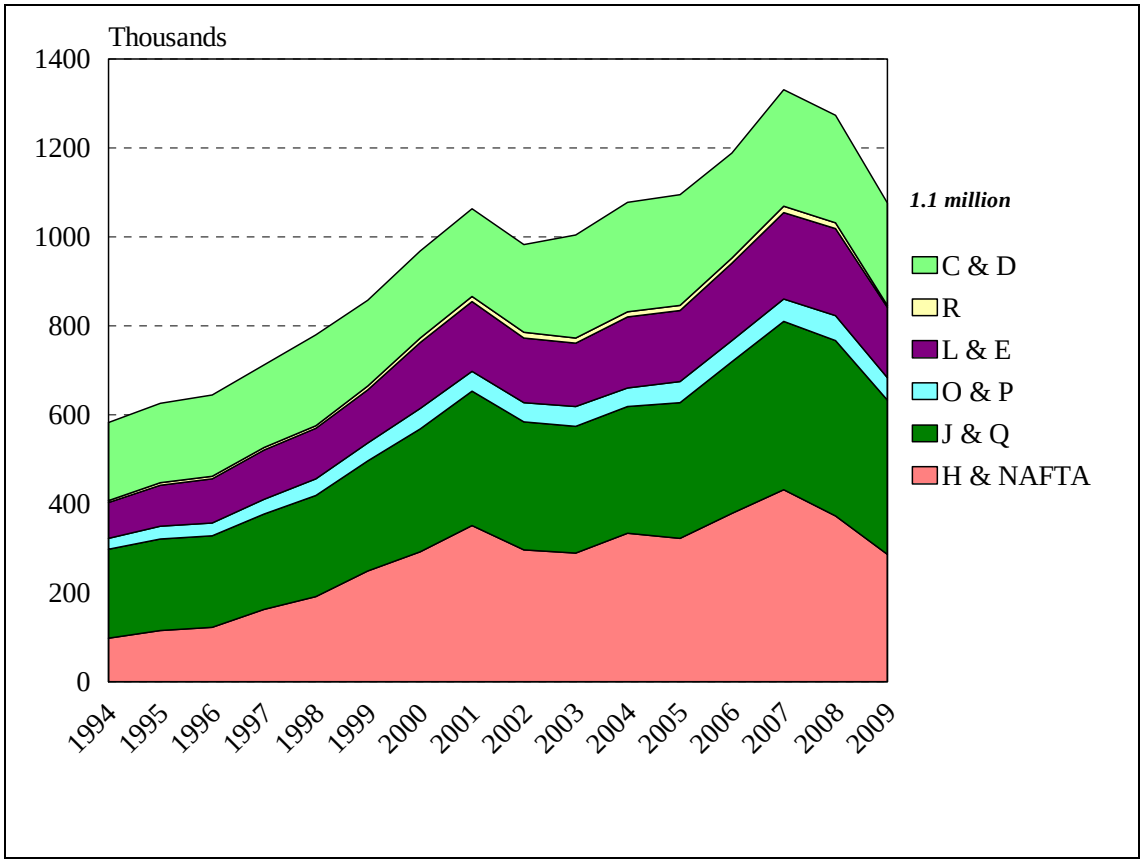
Source: CRS analysis of Statistical Yearbook of Immigration, U.S. Department of Homeland Security, Office of Immigration Statistics, multiple years.

The INA provides for the temporary admission of various categories of foreign nationals, who are known as nonimmigrants.[107] Nonimmigrants are admitted for a temporary period of time and a specific purpose. They include a wide range of visitors, including tourists, students, and temporary workers. Among the temporary worker provisions are the H-1B visa for professional specialty workers, the H-2A visa for agricultural workers, and the H-2B visa for nonagricultural workers.[108] Persons with extraordinary ability in the sciences, arts, education, business, or athletics are admitted on O visas, whereas internationally recognized athletes or members of an internationally recognized entertainment group come on P visas. Foreign nationals working in religious vocations enter on R visas. Foreign nationals also may be temporarily admitted to the United States for employment-related purposes under other categories, including the B-1 visa for business visitors, the E visa for treaty traders and investors, J and Q visas for cultural exchange, and the L visa for intracompany transfers.

[107] For further discussion, see CRS Report RL31381, *U.S. Immigration Policy on Temporary Admissions*, by Chad C. Haddal and Ruth Ellen Wasem.

[108] Temporary professional workers from Canada and Mexico may enter according to terms set by the North American Free Trade Agreement (NAFTA) on TN visas.

Figure 6. Temporary Employment-Based Visas Issued
1994-2009



Source: CRS analysis of U.S. Department of State Bureau of Consular Affairs data.

The issuances of temporary employment-based visas rose steadily over the past decade, then dropped in FY2009 (**Figure 7**). In FY2009, there were 1.1 million temporary employment-based visas issued, down from a high of 1.3 million in FY2007. The number of visas issued to H and NAFTA workers dropped by 33.4% from FY2007 to FY2009. The E and L visas fell by 18.7%, and the J and Q visas decreased by 8.1%. Only the numbers of O and P visas held steady, dipping only by 1.7%.[109]

Analysis

The Congress is faced with strategic questions of whether to continue to build on incremental reforms of specific elements of immigration (among which is increasing skilled migration and reforming temporary worker visas) or whether to comprehensively reform the law.[110]

A variety of constituencies are advocating a significant reallocation from the family-based to the employment-based visa categories or a substantial increase in legal immigration to meet a

[109] For further discussion of these trends, see CRS Report RL33977, *Immigration of Foreign Workers: Labor Market Tests and Protections*, by Ruth Ellen Wasem.

[110] CRS Report R40848, *Immigration Legislation and Issues in the 111th Congress*, coordinated by Andorra Bruno.

growing demand from families and employers in the United States for visas. Against these competing priorities for increased immigration are those who offer options to scale back immigration levels, with options that would confine employment-based LPRs to exceptional, extraordinary, or outstanding individuals.[111]

Some business people express concern that a scarcity of labor in certain sectors may curtail the pace of economic growth at a time when encouraging economic growth is paramount. A leading legislative response to skills mismatches is to increase the supply of temporary foreign workers (rather than importing permanent workers). While the demand for more skilled and highly trained foreign workers garners much of the attention (e.g., lifting the ceiling on H-1B visas or set-asides of visas for foreign graduates of U.S. universities), pressure to increase unskilled temporary foreign workers, commonly referred to as guest workers, also remains. Those opposing increases in temporary workers assert that there is no compelling evidence of labor shortages and cite the growing rate of unemployment.[112] Opponents argue that continuing temporary foreign workers programs during an economic recession has a deleterious effect on salaries, compensation, and working conditions of U.S. workers.[113] More recently, some are suggesting that temporary foreign worker visas should be scaled back or placed in moratorium during periods of economic recession.

As the United States rises out of an economic recession, attention is again focused on recruitment of the "best and the brightest" people to the United States. Once a debate limited to the H-1B visas, the global competition for foreign workers with advanced degrees and high-level skills has broadened to encompass more sweeping revisions to the permanent employment-based preferences. Some promote amending the INA to create expedited pathways for foreign students earning degrees at U.S. universities in the fields of the sciences, technology, engineering, or math (STEM) to become LPRs without an assessment of labor markets needs.[114] However, Michael Teitelbaum, vice president of the Alfred P. Sloan Foundation (which funds basic scientific, economic and civic research) has said over the past few years that there are "substantially more scientists and engineers" graduating from U.S. universities than can find attractive jobs.[115] A fundamental question is whether the current labor market tests to hire foreign workers offer an efficacious response to these competing perspectives on the international race for talent.

Some observers, which notably includes a panel of international experts assembled by the Transatlantic Council on Migration, advocate what they refer to as more "flexible" and "forward-thinking" approaches to bringing foreign workers into the labor market. These options are typically based upon the human capital needs of the national economy rather than the hiring

[111] CRS Report RL32235, *U.S. Immigration Policy on Permanent Admissions*, by Ruth Ellen Wasem.

[112] For further discussion, see CRS Report R40080, *Job Loss and Infrastructure Job Creation Spending During the Recession*, by Linda Levine.

[113] For further discussion, see CRS Report RL33977, *Immigration of Foreign Workers: Labor Market Tests and Protections*, by Ruth Ellen Wasem; and CRS Report 95-408, *Immigration: The Effects on Low-Skilled and High-Skilled Native-Born Workers*, by Linda Levine.

[114] For further discussion, see CRS Report RL30498, *Immigration: Legislative Issues on Nonimmigrant Professional Specialty (H-1B) Workers*, by Ruth Ellen Wasem.

[115] Greg Toppo and Dan Vergano, "Scientist Shortage? Maybe Not," *USA Today*, July 8, 2009; and U.S. Congress, House Committee on Science and Technology, Subcommittee on Technology and Innovation, *The Globalization of R&D and Innovation: Implications for the Science and Engineering Workforce*, 110th Cong., 1st sess., November 7, 2007.

preferences of individual employers.[116] Other policy research groups, such as the Directorate for Science, Technology, and Industry of the International Organization for Economic Cooperation and Development (OECD), maintain that immigration laws and labor market protections are not the most decisive factors for talented migrants.

> Various factors contribute to the flows of the highly skilled. In addition to economic incentives, such as opportunities for better pay and career advancement and access to better research funding, mobile talent also seeks higher quality research infrastructure, the opportunity to work with "star" scientists and more freedom to debate.[117]

The United States arguably fares quite well on these factors.[118] Labor markets tests that employers must pass in order to hire foreign workers are arguably aimed at curbing employer abuses rather than influencing the migration decisions of foreign workers.

Research, Innovation, Energy, and Space

Even though a sufficient number of people might be educated and trained to meet the needs of the United States in the 21st century, economic growth and progress depends on how those human resources actually are employed and whether the results contribute both to economic growth and to the defense industrial and technological base. In this section, we address policies related to investing in research, and expanding international science partnerships. We also examine two specific national security issues that rely on research, development, and innovation. These are energy independence and space capabilities.

Investing in Research[119]

President Obama's *National Security Strategy* contends that research and development (R&D) is central to "our broader national capacity," and that investments in research will secure "substantial economic and national security advantage" for the United States. The document links U.S. strength in basic and applied sciences to addressing national challenges such as the H1N1 influenza outbreak and the development of renewable energy technologies. The President asserts that he seeks to reverse "the decades-long decline in federal funding for research," and claims credit for the single largest infusion to basic science research in American history. Additionally, the President asserts the importance of maintaining the historic strength of United States in transforming science and technology into engineering and products. Recognizing the limitations of government in this regard, the strategy is to support and create incentives to encourage private initiatives.

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[116] Demetrios G. Papademetriou and Annette Heuser, "Talent, Competitiveness and Migration," in *Council Statement: Responding Competitively to the New Mobility of the 21st Century*, ed. Bertelsmann Stiftung, Migration Policy Institute (2009).

[117] Organization for Economic Cooperation and Development (OECD), *The Global Competition for Talent: Mobility of the Highly Skilled*, Directorate for Science, Technology and Industry, September 2008.

[118] Lesleyanne Hawthorne, "The Growing Global Demand for Students as Skilled Migrants," in *Talent, Competiveness and Migration*, ed. Bertelsmann Stiftung, Migration Policy Institute (2009).

[119] Prepared by John Sargent, Specialist in Science and Technology Policy, Resources, Science, and Industry Division.

Context

It is widely believed among experts that U.S. industrial competitiveness, economic growth, and job creation depend heavily on the nation's scientific and technological prowess. There is general consensus among economists that advances in knowledge (largely, technological innovation) have been responsible for at least half of long-term economic growth among advanced economies, which in turn is responsible for employment growth and increases in standards of living. Recognizing this linkage, governments around the world have increased public funding for R&D and enacted policies to stimulate increased private sector R&D investment. Total R&D funding of Organization for Economic Cooperation and Development (OECD) member countries, largely advanced industrial nations, rose 79% between 1997 and 2007; among developing countries the growth has been markedly higher during the same period (e.g., roughly doubling in Argentina and Romania; tripling in Russia, Israel, Singapore, and Chinese Taipei (Taiwan); and rising more than sevenfold in China).[120]

The United States leads the world in both total national R&D and in government R&D funding. The U.S. federal government accounts for approximately one-third of the world's government-funded R&D and substantially more than any other nation—more than four times as much as either of the next two largest funders, Japan and China. In 2007, U.S. government funding for R&D was $105.6 billion in current purchasing power parity.[121] And while industry provides the vast majority of funding for development, the federal government leads in the funding of basic research (57%) and plays a substantial role in funding applied research (32%).[122] Funding for basic and applied research provides a fundamental knowledge base that supports technological innovation and the development of new and improved product and services.

Through its investments, the federal government supports a broad range of scientific and engineering R&D. Its purposes include addressing specific concerns, such as national defense, health, safety, the environment, and energy security; advancing knowledge generally; developing the scientific and engineering workforce; and strengthening U.S. innovation and competitiveness in the global economy. Most of the R&D funded by the Federal government is performed in support of the unique missions of the funding agencies. Four mission agencies—the Department of Defense, National Institutes of Health, NASA, and Department of Energy—account for more than 90% of federal R&D funding.[123]

There has been broad, long-standing support across party lines for a strong federal role in providing funding for basic and applied research and creating a policy environment that facilitates innovation. Vannevar Bush's report, *Science: The Endless Frontier*,[124] to President Harry S

[120] Organization for Economic Cooperation and Development, *Main Science and Technology Indicators: Volume 2010/1*, 2010, http://www.oecd.org/dataoecd/30/35/34250656.pdf.

[121] Ibid. Purchasing power parity (PPP) is an economic technique used to allow for more accurate comparisons across different currencies based on the relative purchasing power of each currency in its domestic market.

[122] Calculated using FY2008 data. National Science Board, National Science Foundation, *Science and Engineering Indicators: 2010*, Table 4-1, NSB 10-01, Arlington, VA, 2010, http://www.nsf.gov/statistics/seind10/c4/tt04-01.xls.

[123] Office of Science and Technology Policy, Executive Office of the President, *Investing in the Building Blocks of American Innovation: Federal R&D, Technology, and STEM Education in the FY2011 Budget*, Washington, DC, February 1, 2010. Figures calculated using FY2009 actual budget authority.

