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CQ WEEKLY

FEDERAL PAY: Why the GOP Is Deriding It This Election Year **P. 1726**

FOREIGN AID: Advocates See a Rare Opening for an Overhaul **P. 1728**

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CONGRESSIONAL QUARTERLY'S MAGAZINE ON GOVERNMENT, COMMERCE AND POLITICS



Hatching Innovation

There's widespread worry that America is losing its R&D edge — and that the government may not be best positioned to handle the problem. **P. 1730**

DEFENSE: The Deficit Strips the Pentagon of Immunity From Budget Cuts **OUTLOOK, P. 1739**

Pushing for A Venture Capitol

Fears of flagging U.S. innovation have renewed calls for federal investment in private sector research and development — and the warnings that go with it



BY JOSEPH J. SCHATZ

IT ISN'T OFTEN that a major corporation relocates a factory and its hundreds of jobs from China to the United States. But tacking against the prevailing trade winds, that's exactly what General Electric Co. decided to do last year, moving production of a new generation of water heaters to the company's Appliance Park in Louisville. And that's what brought Vice President Joseph R. Biden Jr. to Kentucky three weeks ago.

Biden went there to tout the critical role the federal government played in GE's decision, in the form of \$25 million in tax credits provided through the "advanced energy manufacturing" program enacted in the 2009 economic stimulus law. It's a central element of the Obama administration's strategy to promote innovation in U.S. manufacturing and clean-energy development, and to elevate American exports at a time when China and Germany — not the United States — are leading the way out of the global recession.

Just like President Obama's Michigan photo-op last week highlighting federal aid to U.S. companies that are developing advanced battery technology and electric cars, GE's relocation to Kentucky offers a perfect advertisement for the administration's ideas. Its new water heaters incorporate "smart grid" technology that allows them to communicate with utilities and cut electricity use during peak periods. The Kentucky factory also will operate a production line of more-efficient washers and dryers and will add more than

800 jobs to help restore the once-thriving complex. "I don't see it written anywhere," Biden said at a tour of the refurbished facility, "that America has to settle for No. 2."

The vice president had been invited by Rep. John Yarmuth, who represents Louisville and last year helped found the House Task Force on Competitiveness, a Democratic group that is looking at ways to keep the domestic economy ahead of the global curve. In his meetings with chief executives from Silicon Valley to the Rust Belt, Yarmuth says, it's clear they want Washington to help tip the scale in the United States' favor, as it did with GE in his district. "Virtually all of them said the same thing, and that was that the government has to remain a player in economic development," he says.

Adherents of a more aggressive federal approach say the sorts of tax credits from which GE benefited are all well and good but hardly constitute a model for what the federal government should do to incubate new ideas. In an uncertain economic climate both at home and abroad, many policy-makers and outside observers say that promoting the next Google or developing the next Route 128 — the technology corridor outside Boston — will require Congress, with its diverse constituencies and overlapping committee structures, to think systematically about innovation. Promoting new technologies requires a wide reach into an array of issues, including energy, immigration, science, taxes, trade, venture capital and collaboration with states and regions. The concern is that thinking systematically has never been Congress' strong suit.



INNOVATOR-IN-CHIEF: Obama tries out a Chevrolet Volt electric car at a new advanced battery factory in Holland, Mich., on July 15.

Robert Atkinson, president of Information Technology & Innovation Forum, and like-minded observers in private industry and on Capitol Hill reject as hollow the common claim that the United States is the most innovative nation in the world. National policies, they say, are stuck in the 1990s. The country is falling behind when it comes to innovation and is badly in need of a competitiveness strategy, not a piecemeal approach. What's required, they say, is a shift in the magnitude of government involvement.

"There are five other countries that are more entrepreneurial than we are in terms of new business start-ups and venture capital," Atkinson said, citing statistics from the Organisation for Economic Co-operation and Development (OECD). "So we have this kind of mythology of superiority, of exceptionalism, and it's not true — we're not exceptional anymore."

Indeed, as foreign governments from Germany to India and from Finland to China design strategies to keep their companies, workers and economies on the cutting edge, the United States remains stuck in a debate over the proper role for the government in fostering innovation and ensuring future American competitiveness.

Even as proponents like Atkinson call for more support for innovation, opponents of government involvement in the economy — emboldened by conservative tea party groups and broad public skepticism about President Obama's efforts to overhaul health care, banking and energy laws — raise alarms about the inherent conflicts

of a government-managed "industrial policy."

