

Fixing the economy the scientific way

January 3 2011, By Meryl Comer and Chris Mooney

Here are two facts that might seem unrelated: (1) Most Americans cannot name a living scientist. (2) Over the last two years, by far the most pressing problems in the country have been the economy and the cost of health care (a chief concern of President Obama's deficit commission).

What if we told you solving the first will help us fix the second?

Without ramping up our investments in science and research - a matter barely on the public's radar in a country where 65 percent of the citizens can't name a living scientist and an additional 18 percent try but get it wrong - we'll be hobbled in trying to fix our long-term economic problems. That's because science creates jobs, and it can also reduce health care costs related to the aging of the population.

Take jobs first: This has been a theme hammered home by the [National Academy of Sciences](#). In its two "Gathering Storm" reports released in recent years, the academy has argued strongly that our future prosperity depends on investments made now in research and innovation.

The basic premise rests on the work of Nobel Prize-winning economist Robert Solow, who documented that advances in [technology](#) and knowledge drove U.S. economic growth in the first half of the 20th century. If it was true then, it's even more so in today's information [economy](#).

Consider the economic reverberations of dramatically increasing the

capacity of the microchip. As the academy unforgettably put it: "It enabled entrepreneurs to replace tape recorders with iPods, maps with GPS, pay phones with cellphones, two-dimensional X-rays with three-dimensional CT scans, paperbacks with electronic books, slide rules with computers, and much, much more."

It's dramatic testimony to the economic power of [scientific advances](#). And yet over the four decades from 1964 to 2004, our government's support of science declined 60 percent as a part of GDP. Meanwhile, other countries aren't holding back: China is now the world leader in investing in clean energy, which will surely be one of the industries of the future. Overall, China invested \$34.6 billion in the sector in 2009; the U.S. invested \$18.6 billion.

But it's not just that science creates the next jobs. At the same time, it can also save society a fortune in shared costs that weigh down the federal budget.

Health economists and demographers, surveying the steady aging of the U.S. population, are predicting a dramatic rise in the cost of dealing with neurodegenerative diseases such as Alzheimer's, which already accounts for \$172 billion in total spending annually. That number is projected to climb to more than \$1 trillion by 2050 as legions of baby boomers reach the age of onset and the population generally ages. Meanwhile, our annual federal Medicare expenditure on Alzheimer's is projected to increase from \$88 billion today to \$627 billion, far exceeding the current total Medicare budget (about \$468 billion this year).

There's just one hope here: scientific advances that will slow the progression of Alzheimer's disease and ultimately uncover a cure. But, ironically, the prospects for scientists who seek federal dollars to study the disease are among the worst in the entire government science infrastructure. The National Institute on Aging, which supports most of

this work, is now turning down more than 90 percent of scientifically meritorious research grant proposals due to an inability to finance them.

As Alzheimer's researcher Sam Gandy of Mount Sinai Medical Center puts it: "Many well-known Alzheimer's scientists of my generation recognize that we have reached the end of an era. We can no longer, in good conscience, recommend that our trainees plan for a career in Alzheimer's research unless they can establish their first labs in China, Korea, Europe, Australia or South America."

So much for heeding the advice of philanthropist Mary Lasker, who used to remark, "If you think research is expensive, try disease!"

In light of all this, it's scarcely believable that the ascendant Republicans, in their "Pledge to America," are calling for a reduction in federal spending on nondefense-related science research to pre-stimulus levels. The National Institutes of Health could see its budget dip to \$28.5 billion in such a scenario, a 9.1 percent decline - and that's just one research agency. Others, like the National Science Foundation, could also be at risk.

In this context, who stands up for research? Publically funded scientists and their institutes have to remain politically neutral. Meanwhile, most Americans don't even know a living scientist's name, and think of Bill Gates and Al Gore as scientific role models.

We need to change our culture to honor our scientists - to rescue them from the funding upheavals that cut short their efforts to bring us life-saving therapies, treatments and devices that transform our lives and the way we work. And we need to recognize that the cost of basic science, and the time it takes, require a sustained government commitment because industry can't be relied on to fund incremental and high-risk science for its own sake without any guarantee of a payoff.

As Charles Darwin's great-great grandson Matthew Chapman, a Hollywood screenwriter, says: "Instead of being derided as geeks or nerds, scientists should be seen as courageous realists and the last great heroic explorers of the unknown. They should get more money, more publicity, better clothes, more sex and free rehab when the fame goes to their heads."

That's pretty funny - but our problems aren't.

More information: Meryl Comer, president of the Geoffrey Beene Foundation Alzheimer's Initiative, is executive producer of the Rock Stars of Science campaign (www.rockstarsofscience.org). Chris Mooney is the co-author of "Unscientific America: How Scientific Illiteracy Threatens Our Future." They wrote this for the Los Angeles Times.

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