[124] Vannevar Bush, Science The Endless Frontier: A Report to the President by Vannevar Bush, Director of the Office of Scientific Research and Development, Office of Scientific Research and Development, Executive Office of the President, Washington, DC, July 5, 1945, http://www.nsf.gov/od/lpa/nsf50/vbush1945.htm#ch1. The Office of (continued...)

Truman is widely viewed as establishing the framework for federal research investment after World War II. At the time, federal R&D was focused largely on national defense (81% in 1949).[125] The report responded to a letter from President Franklin D. Roosevelt seeking recommendations on how research and the research infrastructure established to support America's war effort could be "profitably employed in times of peace."

In his response, Vannevar Bush laid out a framework that reaffirmed the essential role of scientific progress in meeting the nation's economic, national security, and social needs; the propriety of the federal role in supporting research; and the need to preserve freedom of inquiry among academic researchers. Specifically, the report asserted "The Federal Government should accept new responsibilities for promoting the creation of new scientific knowledge and the development of scientific talent in our youth."[126] A key recommendation of the report led to the formation of the National Science Foundation in 1950 to undertake these responsibilities.

While World War II drove the first major wave of federal R&D funding, subsequent national challenges—the Cold War, Space Race, environmental protection and stewardship, the energy crisis of the early 1970s, and improving health and defeating diseases—have driven increases in and changes to the composition of the federal R&D budget. In the late 1970s, U.S. industrial competitiveness and technological leadership rose to national prominence with the ascent of Japan as a formidable industrial competitor. More recently, concerns have risen over the rapid emergence of China and India, and their rising scientific and technological capabilities, as well as over competitive pressures from other industrialized nations, both those with broad capabilities and those with expertise in niche fields.

Analysis

"Investing in research" has been a long-standing federal policy that has enjoyed widespread support across the political spectrum, broadly speaking. A testament to this consensus is the growth in the federal R&D investment over the past 60 years: to wit, federal outlays for R&D were more than 20 times higher in 2009 than in 1949, in constant dollars.[127]

Nevertheless, there have been and continue to be contentious issues related to the federal R&D investment. With respect to the appropriate size of the investment, many have argued for substantial increases to address national economic and societal needs. Emblematic of the consensus for increased investment, President Obama, President George W. Bush, and Congress have all sought to double funding over 7 to 10 years for selected agencies that conduct physical sciences and engineering research. In addition, President Obama has set a national goal for R&D

(...continued)

Scientific Research and Development was established within the Office for Emergency Management of the Executive Office of the President by President Franklin D. Roosevelt by Executive Order 8807, June 28, 1941.

[125] Office of Management and Budget, Executive Office of the President, *The Budget for Fiscal Year 2010, Historical Tables,* Table 9.7, Washington, DC, 2009, p. 187, http://www.gpoaccess.gov/usbudget/fy10/pdf/hist.pdf.

[126] The need for a program to support the development of scientists and engineers was largely driven, according to the report, by a shortage of university-educated scientists and engineers resulting due to the diversion of college-age students to the war effort.

[127] In constant dollars, federal R&D funding grew from $5.7 billion in FY1949 to an estimated $116.2 billion in FY2009; in current dollars, funding grew from $940 million in FY1949 to an estimated $144.5 billion in FY2009. Office of Management and Budget, Executive Office of the President, *The Budget for Fiscal Year 2010, Historical Tables*, Table 9.7.

investment of 3% of the nation's gross domestic product which would likely require substantial increases in both government and industrial funding. However, even among those who are generally supportive of a strong federal role in research, some have opposed this accelerated growth due to current economic conditions and budget pressures. Others have expressed concerns about the rapid pace of development in emerging areas of science and technology that offer the potential for revolutionary advances, such as nanotechnology and biotechnology, due to the potential for unintended societal effects, including unknown environmental, health, and safety hazards and risks. Some holding this perspective have called for slowing the pace of research until such concerns have been addressed; others have called for a moratorium.

Other areas of divergent views include how to allocate funds among: basic research, applied research, and development; scientific and engineering disciplines and multidisciplinary research; "Big Science" projects requiring substantial and sustained investments and smaller, investigator-driven research projects; universities, companies, non-academic research organizations, and federal laboratories; low-risk, incremental advances in knowledge and high risk, high reward transformational research; mission-related research and general advancement of knowledge; and well-established universities and less well-established ones. Still other areas of disagreement relate to whether to seek to achieve greater geographical balance in federal R&D funding, whether to pursue research focused on addressing problems whose existence is in dispute (e.g., climate change), and whether to coordinate research activities with other nations and under what conditions.

An ongoing issue of great contention is the use of federal research funding to advance technology with commercial applications, especially with respect to the funding of for-profit companies. One set of arguments in opposition to such efforts, which generally characterize such activities as "industrial policy," includes the inability and/or inefficiency of the government in making such decisions; the supplanting of the judgment of the market and dampening of market signals; and the role of politics in the selection of technologies, companies, and/or industries for favored treatment. A second thrust in opposition to this type of funding, generally referred to as the "corporate welfare" argument, is that such an approach forces individual taxpayers to subsidize companies (including sometimes highly profitable, large, multinational corporations) for the benefit of shareholders.

President Obama's R&D funding record with respect to regular annual appropriations has been one of small increases (and perhaps cuts when adjusted for current dollars). The President's FY2010 R&D request was 0.4% above the estimated FY2009 appropriation; his FY2011 request for R&D was 0.2% greater than the estimated FY2010 appropriation. However, analysis of President Obama's R&D funding record is complicated by the American Recovery and Reinvestment Act (ARRA, P.L. 111-5). ARRA provided billions of dollars of R&D funding to multiple agencies, some with the authority to spend it in FY2009 and beyond. Approximately $18.2 million of ARRA R&D funds were allocated for FY2009; the President's FY2011 budget provides no estimate of ARRA R&D funding for FY2010 or beyond. The President's *National Security Strategy* states that the Administration achieved "the single largest infusion to basic science research in American history," but provides no further details. This statement may refer to the $13.3 billion in FY2009 ARRA funding that the Administration has characterized as research (both basic and applied).[128]

[128] Office of Science and Technology Policy, Executive Office of the President, *Investing in the Building Blocks of American Innovation.*

The President's *National Security Strategy* also asserts the need to reverse "the decades-long decline in federal funding for research." However, data from the National Science Foundation and the Office of Management and Budget does not support the existence of such a trend. **Table 1** shows compound annual growth rates for federal outlays for R&D and for federal research expenditures for the 10-year, 20-year, and 30-year periods preceding the election of President Obama. The figures are calculated for both current dollars and constant 2000 dollars. In each period, for both R&D and research alone, the compound annual growth rates are positive.

Table 1. Compound Annual Growth Rates for Federal Research and Development and for Federal Research

	Federal Outlays for Research & Development		Federal Research Expenditures	
	Current Dollars	Constant 2000 Dollars	Current Dollars	Constant 2000 Dollars
1998-2008	6.4%	3.9%	6.1%	3.6%
1988-2008	4.5%	2.0%	5.7%	3.2%
1978-2008	5.8%	2.4%	6.5%	3.0%

Source: Federal Outlays for Research and Development: Office of Management and Budget, Executive Office of the President; Federal Research Expenditures, National Science Foundation.

Concerns about flat or declining federal funding for physical science and engineering research led to calls from leaders in industry and academia to substantially bolster funding. In 2006, President Bush initiated, as part of his American Competitiveness Initiative, an effort to double research funding for the National Science Foundation, the Department of Energy's Office of Science, and the National Institute of Standards and Technology laboratories.[129] These agencies were chosen, in part, because a substantial portion of their research portfolios is focused on the physical science and engineering disciplines. President Obama, in his *A Strategy for American Innovation*, adopted the same objective and target agencies, proposing agency funding levels in FY2010 and FY2011 toward completing the doubling effort in 2017.[130] The actual FY2010 funding increase for these agencies was 4.3%, below the 7.2% rate required annually to achieve a 10-year doubling.

There are also issues related to how effective increases in federal research funding may be in stimulating U.S. economic growth and job creation. First, historically, the time required to conduct basic research and translate the knowledge into new products has been measured in decades. Thus, while these investments may be critical to long-term scientific, technological, and industrial leadership, investments in research are generally unlikely to produce near-term commercial results.

Second, the conditions that facilitated the United States' ability to reap the benefits of federal research have changed significantly over time. After World War II, the United States dominated global R&D. As late as 1960, the United States accounted for more than 69% of global R&D;[131]

[129] Domestic Policy Council/Office of Science and Technology Policy, Executive Office of the President, *American Competitiveness Initiative: Leading the World in Innovation*, Washington, DC, February 2006, http://www.nsf.gov/attachments/108276/public/ACI.pdf.

[130] National Economic Council/Office of Science and Technology Policy, Executive Office of the President, *A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs*, Washington, DC, September 2009, http://www.whitehouse.gov/assets/documents/SEPT_20__Innovation_Whitepaper_FINAL.pdf.

[131] Office of Technology Policy, U.S. Department of Commerce, *The Global Context for U.S. Technology Policy*, (continued...)

federal funding alone accounted for 45% of global R&D. Accordingly, the R&D investments of the Federal government could drive global technology development pathways, and American companies—as well as the U.S. economy and workers—were generally the first to benefit. Today, the Federal government accounts for about 10% of global R&D, not because the federal investment has declined in absolute terms, but because other public and private investors around the world have grown at a faster pace. As new competitors emerged around the globe, many have been aggressive in accessing the results of the U.S. federal research investment which is largely performed in the open and available to all. Digitization of this research has expanded its accessibility and may have further eroded its unique value to U.S. companies.

Third, U.S. firms have more options than ever as to where to conduct work and locate production. Thus, even U.S. companies that are successful in translating the knowledge generated by federal research investments into products may opt to conduct related activities—such as design, engineering, manufacturing, and support—in locations outside of the United States. In the post-WWII era, these activities would have been more likely to occur within U.S. borders, creating economic growth and jobs in the U.S. economy.

While federal investment in research may be required for retaining U.S. scientific, technological, and industrial leadership and for generating economic growth and jobs, it may be insufficient in this regard in the absence of other policies affecting the relative attractiveness of the United States for the conduct of innovation, production and related work.

Transforming the Energy Economy[132]

The *2010 National Security Strategy* characterizes a national reluctance to move away from fossil fuels as leading to energy dependence which is likely to undermine both our national security and economic prosperity. The NSS suggests that there is a "window of opportunity" available, which the United States could take to become the world leader in clean energy technologies and production. According to the *Strategy*, if the United States waits, and allows other nations to take the lead, the likely result is that the country will have to import these technologies and products later (possibly from China). The NSS sees multi-faceted benefits to be derived from the clean energy approach, including economic growth and job creation, cutting greenhouse gas emissions, reducing our vulnerability to energy supply disruptions and manipulation, as well as enhanced energy efficiency and other benefits. The NSS recognizes that this fundamental transformation of our energy portfolio will take time, and encourages the use of fuels considered to be "transitional" as investment in next-generation clean technologies proceeds.

Context

The economic infrastructure of the United States is currently structured to run on fossil fuels. Air and ground transportation depend largely on gasoline, diesel, and jet fuel, all derived from crude oil. Electricity generation is largely fueled by coal and natural gas. Home heating is largely dependent directly on natural gas and other fossil fuels, or indirectly through electricity. The industrial sector relies on fossil fuels as a raw material, and to fuel industrial processes. The

(...continued)

Washington, DC, Summer 1997, http://permanent.access.gpo.gov/lps12230/nas.pdf.

[132] Prepared by Robert Pirog, Specialist in Energy Economics, Resources, Science, and Industry Division.

infrastructure to produce, transport, and deliver these fuels to consumers represents a large capital investment.

Because of the linkages between U.S. economic activity and fossil fuel use, volatility in either fuel prices or availability can have consequences for macroeconomic activity, including employment, inflation, growth and the international trade balance. In addition, use of these fuels has been associated with a variety of external costs, such as climate change.[133]

Crude oil prices have been volatile over the period 2008-2010. The price of oil reached a peak of over $142 per barrel in July 2008, and declined to less than $40 per barrel by January 2009. These price variations represent a more than 70% change in price during a seven-month period. In 2010, oil prices have varied between a low of approximately $70 per barrel and a high of approximately $85 per barrel.[134] In 2010, the United States consumed more than 19 million barrels per day of crude oil-based products with about 30% of the crude oil produced domestically and the remainder imported.[135]

Although the United States has not been subject to supply disruptions over the 2008-2010 period, economic growth in China, India, and other emerging nations has resulted in tight market conditions with little available world excess capacity that in the past has tended to stabilize the market. High oil prices, in conjunction with a large import requirement have contributed to the U.S. international trade deficit, and represent an economic cost to the nation, even though supply disruptions have not recently been costly to the economy.

Since the 1970s, oil markets have been subject to potential supply disruption because of international political problems. For example, Nigerian rebels periodically disrupt Niger delta oil shipments. The issue of Iran's possible development of nuclear weapons threatens to disrupt oil supplies from the Persian Gulf should military conflict develop. The uncertain security conditions in Iraq have impeded that nation from developing its full oil export capabilities.

Coal production is almost entirely domestically sourced in the United States. Prices have been variable, but do not exhibit the same degree of volatility as crude oil prices.[136] Coal has become associated with the problem of controlling carbon dioxide gas emissions and the issue of climate change.[137]

Natural gas is viewed by many analysts as the key transition fuel in the NSS's vision of a renewable energy future. The economic conditions in the natural gas market are favorable for consumers, but they are uncertain for producers. New discoveries of shale containing natural gas, and other non-conventional supply sources, along with economically viable technologies for recovery, have increased domestic production and reserves. Producers of natural gas have faced weakening prices as supply has increased without large observed increases in demand.

[133] External costs are those costs created by economic activity that are not part of the market price.

[134] Energy Information Administration, "WTI Spot Price" data, available at http://www.eia.doe.gov.

[135] Domestic crude oil production is augmented by petroleum liquids obtained as a by-product from natural gas production, which reduces imports.

[136] See Energy Information Administration, *Annual Coal Report*, available at http://www.eia.doe.gov.

[137] CRS Report R41027, *Displacing Coal with Generation from Existing Natural Gas-Fired Power Plants*, by Stan Mark Kaplan.

Historically, the natural gas market has generated cycles, with periods of low prices and ample supplies followed by much higher prices and reduced availability.[138]

Analysis

Transition of the U.S. energy economy to a clean energy, renewable fuels portfolio is likely to be a large project with economic gains and losses, requiring capital investments, a long lead time, and a fundamental reassessment of many products and infrastructure elements. Even with the availability of government-financed research and technology development and the environmental factors envisaged in the NSS, the transition will ultimately be subject to a market test appraising the economic viability of new investments and energy sources as they compete against fossil fuel alternatives.

