An Innovation Economics Agenda for the Next Administration

BY ROBERT D. ATKINSON | SEPTEMBER 2008

By putting innovation at the center of our nation's economic policies, we can ensure robust economic growth and rising standards of living for all Americans.

In today's economy, innovation – the development and adoption of new products and services, more efficient production processes, and new business models – is the most important factor driving increases in American standards of living. By putting innovation at the center of our nation's economic policies, we can ensure robust economic growth and rising standards of living for all Americans.

To ensure U.S. economic prosperity, the federal government cannot consign its role, as many neo-Keynesian economists advocate, to simply redistributing resources to the needy (or even the middle class). Economic policy must emphasize growth. This is not to say that government policies to ensure that growth is more fairly distributed are not needed, but without robust economic growth, it will be difficult to raise the standard of living for average Americans. In contrast to what many have recently asserted, productivity growth does still benefit average American workers.[1]

To foster prosperity, we also cannot, as many neoclassical economists do, simply hope that markets will get it right. Markets do play important roles in generating economic prosperity, but markets acting in response to price signals alone will not maximize U.S. economic growth. That requires proactive and strategic public policies to spur innovation.[2]

As a new Administration takes office in 2009, it is time for both Congress and the Executive Branch to take concrete steps to ensure that the economy is on a robust growth path over the next decade. To do this, they should adopt and implement eight key recommendations outlined below:

1. **Significantly Expand the Federal Research and Development Tax Credit**
2. **Create a National Innovation Foundation**
3. **Allow Foreign Students Receiving a Graduate Degree to Receive a Green Card**
4. **Reform the Patent System to Drive Innovation**
5. **Let Companies Expense New Investments in Information Technology in the First Year**
6. **Establish a Federal Chief Information Officer**
7. **Implement a National Broadband Strategy**
8. **Implement an Innovation-Based National Trade Policy**

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1. SIGNIFICANTLY EXPAND THE FEDERAL RESEARCH AND DEVELOPMENT TAX CREDIT

Virtually all scholarly studies of the research and development (R&D) tax credit find that it is a cost-effective tool to spur private sector R&D.[3] When President Clinton took office, the R&D tax credit in the United States was the most generous in the world. By 2004, in large part because other nations had put in place much more generous R&D tax incentives, the U.S. tax credit was only the 17th most generous.

It's time to not only make the federal R&D tax credit permanent, but also to significantly expand it to ensure that the United States can compete in the global innovation economy. Doing so would not only spur more R&D investments here at home, leading to faster economic growth and more quality-of-life enhancing innovations, but would also make the United States a more competitive location for internationally-mobile R&D.

To expand the federal R&D tax credit, Congress should do the following:

- **Double the 20 percent federal R&D tax credit to 40 percent.** The regular R&D tax credit allows companies to take a credit of 20 percent of increases in qualified R&D expenditures over a defined base period. The rate should be doubled to 40 percent.[4]

- **Expand the Alternative Simplified Credit by enacting a graduated three-tiered credit.** Under the Alternative Simplified Credit (ASC) established by Congress in 2006, firms can take a credit of 12 percent of qualified R&D expenditures above 50 percent of the average of their expenditures over the prior three years. Congress should expand the ASC to allow firms to receive (1) a credit of 20 percent of the amount of expenses greater than 75 percent and equal to or below 100 percent of the firm's average qualified research expenses; and (2) a credit of 40 percent for expenditures above 100 percent of the base. Establishing such a three-tiered credit would give firms a strong incentive to increase R&D in the United States.

- **Create a flat 40 percent tax credit for company expenditures on collaborative research at universities, federal laboratories, or Department of Justice-approved research consortia.** Collaborative research is critical to innovation, but firms invest less in it than is optimal because many of the benefits of such research spill over to other firms. Firms investing in extramural collaborative R&D should receive a flat tax credit of 40 percent on all such expenditures.

- **Transform the R&D tax credit into a "Knowledge Credit" by allowing workforce training expenses to also qualify for the credit.** Allowing firms to include workforce training expenditures in the calculations of qualified expenditures under the federal R&D credit would spur firms to invest more in the skills of the American workforce. At present, companies can expense investments in workforce development for tax purposes, but they cannot take a more generous tax credit on the investments. This is one reason why, with greater workforce turnover and more competitive markets, corporate expenditures on workforce training as a share of U.S. gross domestic product (GDP) have fallen by almost half in the last 15 years.[5] Transforming the R&D credit into a "Knowledge Credit" would help rectify this situation.