In part due to this opposition, the innovation debate remains muddled by familiar partisan fights over government priorities, tax cuts and spending. The result is the piecemeal approach that Atkinson and others deride as insufficient and ill-considered, illustrated by the hodge-podge of programs in the stimulus. For instance, the federal tax credit employed by GE — known as the 48(c) program — is a relatively small, \$2.3 billion initiative aimed only at energy efficiency and is already oversubscribed and no longer available.

The government has long played a role in fostering new science and technology in American laboratories, factories and research facilities. Beginning with Alexander Hamilton's push for high tariffs to protect the nation's infant economy and the development of a national system of canals and railroads to facilitate commerce, the government has long backed assistance to various U.S. industries. The Soviet launch of Sputnik I spurred a long-term commitment to defense spending that, as a side result, helped develop the Internet, supercomputers and other technologies.

The rise of Asia and other international competitors hasn't quite set off Sputnik-like alarm bells. But the perceived gap between American and foreign innovation described by Atkinson

Public Interest in the Private Sector

Washington has rarely embraced a formal “industrial policy” to guide federal support for manufacturing and other companies, but lawmakers and presidents have a long history of promoting certain private economic activities, including the examples below:

HAMILTON-ERA TARIFF Congress took an active role in helping fledgling U.S. industries during the late 18th and early 19th centuries, drawing on ideas championed by Alexander Hamilton, the first secretary of the Treasury. For instance, Congress passed the first major tariff law in 1816 to protect Northern textile manufacturers against cheap European imports.



TRANSPORT

President John Quincy Adams backed expansion of a system of canals, and he and other presidents, among them Abraham Lincoln, helped expand the nationwide network of railroads.

DEFENSE PRODUCTION ACT Congress passed the Defense Production Act in 1950, at the start of the Korean War. The law was designed to ensure that the country would have the industrial resources to meet national security needs and gave the president authority to direct manufacturers to put a higher priority on producing certain goods.

NASA The Soviet Union’s launch of Sputnik I in 1957 helped spur the creation of NASA and the establishment of defense research programs and agencies such as the Defense Advanced Research Projects Agency, more commonly called DARPA. The ensuing wave of research and development led to commercial supercomputers and the Internet.



SPACE SCARE: Sputnik launch was central to the creation of NASA.



OVERDONE: Gasoline lines prompted a rush to synfuels.

ENERGY Amid soaring oil prices and widespread gasoline shortages, President Jimmy Carter and Congress in 1979 created the Synthetic Fuels Corporation, directing it to stimulate production of 2 million barrels a day of “synfuels” by 1992. Congress gave the organization \$20 billion, with the promise of \$88 billion to be used as grants, loan guarantees and price guarantees for private industry. The effort eventually collapsed as oil prices fell.

FOREIGN COMPETITION After Japan became the largest maker of semiconductors in 1986, Congress responded to rising worries about the Japanese economic threat by creating Sematech, a public-private consortium to boost American semiconductor manufacturing, appropriating \$100 million a year.

BAILOUT President George W. Bush used financial bailout money to keep two struggling automakers — General Motors Corp. and Chrysler — afloat in 2008 to help preserve the U.S.-based industry. (Ford Motor Co. did not get any financial assistance.) President Obama ushered the two weakened companies into bankruptcy court for reorganizations in 2009, giving the government a partial stake in the resulting new enterprises.



SAVING DETROIT: Auto executives sought help to preserve the industry.

is getting increased attention, particularly as U.S. corporations hoard capital in a tentative economic recovery and lash out against the Obama administration’s health care and financial policies — and as congressional Democrats desperately seek ways to boost hiring in a volatile election year.

The U.S. edge, many argue, is slipping. As a percentage of the total economy, America’s corporate and government support for research and development ranks seventh among the OECD’s 31 member countries. While the United States leads the world in medical technology patents, it trails Europe on environmental patents — which are seen as critical to a reduced-carbon economy.

“The United States absolutely needs a competitiveness strategy — most industrialized countries have one,” argues Sen. Mark

Warner, a Virginia Democrat and former venture capitalist. “There needs to be a broader approach. A lot of what we have seen from most folks has been kind of a rehash of ’90s ideas. It’s necessary, but not sufficient.”