A key factor in assessing the likelihood of an energy transition as proposed in the NSS is the substitutability of energy sources in a wide variety of final uses. For clean energy technologies to be adapted, it would be beneficial if the transition could be accomplished maximizing the use of existing infrastructure and final consumption goods. Within any given energy sector, the less substitutable and less able to use existing infrastructure a new energy source is, the more costly and time consuming the transition is likely to be.

For example, in the automobile and light truck transportation sector, which accounts for almost half of U.S. crude oil consumption, gasoline is the key fuel. A large infrastructure of refineries, pipelines, and service stations exist to supply product to the market. Recently, ethanol has been added to gasoline, requiring separate handling facilities, but still utilizing the same final consumer distribution system. Replacement of gasoline, either by a transition fuel, [natural gas based fuels are already being proposed to replace diesel fuel in trucks], would require a new, large-scale distribution system providing convenient access for consumers, and running parallel to the existing system. A later transition, to perhaps an electricity-based system, would make the existing oil-based infrastructure largely obsolete. On the consumer side, only limited possibilities for the conversion of the existing fleet of vehicles to alternative fuels exist. Due to the large automobile fleet and its relatively slow turn-over, it likely to take a number of years for the gasoline powered automobile/light truck fleet to be transformed to renewable energy based fuels.

Electricity generation could use the existing infrastructure as long as energy transition implies simply burning different fuels at the existing centralized generating plants. The barriers in that case are largely a national policy choice: should the United States draw on its large coal reserves, or cut back on domestic mining with the attendant implications for employment in the that sector? A more decentralized electric generating system, perhaps based on solar energy, would, as in the case of the oil industry, make capital investments in generating facilities largely redundant.

Jobs will very likely be created in both the transition to, and the achievement of a clean, renewable energy future. However, it is also likely that jobs will be lost in the traditional energy industries. Whether these gains and losses will offset each other, or favor one side or the other is unknown. Also unknown is whether the new jobs created will be higher or lower paying jobs than the ones they supplant. In addition, the skill requirements and locations of the new and old energy industry jobs will likely differ, making it less likely that actual individuals who lose a job will be able to find a job in the clean energy industry.

[138] Energy Information Administration, Natural Gas Wellhead Prices, available at http://www.eia.doe.gov.

To the extent that clean, renewable energy sources also implies domestic sourcing, key cost elements may decline. The cost of imported oil and petroleum products attained a yearly historic peak of over $400 billion in 2008, and is projected to reach approximately $181 billion in 2010.[139] Reducing gasoline usage will decrease these totals. In addition, some analysts tie a share of the U.S. defense budget to securing oil supplies. To the extent that reducing, or doing away with, this responsibility scales back the required military force, the actual savings may exceed the reduced cost of oil imports.

A key benefit from the transformation of the energy economy to cleaner fuels is likely to be the reduction in carbon emissions. Fossil fuels, to one degree or another, all necessarily emit carbon. The carbon can be captured, and other pollutants can be treated, but all at a cost.[140] Using fuels that do not emit significant amounts of carbon while achieving similar levels of performance is a more direct way to confront climate change issues.

Past experience with government leadership in energy transition has not resulted in the desired level of success. Subsidies for shale oil, solar energy, and other alternatives have so far generally not resulted in products that met the market test.[141] Perhaps the consumer outlook concerning the broad scope of costs associated with petroleum use, beyond the high out-of-pocket costs will create an environment in which a transition might be more feasible.

Space Capabilities[142]

The 2010 NSS states that U.S. space capabilities underpin global commerce and scientific achievements and bolster our national security strengths and those of our allies and partners. These points were detailed earlier in the Obama Administration's National Space Policy (NSP), issued in June 2010.[143] To maintain these benefits to global commerce and scientific achievement, the NSS calls for investments in space technology R&D, strengthening the space industrial base, and collaboration with universities to encourage students to pursue space-related careers.

For the first two of these goals related to space technology R&D and the space industrial base, the NSP directs federal departments and agencies to strengthen U.S. leadership in space-related science, technology, and industry by conducting basic and applied research, encouraging the commercial space sector, and ensuring the availability of space-related industrial capabilities.[144] Specifically, it directs the Secretary of Defense, the Director of National Intelligence, and others to "reinvigorate U.S. leadership by promoting technology development, improving industrial capacity, and maintaining a robust supplier base."[145] The goals of investing in technology R&D and strengthening the industrial base are also consistent with proposals in the Administration's

[139] Energy Information Administration, *Annual Energy Review 2009*, Table 3.9, Value of Fossil Fuels Net Imports.

[140] CRS Report RL34621, *Capturing CO2 from Coal-Fired Power Plants: Challenges for a Comprehensive Strategy*, by Larry Parker and Peter Folger.

[141] CRS Report CRS Report RL33359, *Oil Shale: History, Incentives, and Policy*, by Anthony Andrews.

[142] Prepared by Steven A. Hildreth, Specialist in Missile Defense, Foreign Affairs, Defense and Trade Division, and Daniel Morgan, Specialist in Science and Technology Policy, Resources, Science and Industry Division.

[143] *National Space Policy of the United States of America*, June 28, 2010, http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf. This replaced the Bush Administration's National Space Policy (2006).

[144] *National Space Policy*, p. 5.

[145] *National Space Policy*, p. 13.

FY2010 budget for the National Aeronautics and Space Administration (NASA), such as increased NASA funding for space technology development rather than specific flight missions, and a new initiative to help industry develop commercial crew launch services.

Because significant national security capabilities are provided by commercial space assets, some national security analysts have expressed concern over the state of the U.S. space launch industry and other factors affecting access to space for commercial satellites.[146] The NSS does not specifically mention commercial access to space, other than its general references to space capabilities and the space industrial base. Although the NSP mentions this issue, analysts have criticized that policy document for lacking an "executable strategy" to address the problem.[147] This is not a new concern, however. The same analysts note that the NSP's commercial space guidelines are "almost verbatim" those of the previous Administration's policy.[148]

The third space goal articulated by the NSS, encouraging students to pursue space-related careers, is less clearly aligned with the new NSP. The National Space Policy directs departments and agencies to "develop and retain space professionals," but its discussion of this point focuses mostly on the current space workforce.[149] Although it mentions public-private partnerships to foster education in science, technology, engineering, and mathematics (STEM), it makes no reference to universities. At present, congressional attention to space workforce policy is focused primarily on the end of the space shuttle program, the proposed termination of NASA's Constellation program, and the impact of these changes on the existing workforce.[150] An Administration budget amendment in June 2010 proposed transferring $100 million from NASA to the Departments of Commerce and Labor "to spur regional economic growth and job creation along the Florida Space Coast and other affected regions." In light of these concerns about the future of the existing space workforce, some analysts might question the focus in the NSS on encouraging additional university students to choose space-related careers.

The NSS additionally identifies U.S. space capabilities as critical to U.S. national security interests. In order to promote security and stability in space, the NSS also states that the United States will pursue activities consistent with the inherent right of self-defense, deepen cooperation with allies and friends, and work with all nations toward the responsible and peaceful uses of space. These objectives were largely in place from the George W. Bush and even earlier Bill Clinton era space policies, although most analysts argue that the tone of the Obama NSP stresses greater international cooperation on all these issues.[151] The Obama Administration reaffirmed long-standing policy that the United States would employ a variety of measures to assure the use of space for all responsible parties and, consistent with the right of self-defense, continue to protect U.S. assets and interests in space as essential to U.S. national security interests.

Some of the activities identified in the new NSP designed to strengthen stability in space include pursuing domestic and international measures to promote safe and responsible operations in

[146] See, for example, Center for Strategic and International Studies (CSIS), *National Security and the Commercial Space Sector*, July 2010.

[147] CSIS, *National Security and the Commercial Space Sector*, p. 13.

[148] Ibid.

[149] *National Space Policy*, p. 6.

[150] For more information, see CRS Report R41016, *The Future of NASA: Space Policy Issues Facing Congress*, by Daniel Morgan.

[151] "A Change in Tone in National Space Policy," Jeff Foust, *The Space Review*, July 6, 2010.

space, improving information collection and sharing to avoid collisions with objects in space, seeking ways to enhance the protection of critical space and information systems, and strengthening measures to mitigate orbital debris. Many of these efforts are in place or underway throughout the U.S. national security space environment. In particular, the Administration is looking to lead continued development and adoption of international and industry standards designed to minimize orbital debris, such as through the UN Space Debris Mitigation Guidelines. Additionally, the NSP states the United States will continue its own efforts to conduct research, and develop technologies and techniques to deal with the challenges and threats to U.S. national security assets posed by orbital debris. Finally, the Administration is looking to enhance collaboration even further between the Department of Defense, the intelligence community, NASA and other U.S. agencies, as well as industry and foreign nations to improve global understanding of the threat to all in space posed by orbital debris and to seek ways to deal with that problem.

Another emphasis is the Obama Administration's stated interest in space-related arms control measures that it argues would be equitable, effectively verifiable, and enhance the national security of the United States and its allies. Arguably, this differs from the Bush Administration approach that stated the United States would not accept limitations on U.S. freedom of action in space. Beyond some potential arms control measures such as those mentioned above regarding orbital debris, there does not appear to be any broad or overarching arms control measure being seriously considered by the Administration. In fact, despite some stated Administration support for a proposed UN Prevention of an Arms Race in Space agreement, for example, the Obama Administration has refrained from voting for such resolutions when the opportunity has presented itself.[152] Neither has the Administration indicated specifically whether it will support the space arms control treaty introduced by Russia and China at the 2008 Conference on Disarmament.[153] Some have suggested instead that various 'codes of conduct' or 'rules of the road' type agreements might be worth pursuing and possible in the current environment.

Globalization, Trade, Finance, and the G-20

The U.S. economy and national security depends greatly on what happens in countries and economies in the world at large and on the financial impact of trillions of dollars that flow through international foreign exchange markets each day. The Global Financial Crisis demonstrated strongly how interconnected the economies of the world have become and how quickly conditions in one market can be transmitted across the U.S. economy and across the oceans to Europe, Asia, and Latin America. Imbalances in trade and capital flows, undervalued exchange rates, and government intervention into markets all can affect wealth accumulation, economic strength, and military power.

U.S. national security also is affected by perceptions of the United States in other countries and by ideas and philosophies that drive policy in nations around the world. Some analysts have identified the clash of civilizations[154] as a key source of conflict, while threats posed by non-state,

[152] "A Holding Pattern in Space," David Wright, *All Things Nuclear*, Union of Concerned Scientists, http://allthingsnuclear.org/post/1453831768/a-holding-pattern-in-space.

[153] Wade Boese, "Russia Pushes Pacts as U.S. Kills Satellite," *Arms Control Today*, Arms Control Association, March 2008.

[154] Samuel P. Huntington, *The Clash of Civilizations and The Remaking of World Order* (New York : Simon & (continued...)

militant Islam terrorists command more and more military, diplomatic, and law enforcement resources. U.S. security may be enhanced by targeting causes of unrest abroad, particularly poverty, human rights abuses, and dictatorial governments. Improving human rights, especially the status of women, has been shown to go hand-in-hand with the development of democracy.[155] The nexus between democracy and peace, though frayed, still seems to exist, even though experience has shown that democracy cannot simply be parachuted into a country without supporting cultural and political institutions. In these respects, U.S. economic assistance and diplomatic outreach come into play.

In this section of this report, we address the international economic side of national security by focusing on six large issues. They are instability in the global economy, savings and exports, opening markets abroad, increasing domestic demand in China, building cooperative arrangements with international partners, deterring threats to the international financial system, and human rights and democracy.

Instability in the Global Economy[156]

The global financial crisis of 2008-2009 left such a path of destruction that the leading nations of the world have vowed to take measures to preclude a repeat of the disaster. The financial crisis also demonstrated the close connections and interdependence among world financial markets, national economic activity, the well being of people, and the balance sheets of governments, businesses, and households. It also highlighted the systemic failures that can occur when regulations do not account for new financial instruments or practices and oversight becomes lax. It also exposed the dangers existent when financial firms package and trade risky assets and provide insurance against those risks without adequate capital reserves.

The costs of the financial crisis have been enormous. These include a synchronous global recession that spread from the United States to Europe and Asia, a global increase in unemployment of an estimated 34 million persons between 2007 and 2009[157] (including more than 7 million in the United States), a loss of nearly one-third of global wealth (with some recovery in securities markets since 2008), and widespread disruption caused by home foreclosures, bankruptcies, and budgets in deficit at both state and central government levels.

In 2009, Dennis Blair, the Director of U.S. National Intelligence, stated that the global financial crisis and its geopolitical implications pose, "the primary near-term security concern of the United States." In addition, he said, "The longer it takes for the recovery to begin, the greater the likelihood of serious damage to U.S. strategic interests."[158]

The United States and other leading countries of the world have taken many measures, and are considering additional ones, aimed at reforming their respective financial sectors and

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Schuster, c1996).

[155] See, for example, Valerie M. Hudson, "Sex, War, and Peace: Rank, and Winter on Rank," *Political Psychology*, vol. 31, no. 1 (February 2010), pp. 33-39.

[156] Prepared by Dick K. Nanto, Specialist in Industry and Trade, Foreign Affairs, Defense, and Trade Division.

[157] International Labour Office, *Global Employment Trends*, Geneva, January 2010, p. 9.

[158] Blair, Dennis C., Annual Threat Assessment of the Intelligence Community for the Senate Select Committee on Intelligence, February 12, 2009.