2. CREATE A NATIONAL INNOVATION FOUNDATION

Congress took an important step in the direction of supporting science and technology with the passage of the 2007 America Competes Act. But the challenge of maintaining U.S. competitiveness in science and technology is neither modest nor fleeting. We need to do more if we are to maintain our competitive position in the global innovation economy. Besides fully funding the America Competes Act, Congress should establish a National Innovation Foundation with a core mission of boosting technological innovation in the United States.[6]

A National Innovation Foundation would be a nimble, lean, and collaborative entity devoted to supporting firms and other organizations in their innovative activities.[7] It would catalyze industry-university research partnerships through national sector research grants, expand regional innovation-promotion through state-level grants to fund activities like technology commercialization and entrepreneurial support, and encourage technology adoption by assisting small and mid-sized firms in implementing best-practice processes and organizational forms that they do not currently use.

3. ALLOW FOREIGN STUDENTS RECEIVING A GRADUATE DEGREE IN MATH, SCIENCE, OR ENGINEERING TO QUALIFY FOR PERMANENT RESIDENT STATUS (I.E., RECEIVE A GREEN CARD)

Scientists and engineers are a key driver of innovation. This is why many nations are actively competing to lure this top-level talent to their borders.[8] Yet the number of Americans obtaining graduate science and engineering degrees has not kept up with demand. Indeed, almost one half of Ph.D. graduates of U.S. engineering, computer science, physical science, and life science programs are now from other nations. If we want the United States to continue to be the global innovation leader, we should make it easier for these talented individuals who receive a graduate degree in science, technology, engineering, and mathematics (STEM) fields to stay in the United States after graduation by making them eligible for a green card.[9]

4. REFORM THE PATENT SYSTEM TO DRIVE INNOVATION

Reforms to the U.S. patent system are urgently needed. A well-functioning patent system is key to driving innovation. But the U.S. patent system suffers from three key problems. First, the U.S. patent system is rife with delay. With over 700,000 pending patent applications in the U.S. Patent and Trademark Office (PTO), it can take four years to get a patent. Second, in part because the PTO has insufficient resources, patent examiners have been granting questionable patents that are overly broad and overlap with existing patents. Finally, there has been a dramatic increase in patent litigation and awards, which impose a significant tax on the U.S. innovation system. Patent reform legislation to address these issues has been introduced in Congress and should be passed.[10]

5. LET COMPANIES EXPENSE NEW INVESTMENTS IN INFORMATION TECHNOLOGY IN THE FIRST YEAR

Innovation itself is important, but it is largely through investment that innovations are diffused throughout the economy. Scholarly research has conclusively shown that investment in information technology (IT) powers growth.[11] In fact, IT seems to be "super capital" that has a much larger impact on productivity than other capital.

Greater investment in newer generations of IT spurs faster productivity growth. To encourage investment in IT in the United States, Congress should let companies expense IT investments in the first year. Currently, companies must depreciate IT equipment and software investments over a number of years. Allowing companies to write off all the costs for tax purposes in the first year would raise the rate of return of new equipment, spurring companies to invest more and to more rapidly turn over older, less productive equipment. By lowering the cost of equipment and software, investment incentives encourage more investment by helping these investments turn the corner of profitability earlier than such investments otherwise would. In addition, the expensing of IT investments would make companies in the United States more competitive with companies in other nations, especially nations that use firm-specific incentives to attract globally mobile establishments.[12]

6. ESTABLISH A FEDERAL CHIEF INFORMATION OFFICER

The lion's share of productivity gains for the foreseeable future will likely continue to come from the trend of digital transformation – leading all organizations and individuals to use digital technologies. Although the private sector will drive much of the digital transformation, several market failures are slowing the transformation process – and the federal government could take a number of steps to help speed the process.[13]

Without top-level leadership, however, it is difficult for the federal government to take the steps that are needed to help spur digital transformation of the U.S. economy and government. Currently, no one in the federal government is responsible for leading e-transformation. Although 54 federal agencies have chief information officers (CIOs) of their own, the federal government as a whole does not.

It's time to create a position of a federal CIO that reports directly to the President. The federal CIO should task all government agencies with examining how their procurement, regulatory, and other actions can speed the digitization of sectors they influence (e.g., health, education, transportation, banking and securities, law enforcement, and housing).[14] The CIO should also take the lead in shaping e-government for the entire federal government, help share the Administration's policy regarding the Internet, oversee issues of computer and network security for the government, and work with state and local governments to promote e-government.