CHANGING COMPETITION

The growing agitation stems, in part, from the way the global economic order has changed. The world economy looks far different now than it did even five years ago, much less decades ago when U.S. policy-makers confronted competitive threats from the Soviet Union in the 1950s and 1960s and Japan in the 1980s.

The United States remains the world’s biggest economy, undergirded by a strong and lasting legal and political system. And C. Fred Bergsten, director of the Peterson Institute for

International Economics and a top Treasury official under President Jimmy Carter, notes that many rivals in Asia and Latin America start from a lower base of technology and education. “They’re great imitators, they’re great producers, but they have yet to demonstrate persuasively that they can generate their own technology advances,” Bergsten says.

At the same time, he cautions, the type of foreign competition that confronts the United States today is unlike what was faced during the Cold War. “The potential competitors are much more serious,” he says. “China, India, even Indonesia, Korea, these are big countries with almost limitless potential to move up the value chain.”

And there are concerns that the United States has yielded its edge. After the Internet boom and bust of the late 1990s, companies



FOREIGN COMPETITION: Customer tries out a 3-D computer at a Taiwanese IT fair in June, left. Meanwhile, Infosys Technologies Ltd., India's second largest software developer, this month reported a 13 percent year-over-year revenue increase for the company's first quarter.

creating complex financial instruments on Wall Street — not traditional manufacturers — made the biggest profits, before helping to send the world into recession. The ability of the United States to thrive in the recovery may depend, in part, on high-value technology and manufacturing — or “a few less financial engineers and a few more real engineers that actually make stuff,” as Warner puts it.

RANGE OF RIVALS

Global supply chains are much more developed, and technology is much more advanced and widespread, allowing lower-wage countries to compete more directly with American workers. The United States is up against increased competition well beyond Asia — Germany, for instance, retooled its manufacturing-focused policies in recent years to deal with competition from China.

The result is a range of rivals at various stages of development, with varying political and economic systems.

What many of these countries have in common are coordinated government roles to promote national competitiveness. And many lawmakers from both parties are focused on getting the administration to take action against foreign innovation policies that hurt increasingly vocal U.S. companies — namely China's mercantilist promotion of its exports and protection of its enterprises.

Yet some foreign approaches are worth emulating, say advocates of federal innovation spending. It's not only these countries' productive capacities that are catching up to or surpassing the United States, they say — it is also their business-focused policies.

Taiwanese leaders work with private technology companies through a government-sponsored Industrial Technology Research Institute to ensure that the island remains out front in the global high-technology supply chain. Finland's National Agency for Technology and Innovation, known as Tekes, has helped drive the formerly farm-dependent country to the technology forefront.

Moreover, the fact that Washington has no formal innovation strategy makes it an easy choice for companies to do business elsewhere. The United States' pioneering tax credit for research and development, created under President Ronald Reagan, is now much less generous when compared with similar benefits offered by other countries, Atkinson notes. The U.S. credit expired last December, and its renewal is caught up in a battle over deficit spending, jobless benefits and tax increases on multinational corporations. Meanwhile, as of this year, income derived from new patents in the Netherlands is taxed at a low 5 percent rate.

Talk of innovation and competitiveness strategies inevitably sounds to critics like a form of industrial policy — with the government choosing which industries, and even which companies, win in the competition for scarce resources.

Clyde Prestowitz, president of the Economic Strategy Institute, argues in a new book that it was such a mercantilist strategy — similar in some respects to how China operates today — that helped develop U.S. economic might, until the country embraced a more free-trade, market-oriented economic model in the 1950s. It's a provocative argument.

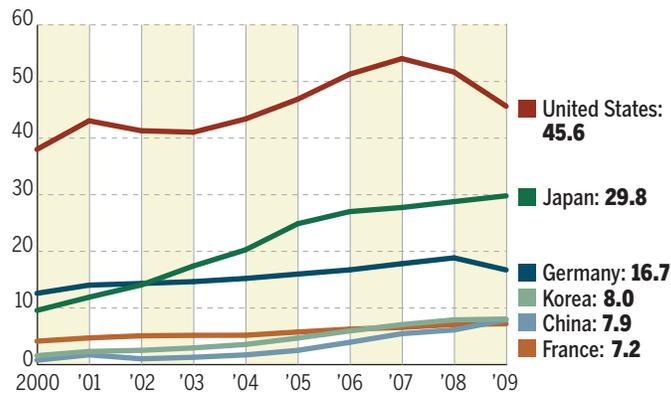
But industrial policy is a dirty phrase among conservatives and business-friendly Democrats — including some in the White House — who contend that government attempts over the last 30 years to steer private industry in certain directions

A World of Invention

Six countries account for three-quarters of patents that are filed internationally and, not surprisingly, the United States produces the most: about a third of total filings in 2009. Still, the number of patents produced by the next five countries combined equals half again as many as filed by the United States, which has seen its number of international patents decline in recent years.