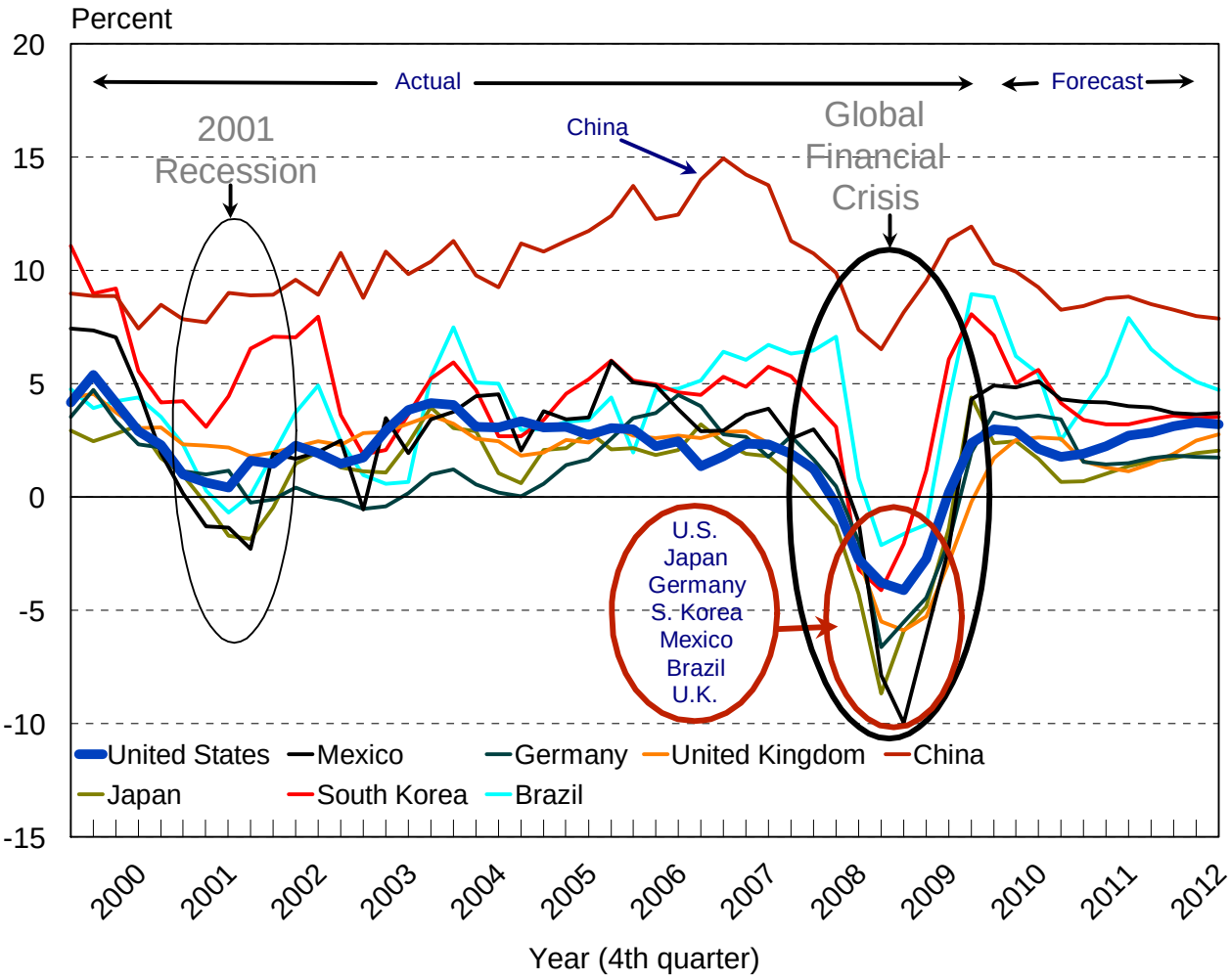
strengthening international financial institutions. Although the recession officially has ended, the industrialized economies still are faced with growth rates too low to generate a sufficient number of jobs to lower the rate of unemployment and must contend with severe constraints on their ability to pursue stimulative monetary and fiscal policies. The debt crisis in Greece in the spring of 2010 followed by a similar crisis in Ireland in the fall of 2010 again roiled financial markets. They exposed the fragility of the economic recovery in the northern industrialized countries and demonstrated how quickly instability can be transmitted from one country to another.[159]

The contagion and simultaneous downturn in major economies of the world can be seen in **Figure 7**. Even China experienced a slowdown in growth, although it did not fall into recession. This financial crisis was caused primarily by a bubble in housing prices, excess borrowing and leveraging by almost all sectors of the economy, and arguably insufficient regulation and oversight of new financial instruments and practices.

[159] For details, see CRS Report R41167, *Greece's Debt Crisis: Overview, Policy Responses, and Implications*, coordinated by Rebecca M. Nelson. For information on Ireland's debt crisis, see FT.com, Financial Times, In Depth, Ireland's Fiscal Crisis, http://www.ft.com/indepth/ireland-fiscal-crisis.

Figure 7. Quarterly GDP Growth Rates for Selected Countries

Percentage Change from a Year Earlier



Source: Data from IHS Global Insight. (September 15, 2010 update)

The process for coping with the crisis by countries across the globe has been manifest in four basic phases. The first has been intervention to contain the contagion and restore confidence in the system. The second has been coping with the secondary effects of the crisis, particularly the global recession and flight of capital from countries in emerging markets and elsewhere that have been affected by the crisis. The third phase has been to make changes in the financial system to reduce risk and prevent future crises. The fourth is dealing with political, social, and national security effects of the financial turmoil. For Europe, the fear is that the sovereign debt crises in Greece and Ireland may put those countries back into phase one.

The role for Congress in response to this financial crisis is multifaceted. While the initial focus was on combating the recession and on regulatory reform, the ultimate issue seems to be how to ensure the smooth and efficient functioning of financial markets to promote the general well-being of the country while protecting taxpayer interests and facilitating business operations without creating a moral hazard. In addition to preventing future crises through legislative, oversight, and domestic regulatory functions, Congress also provides funds and ground rules for economic stabilization and rescue packages and informs the public through hearings and other

means. Congress also plays a role in measures to reform the international financial system, in recapitalizing international financial institutions, such as the International Monetary Fund, in replenishing funds for poverty reduction arms of the international development banks, and in providing economic and humanitarian assistance to countries in need.

In 2010, Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act[160] and several other measures dealing with financial reform and amelioration of the impact of the recession.[161] These measures sought to address issues such systemic risk; Federal Reserve emergency authority; resolution (bankruptcy) regime for failing firms; securitization and shadow banking (banking functions being done by non-banks); consolidation of bank supervision; consumer financial protection; derivatives; credit rating agencies; investor protection; hedge funds; executive compensation and corporate governance; insurance; extension of unemployment benefits; cash for clunkers (automobiles); mortgages; and international financial institutions.

At the international level, the G-20 (Group of Twenty) and the Financial Stability Board have been both coordinating reforms and providing an opportunity for heads of state to show their support for actions. The International Monetary Fund also has increased its focus on global systemic stability, while the World Bank has worked to alleviate poverty around the world, provide trade and microfinance, and reform its governance to increase representation for emerging market economies.

Some of the issues to watch that are related to traditional national security include political turmoil as unemployment rates remain high and anti-incumbency sentiments intensify; attempts by countries to shift the burden of recession to trading partners by protecting domestic markets from imports or manipulating exchange rates to favor their exports; and severe fiscal restraints on central governments that cause them to reduce support for multinational counter-insurgency or peace keeping efforts.

An issue that increasingly is likely to impinge on U.S. national security is the enhanced presence of China in the global economy. China emerged from the financial crisis even stronger relative to countries in neighboring Asia, North America, and in Europe. With over $2 trillion in foreign exchange reserves, a growth rate of around 9%, a banking system relatively unharmed by the bursting of the mortgage bubble, virtually no national debt, a currency still tied primarily to the dollar, and confident that its hybrid, state-led model of development is superior to that of the West, China has become more self-assured in international affairs and more aggressive in its military activities.

[160] H.R. 4173, P.L. 111-203, signed into law on July 21, 2010.

[161] For details, see CRS Report R40975, *Financial Regulatory Reform and the 111th Congress*, coordinated by Baird Webel.

International Trade and National Security

International trade is playing a larger and larger role in national security considerations because of the flows of capital and wealth that it generates. The problem stems from the $507 billion U.S. trade deficit that must be funded by inflows of capital, much of it borrowed from trade-surplus countries such as China, Japan, and the oil exporters in the Middle East. A partial effect of the chronic U.S. deficit in trade is that wealth is being accumulated in China and elsewhere that not only is changing the balance of economic power in the world but also is being used to build military capability and promote China's foreign policy goals that may be contrary to U.S. interests. For many years, mainstream economic thinkers assured policymakers that trade deficits, particularly bilateral deficits, did not matter. They would correct themselves through adjustments in exchange rates and macroeconomic policies. Bringing balance into U.S. international trade accounts, however, has turned out to more difficult than generally thought. It depends on changing behavior, not only of governments, but of households and businesses both in the United States and abroad.

Savings and Exports[162]

The 2010 NSS makes a direct connection between the rate of saving in the U.S. economy as a whole and the growth of exports as a key component in job creation and economic security. The NSS states that reducing the imbalance between U.S. consumers buying and borrowing and other countries exporting and accumulating U.S. claims means "saving more and spending less, reforming our financial system, and reducing our long-term budget deficit." As a result of these changes, the NSS concludes that the nation will experience, "a greater emphasis on exports that we can build, produce, and sell all over the world, with the goal of doubling U.S. exports by 2014." The goal of this renewed emphasis on exports, according to the NSS, is that of an employment strategy, "because higher exports will support millions of well-paying American jobs…."

Context

The financial crisis of 2008-2009 spurred most advanced economies to adopt fiscal stimulus measures to shore up their economies and prevent a sharp rise in the rate of unemployment. While these efforts averted an economic free-fall, the large increase in government debts has rattled international capital markets and sparked calls for a major rebalancing in saving and consumption among the major economies. Financial turmoil in Greece, Ireland, and in other European countries has placed increased pressure on national governments to adopt austerity measures to satisfy credit markets. At the same time, most advanced economies are navigating a fine line between fiscal austerity, on one hand, and maintaining public support to forestall a slip back into recession, on the other. Given this clash of policies, some governments are promoting exports to spur their economies instead of relying on fiscal stimulus measures to boost domestic consumption. It is impossible, however, for all governments to increase their exports in order to raise their rate of economic growth, since exports imply that some countries must import. Also, the determination to increase exports has increased pressure on exchange rates and raised concerns over the prospects that nations will engage in competitive devaluations of their currency to make their exports more price competitive in international markets.

[162] Prepared by James K. Jackson, Specialist in International Trade and Finance, Foreign Affairs, Defense, and Trade Division.

Analysis

The relationship between exports, employment, and national savings is complicated. Trade and its impact on labor and wages in the economy generates much debate. On one hand, there are those who extol the benefits of free trade and argue in favor of a free and open trading system. On the other hand, some argue that foreign trade, principally imports, destroys jobs, undermines communities, and reduces the standard of living for many Americans.

Basically, trade represents an exchange of goods or services between two or more willing parties. Economic theory holds that such trade allows nations to use their resources in the most efficient way possible in order to maximize the total amount of goods and services that are available to their citizens, a common definition of a nation's standard of living. As a result of this maximization process, it is thought that nations trade because it serves their national interests. In the same way that individuals gain by specializing in activities that use their strongest skills and then trade with others, nations specialize in the production of certain goods and then trade with other nations for the goods they do not produce. Essentially, nations export in order to import goods and services they do not produce, or cannot produce efficiently. Most economists maintain that trade increases total welfare by spurring changes in the productive processes of the economy that make production more efficient and it increases the amount and variety of goods and services that are available to consumers. Economic theory argues, however, that the total number of jobs in the economy and the level of wages are determined primarily by the macroeconomic environment and not through trade, although trade can add to the rewards for labor, if that is a nation's abundant factor of production. This means, though, that for an economy such as the United States, trade alone is not seen as determining the level of wages, the level of output, or the level of employment and, therefore, does not serve well as a jobs creation program.

In the current highly globalized economy, trade has come to represent a complex set of transactions. Nations not only trade goods and services, but they also trade a broad range of financial products. In addition, liberalized capital flows and floating exchange rates have greatly expanded the amount of capital that flows between countries. As a result of these financial transactions, nations that have a surplus of saving can lend that excess saving to nations with deficient saving, closely linking national economies. In the U.S. economy, foreign capital inflows play an important role by bridging the gap between domestic supplies of and demand for capital. Capital inflows help keep U.S. interest rates below the level they would reach without them, and they allow the nation to spend beyond its current output, including financing its trade deficit.

Another aspect of capital mobility and capital inflows is the impact such capital flows have on the international exchange value of the dollar. Demand for U.S. assets, such as financial securities, translates into demand for the dollar, since U.S. securities are denominated in dollars. As demand for the dollar rises or falls according to overall demand for dollar-denominated assets, the value of the dollar changes. These exchange rate changes, in turn, have secondary effects on the prices of U.S. and foreign goods, which tend to alter the U.S. trade balance. The prominent role of the dollar means that the exchange value of the dollar often reacts to economic and political news and events across national borders. While the global role of the dollar helps facilitate a broad range of international economic and financial activities, it also means that the dollar's exchange value can vary greatly on a daily or weekly basis as it is buffeted by international events. A triennial survey of the world's leading central banks conducted by the Bank for International Settlements in April

2010[163] indicates that the daily trading of foreign currencies through traditional foreign exchange markets[164] totals $4.0 trillion, up from the $3.3 trillion a day reported in the previous survey conducted in 2007. In addition to the traditional foreign exchange market, the over-the-counter (OTC)[165] foreign exchange derivatives market reported that daily turnover of interest rate and non-traditional foreign exchange derivatives contracts reached $2.5 trillion in April 2010. The combined amount of $6.5 trillion for daily foreign exchange trading in the traditional and OTC markets is nearly half the size of the annual U.S. gross domestic product (GDP) and more than three times the annual amount of U.S. exports of goods and services. The data also indicate that 85% of the global foreign exchange turnover is in U.S. dollars.[166]

Increasing the rate of saving in the U.S. economy can be supported by any number of policy objectives, but it is not necessarily a path to a higher level of employment. By increasing the amount of domestic saving in the U.S. economy relative to the level of demand for those funds, the economy would be less reliant on foreign capital inflows. In turn, a lower level of demand for foreign capital would lower demand for the dollar, thereby reducing pressure on the international exchange value of the dollar. As the dollar would weaken in international markets, U.S. exports would become more price competitive, which would tend to shift production and employment in the economy towards the production of export goods. Such a shift in employment most likely would not add to the total number of jobs in the economy, but would represent a shifting of the existing jobs toward the export goods sectors. Increasing saving in the economy and reducing the inflow of foreign funds may also ease the concerns of those who argue that the exposure to foreign holdings of U.S. assets increases the overall risks to the economy should foreign investors decide to withdraw from the U.S. financial markets for political or economic reasons.