7. CRAFT AND IMPLEMENT A NATIONAL BROADBAND STRATEGY

America lags behind other nations in broadband adoption, recently falling to 15th among Organization for Economic Cooperation Development (OECD) nations. To spur ubiquitous high-speed broadband deployment and adoption, Congress and the next Administration should do all of the following:

- **Enact more favorable tax policies to encourage investment in broadband networks, such as first year expensing and exempting broadband services from federal, state, and local taxation.**
- **Continue to make more spectrum, including unlicensed spectrum, available for next-generation wireless data networks.**
- **Reform the federal Universal Service Fund (USF) program to extend support to broadband for all carriers, and consider providing the funding through a reverse auction mechanism.**
- **Establish a national program to co-fund state-level broadband support programs, such as E-North Carolina and ConnectKentucky.**
- **Fund initiatives around the nation to encourage broadband usage and digital literacy.**[15]

8. CRAFT AND IMPLEMENT AN INNOVATION-BASED NATIONAL TRADE POLICY

U.S. trade policy should help spur innovation. To ensure that it does, Congress and the next Administration should craft and implement an innovation-based U.S. trade policy that has two major features.

First, given the limitations of bilateral free trade agreements and the difficulties in moving forward with broad multilateral agreements, the next Administration should actively explore other mechanisms to open markets around the world. This should include a renewed focus on sectoral agreements. The United States and the European Union, for example, tabled a proposal in the Doha Round context to forge a multilateral environmental goods and services agreement. With or without Doha, this should be pursued, especially given the critical importance of promoting green trade. In addition, the next Administration should begin efforts to forge a services industry sectoral agreement. However, to be WTO consistent, these would need to include substantially all the services sectors (including telecom, banking and health care).

Second, to combat other nations' systematic and unfair "mercantilist" trade policies directed at eroding technology leadership of nations like the United States, U.S. policy should focus more on assertively confronting practices used by other countries such as theft of intellectual property, discriminatory tax systems, and protectionist standards – to unfairly gain global market share. Many nations systematically seek to gain advantage in the innovation economy by violating either the letter or the spirit of the World Trade Organization (WTO).[16] It is critical that U.S. trade policy place as much emphasis on fighting other nations' mercantilist policies aimed at eroding U.S. technology leadership as it does opening up new markets.

To ensure that U.S. trade policy supports innovation while combating technology mercantilism, Congress and the next Administration should take the following steps:

- **Create within the U.S. Trade Representative's Office (USTR) an ambassador-level U.S. trade enforcement chief and a Trade Enforcement Working Group and add $20 million for trade enforcement to the USTR budget.** One reason why USTR has not done more to enforce existing trade agreements is because doing so is quite costly and labor intensive. Expanding USTR's trade enforcement budget and creating these new positions would provide USTR with needed resources and send a clear signal that a key part of USTR's job is to aggressively bring actions against other nations that are engaged in technology mercantilism.[17]
- **Allow companies to take a 25 percent tax credit for expenditures related to bringing WTO cases.** Companies that help the USTR bring cases are acting on behalf of the U.S. government and U.S. workers. But bringing WTO cases is costly for the government and the affected industry; and because trade enforcement is a collective good, companies have an incentive to free ride and take advantage of cases filed by the government and prepared by other companies. As a nation, therefore, the United States underinvests in trade enforcement. To help remedy

this situation, companies should be allowed to take a tax credit for expenses related to trade enforcement.

CONCLUSION

If the United States is to regain robust, broadly shared growth and maintain its international economic competitiveness, it's time for bold policy action to spur innovation. We need smart public-private partnerships that recognize that while the private sector is the key performer of innovation, the public sector can and should play a vital supportive role. These recommendations are intended as first steps towards building the innovation-based public-private partnerships needed to drive economic growth and prosperity.

ENDNOTES

1. Stephen Rose, "Does Productivity Growth Still Benefit Working Americans?: Unraveling the Income Growth Mystery to Determine How Much Median Incomes Trail Productivity Growth," Information Technology and Innovation Foundation, Washington, D.C., June 2007 <www.itif.org/files/ DoesProductivityGrowthStillBenefitWorkingAmericans.pdf> (accessed September 14, 2008).

2. Robert D. Atkinson and David B. Audretsch, "Economic Doctrines and Policy Differences: Why Washington Can't Agree on Economic Policies," Information Technology and Innovation Foundation, Washington, D.C., September 12, 2008 <www.itif.org/index.php?id=177> (accessed September 14, 2008).