International patents filed, by country of origin

In thousands



SOURCE: World Intellectual Property Organization

Bridging the 'Valley of Death'

SCIENTIFIC RESEARCH SERVES as the seed corn for innovation and economic development. Relatively esoteric discoveries made in laboratories and often underwritten with government money can become the next red-hot consumer item — with some luck and the right financial support.

Federally assisted basic research has led to developments that later resulted in such wildly successful devices as the ubiquitous music players that are plugged into the ears of people everywhere from the gym to the subway.

But getting results from the lab to the marketplace isn't as easy as planting a seed and letting it grow. Even good ideas spawned from basic research don't automatically develop into commercially viable products.

"In some sense the invention part is the easy part," according to Josh Lerner, a professor at Harvard Business School. The problem is going from inspiration to commercialization — it's a long, expensive and challenging process, he said.

To make matters worse, private industry money for taking products to market has dried up. Angel investors and venture capitalists, who had financed potential innovations in their early stages, have moved to backing more-developed, less-risky projects during the recession, said Lesa Mitchell, vice president for advancing innovation at the Kauffman Foundation in Kansas City.

To some, that suggests the burden may fall more on the government to help shepherd innovations to market. But while the federal government spends billions of dollars every year on basic research, finding money to bridge the gap from the lab to Wal-Mart can be much harder. This chasm, widely referred to by inventors and econo-

mists as the "valley of death," has left promising technologies idling in the lab. This shortfall in financing presents a hurdle that innovation advocates say Congress and the administration need to address if they hope to keep the U.S. economy on the cutting edge.

"The government is contributing billions each year to university research, but they provide virtually no money on the business side of getting ideas to the marketplace," said Darrell M. West, vice president and director of governance studies at the Brookings Institution.

One innovation program within the Small Business Administration does some work to provide that bridge money, but only for research ideas that have already led to the creation of a company.

But much government assistance goes for academic-based research that doesn't have a specific commercial application in mind, even as larger companies have been stepping away from that kind of work in recent decades. And those faculty members and students whose ideas might have market potential often don't realize it, said Krisztina Holly, vice provost for innovation at the University of Southern California.

That has led to the creation of programs like the Deshpande Center for Technological Innovation at the Massachusetts Institute of Technology, which provides money for university researchers to ease the transition from federally financed research to attracting private capital for business applications.

Holly is pushing a plan that calls for federal money to back pilot programs at universities that provide "proof of concept grants," business mentoring and connections with industry. Currently, there's no financing for "programmatic support for getting the best ideas out of the lab and into the marketplace and connecting them to the talent and the capital," she said. "It's a huge opportunity lost."

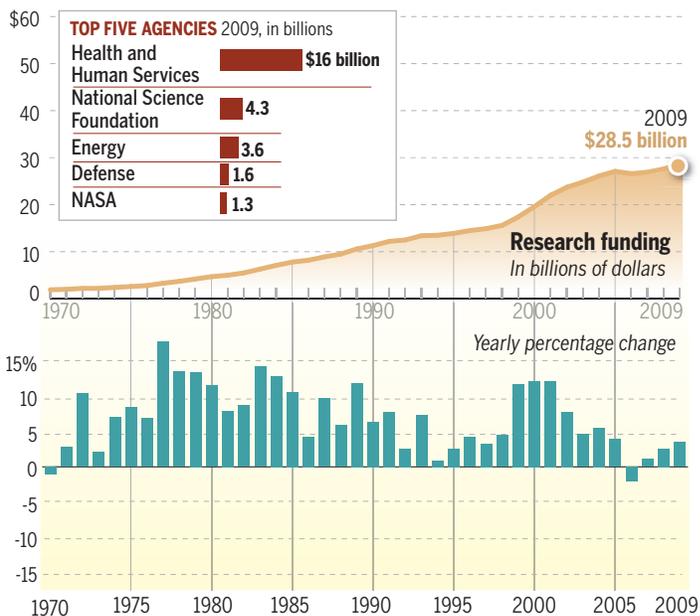
Still, not all research will yield a commercial payoff. The difficulty in getting a project off the ground may be a necessary step to weed out scientific discoveries that have little practical use. But that doesn't mean the government should get out of the business of paying for basic research, experts say.