U.S. Savings and Chinese Consumption

The more U.S. households save, the less they consume, particularly of imports from China. Fewer U.S. imports from China implies a lower level of exports from China's unless that country can find substitute markets. This lower level of Chinese exports would have to be offset by higher consumption within China in order for them to maintain their high rate of economic growth. More consumption in China would tend to bring down their trade surplus and in combination with a higher savings rate in the United States help to bring down the U.S. trade deficit. This would contribute to U.S. economic growth and national security.

Boosting Domestic Demand Abroad[167]

The *2010 National Security Strategy* states the need for greater domestic demand abroad, especially in some emerging and developing countries, in order to help achieve the goal of more balanced global economic growth and to generate new opportunities for U.S. producers of goods and services. Such rebalancing is also considered critical to preventing a repeat of the global

[163] A similar survey was conducted in April 2010 and is expected to be released in August 2010.

[164] Traditional foreign exchange markets are organized exchanges which trade primarily in foreign exchange futures and options contracts where the terms and condition of the contracts are standardized.

[165] The over-the-counter foreign exchange derivatives market is an informal market consisting of dealers who custom-tailor agreements to meet the specific needs regarding maturity, payments intervals or other terms that allow the contracts to meet specific requirements for risk.

[166] *Triennial Central Bank Survey: Foreign Exchange and Derivatives Market Activity in 2010*, Bank for International Settlement, September 2010, pp. 1-2. A copy of the report is available at http://www.bis.org/publ/rpfx07.pdf.

[167] Prepared by Wayne M. Morrison, Specialist in Asian Trade and Finance, Foreign Affairs, Defense, and Trade Division

economic crisis that was largely sparked by global imbalances in savings, investment, and trade flows. In particular, nations with high savings rates (which are especially concentrated in Asia) are seen as needing to lessen their reliance on exporting for GDP growth and instead rely more on domestic consumption.

The Role of China

The largest key to generating greater domestic demand abroad lies in China. As the world's most populous nation, second largest economy, biggest holder of foreign exchange reserves, and largest merchandise exporter, China plays a central role in the goal of achieving more balanced economic growth and creating new sources of external demand for the U.S. economy and for U.S. goods and services. Chinese economic policies are viewed by many as a significant cause of the global imbalances.

To illustrate:

- Gross savings are the total level of domestic savings, including private, corporate, and government. Savings represents income that is not consumed or spent by businesses. Over the past several years, the United States has maintained one of the world's lowest gross savings rates (i.e., total national savings as a percent of GDP), while China has maintained one of the world's highest national savings rates. From 1990 to 2009, U.S. gross national savings as a percent of GDP declined from 13.5% to 8.7%, while China's rose from 37.8% to 50.5%.
- The United States does not save enough to fund its investment needs and must borrow from abroad, while China has excess savings relative to its investment needs. In 2008, the ratio of U.S. gross domestic savings to gross investment was 66.9%, the lowest among the world's major economies. On the other hand, the ratio for China was 122.2%, one of highest among major economies.
- Nations that do not save enough to meet domestic investment run current account deficits and those that save more than they need for domestic investment run current account surpluses.[168] In nominal dollar terms, the United States had the world's largest current account deficit at $706 billion in 2008, while China had the world's largest current account surplus at $426 billion.[169] These balances were also significant as a share of GDP: 9.6% for China and -4.9% for the United States.
- Until very recently, domestic private consumption has been the dominant contributor to U.S. GDP growth. In 2008, private consumption as a percent of GDP was 70%, the highest among the major world economies. Private consumption as a percent of GDP for China was 35.3%, among the world's lowest.

[168] A current account deficit also reflects that a country consumes more than it produces, while a current account surplus indicates that a countries produces more than it consumes. The current account includes trade in goods and services plus unilateral transfers such as remittances.

[169] The U.S. current account deficit, and China's current account surplus, both fell in 2009 as a result of the global economic slowdown.

- Analysis by the International Monetary Fund estimated that fixed investment related to tradable goods plus net exports together accounted for over 60% of China's GDP growth from 2001 to 2008, (up from 40% from 1990 to 2000). This was significantly higher than that in the G-7 countries (16%), the euro area (30%) and the rest of Asia (35%).

Many economists contend that China's economic policies have favored sectors producing tradable goods at the expense of other domestic sectors, which led to over-investment in many industries and suppressed domestic consumption. For example, China's central bank heavily intervenes in foreign exchange markets to limit the appreciation of its currency, the renminbi (RMB) or yuan against the dollar and other major currencies. This policy makes Chinese exports cheaper, and foreign imports into China more expensive than they would be if market forces determined the exchange rate of the RMB. Such policies have led China to become the world's largest holder of foreign exchange reserves at $2.5 trillion through June 2010, a large share of which (some estimate around 70%) is in U.S. dollar assets. Rather than just hold onto dollars that earn no interest, China has invested a large share of these holdings in U.S. securities, especially U.S. Treasury securities which are used to fund U.S. budget deficits. China is the largest holder of U.S. Treasury securities, estimated at $844 billion as of June 2010. Many analysts contend that Chinese large-scale investment in the United States contributed to artificially low real U.S. interest rates that in turn led to the U.S. housing bubble and subsequent global financial crisis and economic slowdown.

Will China Change its Economic Growth Model?

China's economy was hit hard by the global economic slowdown, especially its export sector where over 20 million people were estimated by the government to have been laid off. The Chinese government responded with a $586 billion economic stimulus program that was largely focused on infrastructure development as well as loose monetary policies to boost bank lending in order to boost domestic demand. These policies appear to have been successful in the short-run. While many of the world's largest economies fell into recession in 2009, China's was able to maintain fairly healthy economic growth, with real GDP growth at 9.1% in 2009 (although down from 13% in 2007) and an estimated 10.1% in 2010.[170]

Chinese officials have stated that these measures represent a long-term commitment by the government to rely more on domestic consumption as a source of GDP growth and less on exporting. It has stated plans to further improve infrastructure, boost education spending, improve energy efficiency and reduce pollution, and develop a comprehensive social safety net, For example, in April 2009, the government pledged to implement a three-year, $124.4 billion, plan to begin the establishment of universal health care plan to be in place by 2020. However, some remain skeptical of China's willingness to eliminate its export-oriented economic policies. For example, in June 2010, the Chinese government announced it would allow its currency to gradually appreciate against the dollar and other currencies, a policy that was implemented from July 2005 to July 2008 (when the RMB was allowed to rise by 21% against the dollar) but was halted when the global economic slowdown began in mid-2008. Yet, the RMB has appreciated by only 0.6% from June though August 21, 2010. Some U.S. economists have charged that China's currency policy has forced other Asian economies to try to hold down the value of their currency against the dollar in order to compete against Chinese exports. This in turn, some contend, has

[170] IHS Global Insight, China—Interim Annual Forecast, updated December 10, 2010.

diminished U.S. exports and has undermined global economic recovery. China, on the other hand, counters that its imports have risen faster than its exports during the first half of 2010 (year-on-year) and thus contends that Chinese demand is contributing to global economic economy.

Chinese officials insist that their current trade policy is not meant to favor exports over imports but, instead, to foster domestic economic stability. They have expressed concern that abandoning their current policies, especially their effort to keep their currency from appreciating too rapidly, could further weaken their export industries and cause wide-scale layoffs. Chinese officials view economic stability as critical to sustaining political stability.

China is currently the third largest U.S. export market. If China were to implement major economic reforms (such as to the banking system, its currency policy, and in terms of lowering trade barriers), it would likely stimulate domestic demand and produce healthy economic growth. Such growth would likely sharply increase Chinese domestic demand for goods and services related to consumption (as opposed to imports that are largely used by the export sector to make finished products), and thus would increase demand for foreign imports. Such policies could lead to significant improvements in Chinese living standards as well as those in the United States (because of increased exports).

Export Markets and National Security

For the first quarter century following World War II, U.S. economic power not only dominated international trade, but the United States could afford to overlook the protectionist policies of other nations, particularly those allied with Washington in the Cold War. This enabled countries such as Japan, South Korea, Taiwan, Hong Kong, and Singapore to pursue a growth model led by exports. The export market of last resort was the United States. The resultant economic growth and development of friendly, largely democratic nations/economies provided gains for U.S. national security that compensated partly for the trade policies of governments that promoted exports and discouraged imports. However, as the U.S. deficit in trade has increased and the perception has risen that liberalized trade causes the loss of U.S. jobs, many Americans have become wary of international trade agreements. Yet bringing balance into U.S. international trade accounts requires either a lower level of imports or more U.S. exports. More U.S. exports may be generated by lowering trade barriers abroad. As with increased U.S. savings and greater Chinese consumption this relates directly to increasing U.S. growth and enhancing U.S. national security. Central to the debate over free trade, however, is the question of whether liberalized trade in the whole serves to enhance or detract from U.S. national security.

Open Foreign Markets to U.S. Products and Services[171]

According to the *2010 National Security Strategy*, the Obama Administration aims to open foreign markets for U.S. goods and services by negotiating and enforcing multilateral agreements, in the form of "an ambitious and balanced Doha multilateral trade agreement," together with bilateral trade agreements that "reflect our values and interests," and regional arrangements with countries in the Trans-Pacific area. At the same time, according to the statement, the Administration will maintain open U.S. markets to foreign goods and services because they "force [U.S.] companies and workers to compete and innovate" and "at the same time, [have] offered market access crucial to the success of so many countries around the world." Open markets will be crucial to U.S. companies and workers, according to the NSS statement, as they

[171] Prepared by William H. Cooper, Specialist in International Trade and Finance, Foreign Affairs, Defense, and Trade Division.

strive to compete in an increasingly globalized world. While underscoring the benefits of open markets both abroad and in the United States, the Obama Administration's NSS acknowledges that some workers and firms confront adjustment costs in the face of increased foreign competition and that has undermined confidence in the benefits of trade agreements. In the NSS, the Administration argues that its domestic agenda to promote innovation, infrastructure development, healthcare reform, and education reform would assist workers and firms with the adjustments and help restore public confidence in open markets. The goal to "open markets to U.S. products and services" is closely related to the objectives "to achieve balanced and sustainable growth," including the one to "save more and export more," that are discussed elsewhere in this report.

Analysis

This NSS objective reflects mainstream economic theory—that open markets promote economic welfare—"prosperity"—through more efficient allocation of resources. It also acknowledges that the benefits from more open markets are not distributed evenly—some workers and firms may benefit while others "lose." The objective re-affirms basic U.S. trade policy employed by both Democratic and Republican Administrations since the 1930s. Over the years, this policy has contributed to building a multilateral framework under the aegis of the World Trade Organization (WTO), to liberalize and establish rules to govern trade in manufactured and agricultural goods and in services as well as some trade-related activities, among 153 economies. The policy has also led to the United States forming 11 free trade agreements (FTAs) with 17 trading partner countries.

According to academic research, parties to trade liberalizing blocs and FTAs are less prone to disputes than other states, and hostilities between members are less likely to occur as trade flows rise between them. One study found that heightened commerce is more likely to inhibit conflict between states that belong to the same preferential grouping than between states that do not.[172] The George W. Bush 2006 National Security Strategy stated that free trade agreements encourage countries to enhance the rule of law, fight corruption, and further democratic accountability.[173]

The Obama Administration's strategy in gaining market access for U.S. goods and services appears to be three-pronged: (1) to encourage/demand that trading partners fulfill commitments made under the WTO and FTAs to open their markets to U.S. exports; (2) to address outstanding concerns in agreements and negotiations pending from the Bush Administration and move them forward; and (3) to pursue new initiatives.

Trade Enforcement

During its first year, the Obama Administration's trade policy largely consisted of using U.S. trade laws to secure trading partners' adherence to commitments in multilateral trade agreements and in regional and bilateral trade agreements as a way to open foreign markets for U.S. goods and services and to protect U.S. firms and workers from foreign unfair trade practices. One of the

[172] Edward D Mansfield and Jon C Pevehouse., "Trade blocs, trade flows, and international conflict," *International Organization*, Autumn 2000. Vol. 54, Iss. 4, p. 775. See also: Philippe Martin, Thierry Mayer, Mathias Thoenig, "The economics and politics of free trade agreements," *VOX*, April 9, 2010, http://www.voxeu.org/index.php?q=node/4840.

[173] The White House, *The National Security Strateg of the United States of America*, March 2006, p. 7.

most prominent examples concerned U.S. imports of tires from China. On September 11, 2009, President Obama made a determination under section 421 of the Trade Act of 1974, as amended, that passenger vehicle and truck tires from China were causing or threatening to cause market disruption for U.S. tire producers and ordered additional duties to be imposed on those imports for three years. It was the first time since the enactment of section 421 in 2002, as part of legislation to grant China permanent normal trade relations (PNTR) status, that a President has made such a determination.[174]

However, some U.S. trading partners have charged that the United States has not been fulfilling its WTO obligations because it has not complied with some adverse decisions in the WTO. These include WTO determinations that the U.S. practice of "zeroing" in calculating antidumping duties and U.S. subsidies on cotton violate WTO rules and agreements. The WTO has approved the right of trading partners to impose countermeasures, such as increased tariffs, in retaliation for U.S. noncompliance in those cases.[175] Each countermeasure and retaliatory action further distorts international trade and adds to tensions that could spill over into political and security areas.

Pending FTAs and Negotiations

The Bush Administration completed negotiations on three FTAs—with Colombia, Panama, and South Korea—which had not received congressional consideration before the end of the Bush Administration. Each of the three FTAs were completed under the terms of the Trade Promotion Authority (TPA) before it expired on June 30, 2007, and therefore would be eligible for expedited (fast-track) congressional consideration. Concerns of some Members about violence against labor union leaders in Colombia, about Panamanian laws that encourage use of that country as a tax haven, and about market access in South Korea for U.S.-made cars and U.S. beef, among other issues, have held up congressional action on these agreements; and, therefore, they remained pending as the Obama Administration began its term.[176]

During its first year, the Obama Administration kept consideration of the pending trade agreements largely on the backburner, as recovery from the effects of the global financial crisis and economic downturn, health care reform and other issues dominated its economic agenda. In an apparent shift in strategy, President Obama, during his January 27, 2010, State of the Union address, expressed the need for the United States to strengthen its trade ties in Asia "with partners like South Korea" and also called for doubling of U.S. exports within five years. On June 26, 2010, President Obama announced that he would direct the U.S. Trade Representative, Ambassador Robert Kirk, to work with the South Korean trade minister to resolve outstanding issues on the KORUS FTA by the time President Obama and South Korean President Lee met again in Seoul in November 2010 for the G-20 summit. The President said that he intends "in the few months" after the November meeting to present Congress with the implementing legislation for the agreement. The President made the announcement at a joint press conference following

[174] For more information on U.S.-China trade issues, see CRS Report RL33536, *China-U.S. Trade Issues*, by Wayne M. Morrison.