3. Robert D. Atkinson, "The Research and Experimentation Tax Credit: A Critical Policy Tool for Boosting Research and Enhancing U.S. Economic Competitiveness," Information Technology and Innovation Foundation, Washington, D.C., September 5, 2006 <www.itif.org/index.php?id=67> (accessed September 14, 2008).

4. For more detail on these recommendations, see Robert D. Atkinson, "Expanding the Research and Development Tax Credit to Drive Innovation, Competitiveness and Prosperity," Information Technology and Innovation Foundation, Washington, D.C., April 2, 2007 <www.itif.org/index.php?id=58>(accessed September 14, 2008).

5. In 1988, training expenditures by organizations in the United States were about 0.82 percent of GDP. See Robert D. Atkinson, *The New Economy Index* (Washington, D.C.: Progressive Policy Institute, 1998). By 2007, training expenditures had declined to 0.42 percent of GDP. See The New Economy Index and industry report data from Training Magazine's 2001-2007 Industry Reports <www.trainingmag.com/msg/ content_display/publications/e3ib4fbcf3a3d03c749c530aa54043278f5> (accessed September 14, 2008).

6. The National Innovation and Job Creation Act (S. 3078), introduced by Senators Clinton (D-NY) and Collins (R-ME) would create a National Innovation Council modeled after the National Innovation Foundation. See S. 3078: National Innovation and Job Creation Act <thomas.loc.gov/cgi-bin/query/z?c110:S.3078:> (accessed September 14, 2008).

7. Robert D. Atkinson and Howard Wial, "Boosting Productivity, Innovation, and Growth Through a National Innovation Foundation," Information Technology and Innovation Foundation, Washington, D.C., April 2008 <www.itif.org/files/NIF.pdf> (accessed September 14, 2008).

8. David M. Hart, "Global Flows of Talent: Benchmarking the United States," Information Technology and Innovation Foundation, Washington, D.C., November 17, 2006 <www.itif.org/index.php?id=66>.

9. See H.R. 6093, introduced by Congresswoman Zoe Lofgren (D-CA) which exempts from the employment-based (EB) caps any alien who has earned a master's or higher degree from a United States institution of higher education in a STEM field and who has an offer of employment from a United States employer in a field related to such degree.

10. In the House, H.R. 1098 passed this year. In the Senate, the Judiciary Committee passed S. 1145, but it was not voted on by the full Senate.

11. Robert D. Atkinson and Andrew S. McKay, *Digital Prosperity: Understanding the Economic Benefits of the Information Technology Revolution* (Washington, D.C.: Information Technology and Innovation Foundation, March 2007) <www.itif.org/files/digital_prosperity.pdf>.

12. For example, semiconductor factories in Japan can depreciate 88 percent of their cost in the first year, compared to just 20 percent in the United States.

13. These include opposition by vested interests, lack of standards, chicken or egg issues, and system interdependencies, as we see in the slow pace of health IT adoption. See Daniel Castro, "Improving Health Care: Why a Dose of IT May Be Just What the Doctor Ordered," Information Technology and Innovation Foundation, Washington, D.C., October 2007 <www.itif.org/files/HealthIT.pdf> (accessed September 14, 2008).

14. Robert. D. Atkinson, "What's Next," Public CIO, February 23, 2005 <www.govtech.com/pcio/ more.php?code=GT_WRITER_ROBERT_D__ATKINSON&format=tag_articles_simple> (accessed September 14, 2008).

15. For more detail on these proposals see, Robert D. Atkinson, "Framing a National Broadband Policy," CommLaw Conspectus 16 (2007): 145 <commlaw.cua.edu//articles/v16/16.1/Atkinson.pdf> (accessed September 14, 2008).

16. Julie A. Hedlund and Robert D. Atkinson, "The Rise of the New Mercantilists: Unfair Trade Practices in the Innovation Economy," Information Technology and Innovation Foundation, Washington, D.C., June 2007 <www.itif.org/files/ITMercantilism.pdf> (accessed September 14, 2008).

17. Robert D. Atkinson, "Combating Unfair Trade Practices in the Innovation Economy," testimony before the Senate Committee on Finance, U.S. Congress, Washington, D.C., May 22, 2008 <www.itif.org/files/atkinsonfinancecommitteetestimony.pdf > (accessed September 14, 2008).

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