Federal Support's Lopsided Ledgers

Federal support for research and development has grown over the past five decades, but little of the increase has occurred in recent years. Also, much of the government's spending on research is concentrated at the National Institutes of Health and the Pentagon, and relatively little goes directly toward energy or industrial processes. Basic research, generally regarded as intended to identify and explain scientific phenomena — the sort of work that is a precursor to real-world uses — gets a quarter of total federal R&D support. Applied research, which is intended to help find ways to solve known problems, gets a bit less. And, as is the case with basic research, half of all support for applied research goes for health-related purposes. While development — which is aimed at actually producing things that are useful — gets more than the other two categories combined, almost all of it goes for military applications.

SOURCE: National Science Foundation; 2008 and 2009 figures are preliminary

BASIC RESEARCH



And the purpose of basic research isn't always to make a product, "it's really to generate new knowledge," said Tobin Smith, vice president for policy at the Association of American Universities.

A LEGISLATIVE STRUGGLE

Congress has tried to provide money to spur development of commercial applications in the past by establishing conduits such as the Advanced Technology Program within the National Institute of Standards and Technology (NIST), a Commerce Department agency that has helped advance such innovations as industrial robotics. But that program long ago became embroiled in partisan politics.

Historically, Republicans have supported basic research but have been skeptical of money for commercialization, arguing that industry should make those decisions, said Smith. Democrats have generally been more willing to get involved in financing commercial development.

During the 1990s, the House repeatedly voted to eliminate the Advanced Technology Program, in part because Republicans who were joined by some conservative Democrats said the government shouldn't be picking business winners and losers. Support in the Senate allowed the program to survive.

In 2007, after Democrats reclaimed control of the House, lawmakers folded the program, along with many other federal research activities, into a single measure aimed at improving federal efforts to spur scientific advancement. The legislation moved through Congress with relative ease.

This year, however, amid a lingering recession and rising concern over deficit spending, a five-year reauthorization of the 2007 America COMPETES Act almost ran aground in the House.

This year's measure would broaden many basic and applied science programs, particularly through established channels at the National Science Foundation and NIST. It would also promote regional innovation clusters and other efforts to help scientists turn ideas into marketable products.

"What we're trying to do is bring the private sector in early on to get over this valley of death," explained Democrat Bart Gordon of Tennessee, chairman of the House Science and Technology Committee, in support of the legislation.

"It starts with basic research but it doesn't help us if we can't get it over into the applied," Gordon said. The bill is trying to "ride both horses there."

Despite its history of bipartisan support, the reauthorization bill foundered on the House floor under complaints over spending levels as well as policy issues. On the third try, the House passed it in late May after Democratic leaders divided the votes to allow moderate caucus members to oppose certain elements without jeopardizing its possibility of enactment. A companion Senate bill would be less expansive and only extend current programs for three years.

The legislation's rough trip through Congress highlights the unwillingness of lawmakers to find agreement on ways to support certain kinds of innovation, said the Brookings Institution's West. "Science funding seems to be caught in the cycle of inaction that is plaguing Congress today," he said.