[175] See CRS Report RL32014, *WTO Dispute Settlement: Status of U.S. Compliance in Pending Cases*, by Jeanne J. Grimmett.

[176] For more information on these three FTAs, see CRS Report RL32540, *The Proposed U.S.-Panama Free Trade Agreement*, by J. F. Hornbeck; CRS Report RL34470, *The Proposed U.S.-Colombia Free Trade Agreement*, by M. Angeles Villarreal; and CRS Report RL34330, *The Proposed U.S.-South Korea Free Trade Agreement (KORUS FTA): Provisions and Implications*, coordinated by William H. Cooper.

his meeting with President Lee prior to the G-20 summit in Toronto. It was the Administration's first public indication of a timeline for consideration of any of the pending FTAs. On December 4, 2010, President Obama announced that U.S. and South Korean negotiators had reached agreement on modifications to the KORUS FTA and that he looked forward to working with Congress and leaders in both parties to approve the pact.[177] The Administration has also expressed intentions to move on the Colombia and Panama FTAs, as outstanding issues are resolved.

New Initiatives

The Trans-Pacific Partnership Agreement (TPP) is a free trade agreement that includes nations on both sides of the Pacific. It currently consists of Brunei, Chile, New Zealand, and Singapore, but the United States, Australia, Peru, and Vietnam have committed to joining and expanding this group. President Bush had formally notified the 110th Congress towards the end of his second term of his intention to begin negotiations with current and potential TPP member countries. However, U.S. participation did not seriously begin until November 2009 when President Obama committed the United States to engage with the TPP countries in order to construct a comprehensive free trade framework as a model for the 21st century. The Administration aims to use the TPP to build ties with the Asian-Pacific region but also to create a comprehensive FTA template that would service U.S. economic interests in the 21st century. [178]

Alternative Views

Views on the value of trade liberalization and trade agreements sharply diverge In general those views reflect the fact that the benefits of trade liberalization are generally diffused throughout the economy, while the costs are concentrated on specific segments of the economy. Some recent opinion surveys suggest ambivalence, and perhaps a growing skepticism, among the American public regarding the impact of trade liberalization on U.S. economic welfare especially as they deal with the effects of the economic downturn. According to these surveys, a shrinking plurality regards trade liberalization in general as good for U.S. economic interests, but a majority believe that trade agreements *per se* cost American jobs.

Views on trade liberalization vary among the major U.S. stakeholders in trade policy. In general, the U.S. business community has supported trade agreements, although some import-sensitive industries, such as textiles and apparel, have largely opposed them. The agriculture community largely supports them. U.S. labor in general has been skeptical on trade and has opposed most free trade agreements. Some non-governmental organizations, particularly those that serve poor countries, have opposed trade liberalization, while others view trade liberalization as an avenue to economic growth and development.[179]

Congress appears to reflect the public's ambivalence on trade policy much of the time. Ambivalence on trade appears to be especially evident in the House of Representatives. Over the years, support in Congress for trade liberalization, by some measures, seems to have declined.

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[177] Office of the Press Secretary, *Remarks by the President at the Announcement of a U.S.-Korea Free Trade Agreement*, The White House, Press Release, December 4, 2010.

[178] For more information on the TPP, see CRS Report R40502, *The Trans-Pacific Partnership Agreement*, by Ian F. Fergusson and Bruce Vaughn.

[179] For more information, see CRS Report R41145, *The Future of U.S. Trade Policy: An Analysis of Issues and Options for the 112th Congress*, by William H. Cooper.

Skepticism on trade, especially among Democratic House Members is reflected in H.R. 3012, the Trade Reform, Accountability, Development, and Employment Act of 2009 (TRADE Act of 2009), introduced in the House on June 24, 2009 and has 147 co-sponsors. The bill calls for a major review of some current FTAs and a halt to future negotiations pending a review of U.S. trade policy.

Build Cooperation with International Partners[180]

The *2010 National Security Strategy* views cooperation with international partners as a key component of achieving balanced and sustainable growth. In particular, the NSS emphasizes two areas of cooperation. The first is U.S. support for increased representation of emerging-market countries in the international financial architecture. The second is using U.S. leadership to promote specific goals within the G-20. Generally, cooperation brings benefits but can also be difficult to achieve. Ad hoc planning, voluntary (i.e., non-binding) adoption of policies, and little enforcement and follow-up can pose challenges to cooperating with international partners.

Emerging-Market Representation in the International Financial Architecture

In recent decades, emerging-market countries have begun to play a larger role in the international economy. They have grown in size, developed rapidly, become active participants in international trade and finance, and increased their holdings of foreign exchange reserves. The international financial architecture, however, has been slow to reflect their increased importance and role in the global economy. Since the global financial crisis began in the fall of 2008, however, this has started to change. The NSS's commitment to increase the representation of emerging markets in the international financial architecture largely reiterates changes that are already underway or are being discussed in other forums.

G-20: The NSS emphasizes U.S. support for the G-20 process, whose prominence has increased with the global financial crisis.[181] Before the crisis, economic discussions at the leader level had been held by the G-7/G-8, a small group of advanced countries.[182] When the global financial crisis hit, leaders decided that emerging-markets were too important to exclude from these discussions. The G-7/G-8 leaders convened, for the first time, leaders from a more diverse set of countries that included advanced and emerging-market countries (the G-20). It is reported that this decision was supported by the Bush Administration.[183] The G-20 met in Washington, DC in November 2008, and since then the G-20 has held five summits with the fifth in Seoul, Korea in November 2010. In the third G-20 summit (September 2009 in Pittsburgh), which was hosted by

[180] Prepared by Rebecca M. Nelson, Analyst in International Trade and Finance, Foreign Affairs, Defense, and Trade Division.

[181] For more on the G-20, see CRS Report R40977, *The G-20 and International Economic Cooperation: Background and Implications for Congress*, by Rebecca M. Nelson. The members of the G-20 include Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, and the United States.

[182] The G-7 includes Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. Russia has joined the G-7 meetings at the leader level (summits) as a full participant since 1998, forming the Group of Eight (G-8). With a smaller economy than the G-7 members, Russia does not usually participate in international economic discussions, however, which continued primarily at the G-7 level. For example, Russia is not included in the G-7 meetings at the finance ministerial level.

[183] E.g., "After the Fall," *The Economist*, November 15, 2009.

President Obama, the participants decided that the G-20 would henceforth be the premier forum for international economic cooperation, effectively displacing the G-7/G-8's role as such.

While many have applauded the expansion of the G-7/G-8 to the G-20, others have expressed reservations. Some argue that G-20 membership is arbitrary and does not include some important emerging-market countries (such as Poland, Thailand, Egypt, and Pakistan), under-represents sub-Saharan Africa, and has a disproportionate number of European members. Others have expressed concern that expanding economic discussions to such a heterogeneous group undermines efforts at international economic cooperation.

Reforms at the World Bank and the IMF: The NSS also supports efforts to increase the representation of emerging markets at the World Bank and the International Monetary Fund (IMF). This references commitments made by the G-20 leaders to shift voting power to emerging-market countries. The World Bank shareholders agreed to voting reform in April 2010. In this agreement, U.S. voting power is not expected to be affected and the United States will retain veto power over major decisions at the Bank.

IMF quota reform is proving more controversial. Many experts argue that IMF quotas should broadly reflect a country's relative size in the world economy,[184] and that some European countries are over-represented at the IMF, while some emerging-market countries, like China, are under-represented. However, no agreement has been reached on exactly which countries will see their quota share, and thus voting power, change, and if so, by how much.[185] The United States is considered an underrepresented country at the IMF, because its IMF quota share is smaller than its share in the world economy. Over the decades, the United States has given up IMF quotas to lower its financial commitment to the institution and allow new members to join, while still retaining its veto power over major decisions at the IMF. The United States is not expected to lose substantial quota share in the IMF reform.

The G-20 leaders also pledged that the heads of international financial institutions should be appointed through an "open, transparent, and merit-based selection process." This may affect the 60-year-old unwritten convention that the Managing Director of the IMF is selected by Western European countries and the President of the World Bank is selected by the United States. However, the wording in the G-20 declarations on this point is vague. To date there is no consensus on how this would be implemented in practice.

U.S. Leadership in the G-20

The 2010 NSS states that U.S. leadership in the G-20 will be "focused on securing sustainable and balanced growth, coordinating reform of financial sector regulation, fostering global economic development, and promoting energy security." These are the main issues that have been discussed in recent G-20 summits and were on the agenda for the Seoul Summit.

Securing sustainable and balanced growth: The G-20's "Framework for Strong, Sustainable and Balanced Growth" aims to correct the global imbalances that many believe contributed to the

[184] E.g., see "IMF Quotas," International Monetary Fund, October 31, 2009. Available at http://www.imf.org/external/np/exr/facts/quotas.htm. Also see "Quota Reform at the G-20," Reserve Bank of Australia, February 2006. Available at http://www.treasury.gov.au/documents/1102/HTML/docshell.asp?URL=G20_Quota_Reform.htm.

[185] "Money, Votes and Politics," *The Economist*, October 7, 2009.

global financial crisis. Through this framework, the G-20 members agree on shared policy objectives, assess (with the IMF's assistance) the collective implications of national policy frameworks for the global economy, and consider and agree to actions that are necessary to meet common objectives. In this process, the G-20 and the IMF can only make policy recommendations; they cannot impose policies on members. The assessment process is underway, but some have raised questions about how effective it will be without rigorous enforcement mechanisms.

Coordinating reform of financial sector regulation: Some argue that a major cause of the global financial crisis was the failure of policymakers to adequately regulate financial markets both domestically and globally. Consequently, proposals for regulatory reform have been central components of each of the G-20 summits. Within the G-20, the United States is generally viewed as a leader in regulatory reform, having passed a major regulatory reform bill in July 2010 (P.L. 111-203).[186] The Administration is now expected to focus on making sure that other countries adopt consistent and harmonized regulatory reforms to ensure a "level playing field," and that capital does not flow out of the United States to countries with looser banking standards. Assessing the implementation and consistency of national level regulations is expected to be a major G-20 priority.

Fostering global economic development: For the Seoul Summit, Korean officials also proposed an ambitious set of new initiatives that focus on the needs of the emerging and developing world. These initiatives include (1) creating safety nets to help countries handle volatile capital flows; (2) refocusing the G-20's discussions on narrowing the development gap and reducing poverty; and (3) engaging the private sector in development initiatives.

Promoting energy security: At the Pittsburgh summit, the G-20 leaders committed to eliminating fossil fuel subsidies over the medium-term. The Obama Administration supports the ban on fossil fuel subsidies and reportedly pushed for it at the G-20 summit in Pittsburgh.[187] Eliminating fossil fuel subsidies may prove difficult. Governments in low-and middle-income countries, who spend $310 billion a year on fossil fuel subsidies compared to the $20-30 billion spent annually by developed countries, may be reluctant for political reasons to eliminate these subsidies.[188] In 2008, cuts in subsidies in Egypt, India, and Indonesia resulted in street protests and political upheaval.[189] Eliminating fossil fuel subsidies in rich countries may also face obstacles. In the United States, it would require congressional approval, and it is expected that the oil industry would strongly oppose such legislation.[190]

[186] For more information, see CRS Report R40975, *Financial Regulatory Reform and the 111th Congress*, coordinated by Baird Webel.

[187] Ben Geman, "White House Wants Fuel Subsidy Cuts on G-20 Agenda," *Washington Post*, September 16, 2009.

[188] "Fossilised Policy," *The Economist*, October 1, 2009.

[189] Ibid.

[190] Ibid.

Deterring Threats to the International Financial System[191]

The 2010 NSS identifies as a national security priority the goal of denying illicit actors and their affiliated support networks access to the international financial system and targeting illicit resources stored within the international financial system. Abuse of the international financial system by illicit actors includes a variety of often transnational financial crimes. Such crimes include but are not limited to money laundering, international trade and customs fraud, financing for nuclear proliferation and terrorism, and the kleptocratic looting of government funds by public officials for self-aggrandizement. Illicit actors may seek to store criminal proceeds within the international financial system or use legitimately-sourced funding stored in the international financial system with the intent to use it for the financing of illicit activities. Although there are no reliable and precise estimates for either the amount of such dirty money, experts widely agree that the combined total volume circulating in the international financial system is likely vast.[192]

For at least more than a decade, successive Administrations have identified threats to the international financial system—and emphasized efforts to deter and combat such threats—as a national security goal. Policies to combat financial crimes can be described as evolutionary, building and refining upon prior efforts as new financial threats emerge, while remaining roughly consistent with the goals of prior administrations. With such evolutionary progress, U.S. efforts to protect the international financial system from illicit threats appear to have also grown in terms of the scope and number of programs in place, as well as in the amount of resources and number of personnel involved. One of the most significant changes over time, however, is the strategic context in which financial threats are framed and identified.

NSS documents under President Bill Clinton, for example, emphasized money laundering and other "threats to the integrity and reliability of the international financial system" as manifestations of post-Cold War, non-state transnational security problems, primarily drug trafficking, which was identified for the first time as a national security threat in 1986 (National Security Decision Directive 221) and remained a major U.S. policy concern throughout the 1990s. Other non-state transnational threats included terrorism and other international organized crimes such as arms trafficking and migrant smuggling.[193] According to the Clinton Administration's 1999 NSS, for example, transnational threats were among the top five "most serious threats to U.S. security."[194] Key identified means to confront such threats in the Clinton Administration's NSS included standardizing laws and regulations governing financial institutions, improving international law enforcement cooperation in the financial sector, and extending the reach of financial sanctions to international terrorists support networks.

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[191] Prepared by Liana Sun Wyler, Analyst in International Crime and Narcotics, Foreign Affairs, Defense, and Trade Division.