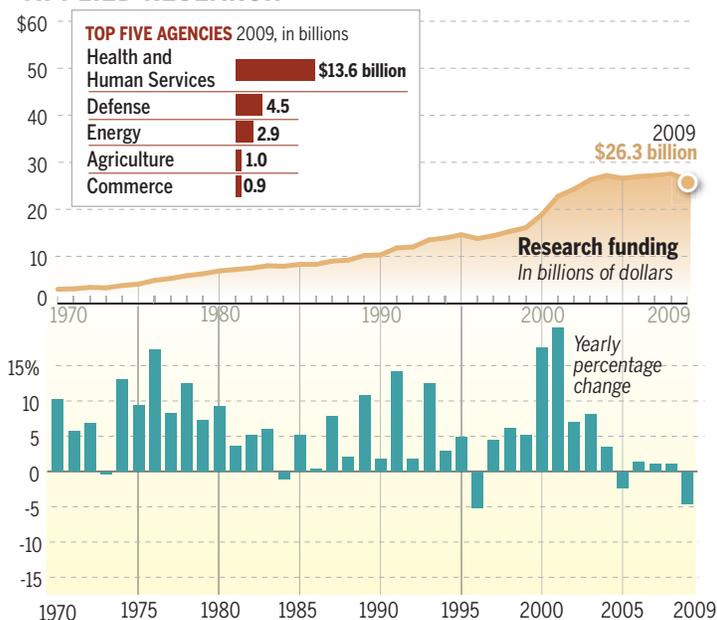
— ANNE L. KIM



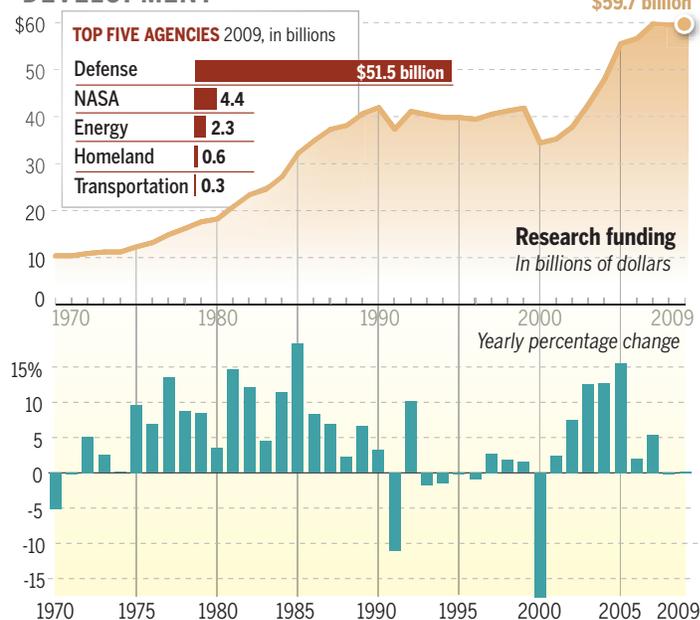
HAPPIER TIMES: A bipartisan group led by Senate Majority Leader Harry Reid announces the COMPETES Act in 2007.

NEWS.COM / AFP / MANDEL NGAN

APPLIED RESEARCH



DEVELOPMENT



have produced little.

Amid the oil crises of the 1970s, Carter pushed Congress into allotting \$20 billion for government-subsidized “synthetic fuel” plants — an effort that foundered as oil prices tumbled in the early 1980s and the business roared back.

Experts still debate the value of Sematech, a government-financed consortium of semiconductor manufacturers created in 1987 at a time of widespread worry that Japan was erasing U.S. dominance in the computer chip market.

“I don’t think we need a comprehensive industrial policy, partly because it would mean picking winner and losers, partly because that process would be inevitably captured by specific interests, and we’ve just never proven to be good at it,” says Bergsten.

Similar logic led the Senate to reject federal assistance for Chrysler and General Motors Corp. in December 2008, only to see the administration of President George W. Bush step in to support the two companies with a federal bailout. Obama continued the policy, ushering the two companies into a government-sponsored bankruptcy and rebirth, while promising that the government would not micromanage the companies’ affairs.

The White House seems to want it both ways. In a white paper on innovation released last year, the White House National Economic Council warned that “historical experience in this country and others clearly indicates that governments who try to pick winners and drive growth too often end up wasting resources and stifling rather than promoting innovation.” Members of the council, headed by former Treasury Secretary Lawrence Summers, “reject both sides of this unproductive and anachronistic debate,” the paper says.

Still, threading the needle when it comes to innovation policy is easier said than done in today’s political environment.

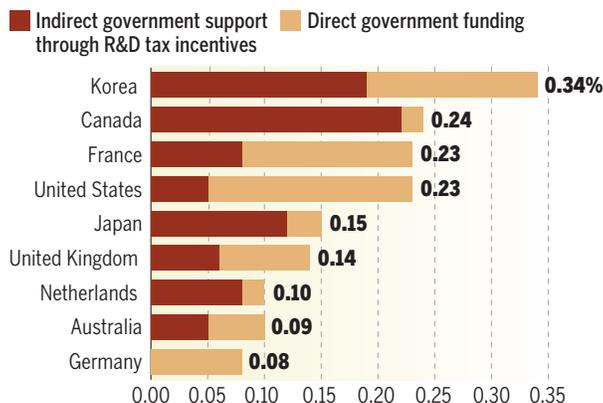
Republican leaders have taken aim with success at Democratic incursions into a variety of industries. Minority Leader Mitch McConnell of Kentucky complained on the Senate floor last month about “an administration that saw a crisis at some of America’s great automaking firms as an opportunity for government to extend its reach into industrial policy; which saw the panic on Wall Street as

National Interests

Washington contributes more to private research and development than do other high-income countries, but several have surpassed the United States in support as a share of economic output. Also, while direct U.S. aid is larger than that from most countries, most comes through the Pentagon, and U.S. tax incentives tend to be smaller.

Government support for research and development

As a percentage of GDP



SOURCE: Organisation for Economic Co-operation and Development

an opportunity for government to extend its reach further into Main Street.”

That argument echoes the complaints of many large companies that the Democrats’ agenda has increased their regulatory and tax burden — a perception the White House is fighting as the midterm elections approach.

At the same time, many Democrats and some Republicans, particularly from Rust Belt states with struggling factories, have been pressing the administration to establish a more hands-on policy toward manufacturing. Rep. Daniel Lipinski, an Illinois Democrat, wants the president to form a “manufacturing strategy task force.” Republican Sens. Lindsey Graham of South Carolina, Thad Cochran of Mississippi and Olympia J. Snowe of Maine joined Democrats in signing a letter to Obama earlier this year urging similar action.

The dynamics are partially partisan, partially regional, and involve nostalgia for the economy’s traditional goods-producing base. While U.S. manufacturing is one of the productive bright spots in the recovery, its competitiveness ranks fourth in the world, behind China, India and Korea, according to a recent analysis by the consulting firm of Deloitte and by the Council on Competitiveness, a coalition of business, labor and academic leaders. More troubling, according to the analysis, is that American manufacturing is in a period of rising uncertainty as companies ship research and other functions overseas.

“There is a sense that we need to make

sure that we are building things in the United States. And I think that is as much part of our national psyche as it is an actual economic issue,” Yarmuth says.

DEFICITS AND POLITICS

In the latest chapter in the government-business debate, calls for a more aggressive and focused approach to innovation policy face resistance — in part, critics say, because lawmakers are letting shortsighted angst over the budget deficit cloud the need to make U.S. companies and their products more competitive globally. The United States has run a trade deficit in high technology goods since 2002 and faces a growing gap in carbon-mitigation and other clean-energy technology.

Programs like the 48(c) tax credit initiative are one attempt to address this, but they are limited in scope. Indeed, the tax credits were just one of several

factors that led GE to move production lines back to Kentucky from China. The company shortened its supply line by thousands of miles. And it won a two-year wage freeze and other concessions from the local unit of the Communications Workers of America, which had little leverage with the jobless rate in Kentucky approaching 11 percent, well above the national average.

The administration has settled on one idea that few reject outright — boosting U.S. businesses with a much ballyhooed export promotion strategy. The goal is to double U.S. exports in five years, with a focus on building markets in Asia and helping companies — particularly smaller enterprises with few resources and fewer international contacts — to link up with foreign customers.

But to large exporters like Caterpillar Inc. and Boeing Co., this endeavor is hardly enough. They want less help finding markets overseas than in opening them to U.S. products. Big exporters want progress on stalled trade agreements with Colombia, Panama and South Korea and are unhappy as the European Union cuts trade deals in Asia.

Beyond export promotion, consensus breaks down, though, particularly as government red ink traps innovation issues in a contest over fiscal priorities.

The House, for instance, last month passed a bill reauthorizing and expanding science and research assistance — on the third try, and only after a divisive debate over spending, as

lawmakers begin to view deficit reduction as a bigger priority than new investment. (*Government support for science*, p. 1734)

Questions about energy investment are sidetracked as Senate Democratic leaders decide whether to push climate change legislation. An overhaul of the corporate tax code — a priority for conservatives and liberals such as Sen. Ron Wyden of Oregon and former House Ways and Means Chairman Charles B. Rangel of New York — has never gotten off the ground.

And a tax increase for managers of private equity companies, proposed by Ways and Means Democrats to pay for an extension of the research and development credit and other tax breaks, ran into opposition from lawmakers who want to encourage private financiers to get off the post-economic crisis sidelines and funnel money to entrepreneurs.