[192] See for example, U.S. Government, U.S. Money Laundering Threat Assessment, December 2005, p. i. According to this interagency assessment conducted by the U.S. government on money laundering, common methods used by criminal actors include the laundering of funds through formal banking and depository institutions; non-bank financial institutions such as money services businesses, casinos, insurance companies, and jewelry and car dealerships; legal entities, such as corporations and limited liability companies and trusts. Bulk cash smuggling is also popularly used as a method to move criminal proceeds internationally to countries with lax anti-money laundering regulation and enforcement. International trade and customs fraud, such as false-, under-, or over-invoicing of exports and imports, can also be used to as a method to earn, move and store proceeds disguised as legitimate trade.

[193] Clinton Administration, U.S. National Security Strategy, 1999, p. 15.

[194] Clinton Administration, U.S. National Security Strategy, 1999, p. 5.

President George W. Bush's 2002 and 2006 NSS documents were influenced by and responded primarily to the Al Qaeda terrorist attacks of September 11, 2001. As a result, threats to the international financial system became largely framed, particularly in the 2002 NSS, in the context of terrorist financing. Yet, the primary mechanism through which new counter-terrorist financing programs were established centered on modifications to existing anti-money laundering programs. Goals included identifying and blocking the sources of funding for terrorism, freezing the assets of terrorists and those who support them, denying terrorists access to the international financial system, protecting legitimate charities from being abused by terrorists, and preventing the movement of terrorists' assets through alternative financial networks.[195] By 2006, however, the Bush Administration had expanded its emphasis on terrorist financing to include other threats to the international financial system, such as proliferation finance by WMD (weapons of mass destruction)-smuggling networks, money laundering by international criminals, and the illicit appropriation of government assets by corrupt political leaders. Unlike the Clinton Administration's NSS, discussion of threats to the international financial system were not limited to non-state actors, particularly with the additional emphasis in the 2006 NSS of illicit financial activity by corrupt foreign politicians and foreign countries seeking nuclear technologies through illicit smuggling networks.

President Barack Obama's 2010 NSS not only builds upon prior NSS documents to identify combating threats to the international financial system as a national security priority, but also includes other U.S. government strategy documents that seek to target and block illicit international financial activity, several of which were issued during the Bush Administration. In reverse chronological order, these include the 2010 National Drug Control Strategy, the 2008 U.S. Law Enforcement Strategy to Combat International Organized Crime, the 2007 National Money Laundering Strategy, the 2006 U.S. Strategy to Internationalize Efforts Against Kleptocracy, and the 2006 National Strategy to Combat Terrorism.

Common policy threads across the Clinton, Bush, and Obama Administrations center around three key goals: (1) applying financial measures to freeze and block assets of specially designated criminal entities and their associates; (2) expanding financial regulatory and enforcement tools to monitor and combat money laundering, both domestically and through multilateral venues; and (3) encouraging international financial intelligence and law enforcement information sharing. Notable developments in U.S. policy to combat international financial crimes have included the:

- Enhanced financial regulatory authorities. For example, section 311 of the USA PATRIOT Act of 2001, which amended the Bank Secrecy Act of 1970, allows the Treasury Department to apply enhanced banking regulatory requirements, called "special measures," against designated jurisdictions, financial institutions, and international transactions that are found to be involved in criminal or terrorist financing activities.
- Development of further financial regulatory standards internationally. This has included enhanced emphasis on developing international regulatory standards and procedures for mutual evaluation of financial regulatory practices through the Financial Action Task Force (FATF) and FATF-style regional bodies;
- Expansion of international law enforcement cooperation. Such initiatives have included:

[195] Bush Administration, U.S. National Security Strategy, 2002, p. 6.

1. creation of the Egmont Group, an international consortium of national Financial Intelligence Units (FIUs) through which financial intelligence data can be shared internationally through secure servers;
2. establishment of Trade Transparency Units (TTUs) in several countries in Latin America to facilitate bilateral law enforcement cooperation in trade and customs irregularities that could be indicative of trade-based money laundering;
3. establishment of a foreign political corruption task force to facilitate law enforcement cooperation on kleptocracy cases and support for the World Bank's Stolen Asset Recovery (StAR) Initiative to repatriate assets stolen by corrupt political leaders, and
4. enhancement of international cooperation on combating bulk cash smuggling, such as with Mexico to combat bulk cash movements of drug proceeds from the United States to Mexico;

- Application of targeted financial sanctions. For example, the Treasury Department's Office of Foreign Asset Control (OFAC) has gained increased authority to freeze assets and block transactions within U.S. jurisdiction of specially designated individuals involved in drug trafficking, terrorism and terrorist financing, WMD proliferation and other illicit activities.
- Provision of targeted foreign assistance to combat financial crimes. For example, such assistance has included U.S. support for the institutional development of foreign countries' financial legal framework, regulatory bodies, law enforcement capacity, and intelligence functions; and
- Introduction of foreign-deployed threat finance cells in Iraq and Afghanistan. Such threat finance cells are intended to track and target the financial flows and transactions associated with insurgent, terrorist, and other illicit actors that are of national security priority.
- Reorganization of offices and missions within the Department of Treasury. This has included a heightened emphasis on countering the financing of terrorism and other financial crimes through, in 2005, the creation of the Office of Terrorism and Financial Intelligence (TFI).

With the exception of the imposition of additional economic sanctions against North Korea and Iran related to WMD proliferation concerns, most of these policy initiatives had begun before the Obama Administration. There are no apparent public indications that the current Administration plans to update the 2005 money laundering threat assessment or revise the 2007 U.S. money laundering strategy. A question for policymakers is whether the absence of more recent strategic guidance to combat financial crimes is indicative of an inherent embrace of prior Administrations' strategic direction for combating financial crime and strengthening the international financial system. Some observers might question whether the current balance of priorities—among counterterrorism financing, anti-proliferation financing, and traditional anti-money laundering goals—remains the same as they had been under prior Administrations. Further, policymakers may also question how existing strategic guidance for combating financial crimes can respond to

emerging threats and novel alternate financing and laundering methods for which an effective government response may not exist.[196]

Another question for policymakers is how to coordinate U.S. government resources, programs, and data related to combating financial crime. More than a dozen federal agencies are involved in U.S. efforts to protect the international financial system from financial crime threats, including the Departments of Treasury, Justice, State, Defense, and Homeland Security, as well as the Board of Governors of the Federal Reserve System, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation. In recent years, the U.S. Government Accountability Office has issued several reports on U.S. efforts to combat international financial crimes, variously recommending improved interagency and international coordination, as well as improved efforts to align U.S. resources with strategic mission priorities.[197]

Democracy, Human Rights, and Development Aid

Many argue that a key long-term factor in ensuring U.S. national security is to help create a world in which citizens in all countries are afforded basic human rights and have a voice in their governments through democratic means. *Realpolitik*, however, often requires that the United States deal with certain dictatorial governments for the lack of better alternatives. U.S. economic assistance and cooperation in areas such as science and technology are intended to achieve a number of U.S. goals related to political and human conditions in foreign countries that affect U.S. national security.

Democracy and Human Rights[198]

The *2010 National Security Strategy* asserts that the United States must support democracy and human rights abroad because governments that respect these values are more just, peaceful, and legitimate, contributing to an atmosphere that supports America's national security interests. The report states that the first steps begin at home with policies that promote a strong U.S. economy and that living these values at home helps to promote them overseas. Furthermore, the NSS says that both the U.S. government and private sector have roles to play in advancing our democratic values. The report goes on to say that democracy, human rights, and development are mutually reinforcing values and coordinated support of all three creates a synergy that contributes to achieving greater progress toward America's national interests.

[196] See for example, Thomas J. Biersteker and Sue E. Eckert, eds., *Countering the Financing of Terrorism* (New York: Routledge, 2008), p. 12; Andres Rueda, "International Money Laundering Law Enforcement and the USA PATRIOT Act of 2001," *Michigan State University-DCL Journal of International Law*, 2001.

[197] See for example, U.S. Government Accountability Office (GAO), "Combating Illicit Financing: Treasury's Office of Terrorism and Financial Intelligence Could Manage More Effectively to Achieve its Mission," GAO-09-794 (September 2009); "USA PATRIOT Act: Better Interagency Coordination and Implementing Guidance for Section 311 Could Improve U.S. Anti-Money Laundering Efforts," GAO-08-158 (September 2008); "Terrorist Financing: Agencies Can Improve Efforts to Deliver Counter Terrorism-Financing Training and Technical Assistance Abroad," GAO-06-623T (April 2006); and "International Financial Crime: Treasury's Roles and Responsibilities to Selected Provisions of the USA PATRIOT Act," GAO-06-483 (May 2003).

[198] Prepared by Susan B. Epstein, Specialist in Foreign Policy, Foreign Affairs, Defense, and Trade Division.

The NSS states that the U.S. must forge more effective partnerships with democracies and non-democracies, allies and "key centers of influence," including China, India, and Russia. The report goes on to say that this Administration will pursue engagement with hostile nations and give them an opportunity to change course, and will reach out to individuals, as well as governments. Seven categories in which the Administration is advancing these universal values include:

- *Ensuring that New and Fragile Democracies Deliver Tangible Improvements for Their Citizens*. The report states that the Obama Administration is working on a bilateral and multilateral basis with countries at all levels, from individual citizens to local communities to political and civil society leaders in order to strengthen institutions that provide democratic accountability.
- *Practicing Principled Engagement with Non-democratic Regimes*. The Administration will work with non-democratic regimes to advance U.S. interests on counterterrorism, nonproliferation, economic issues, among many other things, but will simultaneously seek ways to advance individual rights and opportunities in those countries. The Administration's dual-track approach to reach out to governments, encouraging gains in human rights while also encouraging peaceful political opposition, is a model it hopes NGOs will follow. If governments react negatively to this approach, however, the United States must openly lead the international community to use diplomatic tools, incentives, and disincentives in an effort to reverse repressive behavior, according to the NSS.
- *Recognizing the Legitimacy of All Peaceful Democratic Movements*. The National Security Strategy says America believes all peaceful, law-abiding, and nonviolent voices around the world should be heard, even if it disagrees with them; the United States should not promote certain candidates or movements in other countries, but it will support legitimately-elected peaceful governments that treat its citizens with respect and provide their rights. If elected officials rule ruthlessly, they will forfeit U.S. support, the report says.
- *Supporting the Rights of Women and Girls*. The NSS states that women and girls bear a greater burden than males in crises or conflicts and that countries are more peaceful and prosperous when women enjoy equal rights and opportunities. Therefore, the Obama Administration is promoting democracy by working with regional and international organizations to prevent violence against women and girls; to promote equal access for justice and participation in the political process; to combat human trafficking especially with women and girls, and to support education, employment, and micro-finance for women around the world.
- *Strengthening International Norms Against Corruption*. The Administration is working with multilateral and bilateral organizations to promote the idea that pervasive corruption is a violation of basic human rights that impedes development and security worldwide. The Administration pledges to work with governments and civil society organizations to establish greater transparency and accountability in their budgets, expenditures, and assets of public officials. The Administration pledges to institutionalize transparency in international aid flows, international banking and tax policy, and private sector natural resources to strengthen citizen efforts to hold their governments accountable.
- *Building a Broader Coalition of Actors to Advance Universal Values*. The Administration is working with other governments, nongovernmental and

multilateral organizations to build broad support for democracy, rule of law, and human rights. It seeks to strengthen existing institutions, such as the United Nations Human Rights Council, that are not working up to their potential, and strengthening human rights monitoring and enforcement mechanisms so that any violators of international human rights norms will be held accountable.

- *Marshalling New Technologies and Promoting the Right to Access Information.* The NSS identifies new opportunities to advance democracy and human rights through the emergence of new technologies such as the Internet, wireless networks, smart-phones, satellite and aerial imagery, and supports the use of new technologies to facilitate freedom of expression, expand access to information, increase government transparency and accountability, and counter restrictions on their use. The Administration will also use such technologies to effectively communicate American messages to the world.

Analysis

The Obama Administration appears to have distanced itself from the high profile and controversial democracy promotion activities of the Bush Administration (i.e., conflating democracy promotion with the Iraq War, cultivating close ties with autocratic regimes, and condoning abuses of the rule of law and human rights in its counterterrorism agenda) that some believe have tarnished the concept of democracy promotion. At the same time, however, President Obama has continued many country programs, many that were conducted by previous administrations. According to the State Department's *Advancing Freedom and Democracy Report*, May 2010, the Obama Administration is continuing to assist with: elections; development of institutions such as courts that will support a democracy; training media on independent reporting; promoting citizen participation in, and access to, government; gender equality; and government transparency. Specific country programs include financial and technical support for fair, free, and competitive elections for Georgia's municipal elections in 2010 and national elections in 2013, Lebanon's municipal elections in 2010, helping Uganda with a Web-based voter registry before its 2011 elections, and support for electoral reform and voter awareness for Jordan's expected 2010 parliamentary elections. Other activities include assisting with Kenya's Trafficking in Persons Task Force to develop a national action plan, as well as in-country training of police, prosecutors, and medical personnel to handle gender-based violence; providing media training in Somalia; and guest speaker programs that promote citizen participation in the political process in Malaysia.

Critics of the muted Obama democracy promotion and human rights agenda have pointed out that his inaugural address is the first since former President Ronald Reagan's to not mention the word democracy. Some view the Obama approach as too subtle; others express disappointment that "setting an example" is not strong enough to influence authoritarian regimes. These critics contend that the Obama Administration has not made democracy promotion and human rights foreign policy priorities. Another concern is that the Obama Administration seems to support a philosophy of "country-ownership" where the "partner" governments can weigh in on what activities the United States conducts within their country. Critics say, this would give authoritarian governments the ability to influence how U.S. tax dollars are spent, and they wonder if effective democracy and human rights programs would ever be allowed to flourish by those governments. The foreign policy community is mixed on the benefits of a whole of government approach to democracy and human rights activities. Some believe that this approach could be confusing on the ground, having different agencies (Departments of Defense, State and USAID,

for example) working at cross purposes, at times. Others believe that having multiple, coordinated voices would reinforce the image of democracy and signal the importance America places on democracy promotion activities.

Supporters of the *2010 National Security Strategy* on democracy and human rights believe that the Obama Administration is intentionally breaking from the pre-emptive and go-it-alone style of the previous Administration to repair any damage overseas that may have resulted. Obama takes a quieter, more humble stance on democracy promotion, mentioning it several times, but not highlighting it as the previous administration did in its National Security Strategy, 2002. For example, the NSS states that this Administration "is promoting universal values abroad by living them at home and will not impose these values through force." Supporters believe Obama's is a more realistic approach that may be more likely to succeed than the aggressive style of the George W. Bush Administration.

A concern expressed by both proponents and opponents is a lack of discussion about cost. The NSS does not mention the cost of democracy promotion and human rights programs or from where the money will come. As the 112th Congress seeks to reduce the budget deficit, foreign affairs funding is being eyed by some as a place to cut expenditures.

Measuring democracy promotion and human rights progress can be done with specific projects that seek, for example, to create a voter data base, increase voter turnout, establish free media, or reduce political arrests. In the long-term, however, it is very difficult to measure overall progress and declare success in achieving democracy and respect for human rights because of its abstract nature and because backsliding is always a possibility.

Sustainable Development[199]

Development has been slow and uneven, according to the 2010 NSS. The Obama Administration is pursuing a range of specific and targeted initiatives, such as food security and global health that the President believes are essential to security and prosperity for all people worldwide. Like the Bush Administration before it, the Obama Administration supports the elevation of development alongside defense and diplomacy (sometimes called the 3 Ds) as key to achieving U.S. national security and promoting U.S. national interests abroad. The NSS presents a whole-of-government approach for applying the three D tools. For development that requires improved coordination to implement assistance programs, pursuit of a development that reflects U.S. policies and strategies, and certainty that U.S. policy tools are aligned to support development objectives. The report also suggests that development is a way to support existing partnerships and assist other countries in becoming capable, democratic future partners. To do that, the Administration is expanding civilian development capability, engaging with international financial institutions that leverage U.S. resources and advance U.S. objectives, working toward a development budget that reflects U.S. policies and strategies, and aligning foreign policy tools that support U.S. development objectives.

The Administration's sustainable development goals are to:

- *Increase Investments in Development* by providing a deliberate and focused global development agenda across U.S. government agencies, increasing foreign

[199] Prepared by Susan B. Epstein, Specialist in Foreign Policy, Foreign Affairs, Defense, and Trade Division.

assistance funding, expanding investments in effective multilateral development institutions, and leveraging the engagement of other countries to share the burden.

- *Invest in the Foundations of Long-term Development* by initiating long-term investments that reward other governments which demonstrate the willingness and capability to pursue sustainable development strategies, providing support by assisting other countries and communities to better manage challenges, and by investing in strong institutions that foster democratic accountability to help sustain development. This will help expand the number of countries, particularly in Africa, that are able to reap benefits of the global economy while contributing to global security and prosperity, according to the NSS.
- *Exercise Leadership in the Provision of Global Public Goods* by shaping and leading global partners on challenges (i.e., how to control epidemic disease, how to adapt to global warming, and how to make advances in agricultural output) that stifle development progress but cannot be resolved by the individual countries alone and are not being fully addressed with bilateral efforts. The Administration supports overseas partners with increased investments and technologies to assist them with low-carbon productivity, advances in food security, and resilience against impacts of climate change. The report specifically mentions pursuit of new vaccines, weather-resistant seed varieties, and green energy technologies that would significantly benefit sustainable development. The budget request seeks an increase in environment accounts and has put food security top priority.

Analysis

The Obama Administration has continued a number of Bush Administration foreign aid changes such as the President's Emergency Plan for AIDS Relief (PEPFAR) and the Millennium Challenge Corporation (MCC). It has also continued the Office of the Director of Foreign Assistance (referred to as the F Bureau) which President Bush created and placed in the Department of State to coordinate State/USAID budget information and activities. Some say creation of the F Bureau has weakened USAID. Whether the Obama Administration will continue this office or make some other organizational change that would strengthen USAID or expand the Department of State's development assistance responsibilities is currently unclear. The Administration's Quadrennial Diplomacy and Development Review (QDDR) [200] released on December 15, 2010 states that this Administration will be focused on sustainable development outcomes with a premium placed on broad-based economic growth, democratic governance, game-changing innovations, and sustainable systems for meeting basic human needs. It does not address the issue of continuation of the F Bureau. Clearly identifying which agency will take the lead on development assistance budgets and program implementation, as well as how the Department of Defense aid activities will be integrated, is of critical interest.[201] Some think that

[200] U.S. Department of State, *The First Quadrennial Diplomacy and Development Review (QDDR), Leading Through Civilian Power*, 2010. 242 p. For more detail, see CRS Report R41173, *Foreign Aid Reform, National Strategy, and the Quadrennial Review*, by Susan B. Epstein.

[201] CRS Report R40756, *Foreign Aid Reform: Agency Coordination*, by Marian Leonardo Lawson and Susan B. Epstein.

will signal how serious President Obama is in achieving long-term development goals versus using development tools to achieve short-term foreign policy and national security objectives.

Many foreign aid experts applaud the Obama Administration's goal of doubling foreign aid funding (continuing the foreign aid increases of the Bush Administration) and promoting long-term sustainable development. Some in Congress, however, are working to cut foreign affairs spending in the FY2011 budget, arguing in favor of domestic spending and deficit reduction.[202] While this works against the Administration's goal to double foreign aid spending, President Obama's *National Security Strategy* acknowledges that "the United States must be strong at home in order to be strong abroad." To ensure the best use of tax dollars spent on foreign aid, transparency, monitoring, and measuring development program results are key. The Administration's NSS, as well as legislation introduced by both the House Foreign Affairs Committee and the Senate Foreign Relations Committee have included language in legislation to require increased transparency and monitoring of development programs.

Measuring success in development, particularly long-term, sustainable development is difficult. It may take years before sustainable development programs can be identified as successes or failures. Furthermore, whether development is sustainable may be influenced by government and regional instability, resources, trade potential, corruption in the country, and activities of other donor countries.[203] In its report on the Millennium Development Goals, the Administration stated, "Our commitment to sustainability and innovation will be underpinned by a relentless commitment to measuring results."[204] To measure results, the Administration has stated it will

- look at MCC's rigorous impact evaluation approach;
- collect baseline data and improve indicators, providing technical assistance to recipient countries to develop their own monitoring capacity;
- strengthen USAID's capacity to monitor and evaluate with the new Office of Learning, Evaluation, and Research; and
- promote strong monitoring and evaluation functions in multilateral organizations that we support.

Beyond measuring progress toward sustainable development, is whether long-term development always results in countries becoming stronger partners with the United States. With numerous other influences in the world and other donor countries competing, whether that translates to greater U.S. national security and promoting America's interests seems unlikely in every case.

Reaction to President Obama's first NSS regarding sustainable development is mixed. Some praise its multilateral tone, compared with the unilateral tone in President Bush's first NSS of 2002. Foreign aid experts note favorably the concepts of working with former allies and new partners, strengthening international institutions, and integrating government agencies, as well as acknowledging challenges of an interconnected world. Criticism, however, includes how to lead

[202] CRS Report R41228, *State, Foreign Operations, and Related Programs: FY2011 Budget and Appropriations*, by Marian Leonardo Lawson, Susan B. Epstein, and Tamara J. Resler.

[203] CRS Report R41185, *Foreign Aid: International Donor Coordination of Development Assistance*, by Marian Leonardo Lawson.

[204] Celebrate, Innovate, and Sustain: Toward 2015 and Beyond, The United States' Strategy for Meeting the Millennium Development Goals, July 2010, p. 3.

abroad in solving trans-boundary problems such as climate change when there is no consensus at home, the lack of specifics on how to increase burden-sharing abroad during a worldwide recession, and where to find the willingness in Congress to invest in long-term development projects in these tight economic times. Adding the cost to adequately monitor progress toward sustainable development, some note, would either raise the cost of development or detract from the amount spent on actual development aid, critics say.

International Science Partnerships as a Tool for Development[205]

The *2010 National Security Strategy* calls for enhancing U.S. science, technology, and innovation:

> "America's scientific leadership has always been widely admired around the world, and we must continue to expand cooperation and partnership in science and technology. We have launched a number of Science Envoys around the globe and are promoting stronger relationships between American scientists, universities, and researchers and their counterparts abroad. We will establish a commitment to science and technology in our foreign assistance efforts and develop a strategy for international science and national security."[206]

In his June 4, 2009 speech in Cairo Egypt, President Obama declared his intention to "appoint new science envoys to collaborate on programs that develop new sources of energy, create green jobs, digitize records, clean water and grow new crops."[207] Subsequently Secretary of State Clinton announced in a November 2009 speech in Marrakesh, Morocco the formation of the U.S. Science Envoy Program. Secretary Clinton stated that the U.S. government seeks to engage in meaningful partnerships on science and technology to serve as a global engine of progress and growth, and that engagement by highly respected American scientists has the potential to build bridges and help identify opportunities for sustained cooperation. To date, three such envoys have been named.[208]

Context

Scientists, engineers, and health professionals frequently communicate and cooperate with one another without regard to national boundaries. Since the end of World War II and the emergence of many new countries, the United States government has served a role in providing research and scientific support for other countries that are in the early stages of development or at a major point of transition. Many policymakers view American leadership in science and technology (S&T) as a diplomatic tool to enhance other countries' growth and to improve understanding by other nations of U.S. values and ways of doing business.[209] These efforts have focused on both

[205] Prepared by Glenn J. McLoughlin, Section Research Manager, Science and Technology Policy section, Resources, Science, and Industry division.

[206] The National Security Strategy. Office of the President of the United States. May 2010. p. 30.

[207] The Bureau of International Information Programs, U.S. Department of State. January 26, 2010.

[208] The three Science Envoys named are: Ahmed Zewail, Nobel laureate in chemistry; Bruce Alberts, former president of the National Academies of Science; and Dr. Elias Zehouni, former director of the National Institutes of Health. The Bureau of International Information Programs, U.S. Department of State. January 26, 2010.

[209] CRS Report RL34503, *Science, Technology, and American Diplomacy: Background and Issues for Congress*, by Deborah D. Stine.

providing S&T resources, as well as addressing developmental challenges where S&T could play a role.

Title V of the Foreign Relations Authorization Act, Fiscal Year 1979 (P.L. 95-426, 22 U.S.C. 2656a - 22 U.S.C. 2656d, as amended) provides the current legislative guidance for U.S. international S&T policy, and makes the Department of State the lead federal agency in developing S&T agreements.[210] In that act, Congress found that the impact of modern S&T advances are of major significance in U.S. foreign policy and that its diplomatic workforce should have an appropriate level of knowledge of these topics. Further, it indicated that this workforce should conduct long-range planning to make effective use of S&T in international relations, and seek out and consult with public and private industrial, academic, and research institutions in the formulation, implementation, and evaluation of U.S. foreign policy.

The National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282) states that the White House's Office of Science and Technology Policy (OSTP) director is to advise the President on S&T considerations in foreign relations. Further, the OSTP director is to "assess and advise [the President] on policies for international cooperation in S&T which will advance the national and international objectives of the United States."[211] The OSTP, an office within the Executive Office of the President (EOP), does not fund domestic or international programs. Within OSTP, the National Science and Technology Council (NSTC) currently established by Executive Order 12881, coordinates S&T policy across the federal government.[212]

Also, a number of federal agencies that sponsor research and use S&T in developing policy are involved in U.S. international S&T policy. These include the National Science Foundation (NSF), National Institutes of Health, Department of Energy, National Aeronautics and Space Administration, Department of Agriculture, Environmental Protection Agency, Department of Interior, and others.[213] Federal R&D activities may be efforts focused on the agencies' mission, or may come as initiatives from proposals the science community submits in response to specific requests in an R&D field or from a more general solicitation for research in the field. In addition, the National Academies of Science (NAS) and the American Association for the Advancement of Science (AAAS) are nationwide scientific organizations that directly represent the U.S. scientific community; both are private, not-for-profit organizations.

The 111th Congress examined both the nature of international science and technology cooperation as well as addressing the effectiveness of these international science and technology (S&T) policy activities. On April 21, 2009, Senator Richard Lugar introduced S. 838, a bill to provide for the appointment of the United States Science Envoys. While pre-dating the President's speech in Cairo, it would have provided the same general guidelines that the Administration had proposed then and in the National Security Strategy report. This bill was read and reported out of the Senate Foreign Relations committee on May 7, 2009 and was put on the Senate Legislative Calendar. On March 26, 2009, Representative Brian Baird introduced H.R. 1736, the International Science and Technology Cooperation Act of 2009. This bill would "provide for the establishment of a committee to identify and coordinate international science and technology cooperation that can strengthen the domestic science and technology enterprise and support United States foreign

[210] Ibid, p. 1.

[211] Ibid, p. 2.

[212] Ibid. p. 4.

[213] Ibid. p. 8.

policy goals." This effort would come from the Office of Science and Technology Policy and be coordinated by the National Science and Technology Council. H.R. 1736 was referred to the House Science and Technology Committee, where it was reported favorably out of committee and referred to the House floor. On June 8, 2009, it passed the House in a voice vote and was referred to the Senate Commerce, Science, and Transportation Committee. It was not taken up in the Senate.

Analysis

Interested observers may ask whether the Obama statement on expanding international science partnerships represents a new policy initiative or a continuation of existing federal programs and activities. Some may contend that the Obama Administration's Science Envoys are similar, if not identical, to existing diplomatic efforts in organizations such as the NAS, AAAS, NSF, the State Department and other federal agencies. Other may argue that creating Science Envoys brings a higher profile and attention to U.S. efforts to create scientific partnerships, a welcome elevation of the S&T policy profile.

Significant issues are at the core of any discussions regarding U.S. international science and technology partnerships. The Obama Administration has focused on "green" S&T as part of its overall national and international S&T policy. Does this approach provide the most targeted and effective use of U.S. S&T resources? Will other parts of the U.S. science research establishment be represented by global outreach and science partnerships—such as biomedical, nanoscience, computer science, or human capital, among others? How does the encouragement of international science partnerships affect U.S. national security goals—can policymakers assume that all science partnerships will protect U.S. interests? While it is clear that the United States has much to offer other countries and that science can be an important part of U.S. diplomacy, many of these and other questions are still unanswered.

Conclusion

As is evident from the topics covered above, economics enters into national security considerations through a variety of ways. The economy plays a dual role of providing the resources to help ensure the physical security of Americans and of generating employment and income to help ensure the economic security of households. The economy also provides a model, culture, and other elements of soft power helpful in winning the hearts and minds of people around the world. There is scarcely an economic policy issue before the Congress that does not affect U.S. national security. Likewise, there is scarcely a national security policy issue that does not affect the economy.

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