These are dangerous and false choices, say advocates of federal innovation spending, who argue that Democrats need to realize the importance of competitive tax policies and transforming old industries in a global marketplace, and that Republicans must learn the value of investing in science and energy — and dropping knee-jerk aversions to government involvement in various industries. And the White House needs to be less timid when it comes to connecting the dots and promoting the high-tech industries of the future, says ITIF's Atkinson.

While other countries forge ahead, he argues, U.S. lawmakers are saying, “‘we better balance the budget deficit so we better not invest in new innovation.’ Or the left is saying, ‘well, we don’t want to do anything on the corporate tax side, because that’s helping these Benedict Arnold corporations,’ and the right is going, ‘We don’t want to do anything on innovation policy, because that’s industrial policy.’” Atkinson, who once worked in top positions at the Progressive Policy Institute, the Rhode Island Economic Policy Council and the defunct Congressional Office of Technology Assessment, wants lawmakers to create a National Innovation Foundation and to direct money toward getting new science to market, among other things. “I’m not talking about a national strategy to pick IBM.”

WORKING WITH THE STATES

States, however, have rarely had this prob-

lem. “No governor has ever been criticized for trying to go after high-tech jobs or going after biotech jobs or trying to help the manufacturing sector,” says Warner, who served as governor of Virginia from 2002 through 2006.

Mark Muro, director of policy for the Metropolitan Policy Program at the Brookings Institution, advocates aiding regional “cluster” programs that bridge a gap between national fiscal policies and low-level initiatives like



PROMOTER: Former venture capitalist Warner wants a new approach by the federal government to boosting innovation.

small-business lending. Arkansas Democratic Sen. Mark Pryor and Arizona Democratic Rep. Gabrielle Giffords have bills that would support such clusters, and the stimulus law included some cluster financing.

“There’s a middle ground of institutions, networks and firms,” Muro said. “It happens in real places among real firms.”

In Massachusetts, a leader in information technology and the life sciences, that role is played by the quasi-governmental John Adams Innovation Institute, which directs state money — often with matching contributions from companies themselves — to address constraints and opportunities facing local industries, from marine research projects at the Woods Hole Oceanographic Institute to a “boot camp” for clean-energy entrepreneurs.

The biggest challenge right now, says institute director Patrick Larkin, is building a workforce to manage advanced manufacturing projects in Massachusetts, ranging from biotechnology to precision manufacturing.

“The darkest cloud is the ability to get students K through 12 and post-secondary to understand and to prepare for opportunities that would be available in the manufacturing environment — it’s not your grandfather’s

manufacturing firm,” he said.

Indeed, the real issue may be figuring out what the evolving economy will look like and not missing opportunities today to prepare for it.

Deborah Wince-Smith, president of the Council on Competitiveness, praised the decision by Congress to pour \$2.4 billion in stimulus money into developing advanced battery technology, like that required for electric cars. While visiting one beneficiary — Compact Power Inc. in Holland, Mich. — last week, Obama challenged his critics “to explain to these workers why it would be better for these things to be manufactured in other countries, or why the solar plants and wind turbines and biodiesel refineries that are being built shouldn’t have happened.”

But the question, says Wince-Smith, is whether Congress will combine this forward-thinking energy policy with tax and regulatory decisions that encourage companies to keep making next-generation technology here.

“Those are always looked at in separate stovepipes,” she argues. “No matter which party controls Congress, we don’t connect the dots between these policies and the impact they have.”

Wince-Smith says she is optimistic that the dynamic will change. But she also has a long memory. She was assistant secretary of Commerce for technology policy two decades ago during the administration of President George Bush, helping American companies develop flat-panel television technology — only to see production quickly shift overseas.

“We did all the research, did the start-ups on every flat panel,” she says, noting that American companies weren’t able to bring the technology to market on a mass scale. “It all went to Asia — Korea and Japan. We lost the next generation of innovation.” ■

FOR FURTHER READING: *Deficit debate*, CQ Weekly, p. 1510; *innovation and regulation*, p. 1495; *House debate on science programs (HR 5116)*, p. 1344; *broadband policy and the FCC*, p. 1140; *U.S.-China relations, 2009 CQ Weekly*, p. 1366; *auto bailout dies in Senate, 2008 Almanac*, p. 7-20; *eco-technology, 2007 CQ Weekly*, p. 1180; *Sematech, 1988 Almanac*, p. 194; *Synthetic Fuels Corporation, 1979 Almanac*, p. 632, *Defense Production Act (PL 81-774), 1950 Almanac*, p. 624.