

Research and recovery

The global economy is in trouble. Investment in biomedical research should be a key ingredient in any recovery plan.

Over the past few months, large companies have crumbled, stock markets worldwide have experienced precipitous declines and government leaders are wondering how to prevent a severe economic recession that, according to some economists, is already in full swing.

Scientists fear that the current economic woes will lead to substantial decreases in research funding. Yet government leaders would do well to consider the enormous economic benefit of biomedical research and to realize that boosting funding for such research could contribute to an economic turnaround.

Although it takes time for investments in research to deliver monetary returns, economists have estimated that public funding of biomedical research spurs economic growth. One study, for instance, reports a 28% rate of return on the original investment in research—far superior to any current savings account or mutual fund (*Res. Policy* 20, 1–12; 1991).

Government funding of biomedical research leads to the creation of jobs in both the public and private sectors. For example, in the US, a country with a long history of robust public biomedical research funding, there were more than 500,000 people working in the pharmaceutical industry in 2002 (*Med. J. Aust.* 177, 368–371; 2002).

Economic growth is also driven by sales of products and devices that have been developed with public funds for research. For example, economist Andrew A. Toole has estimated that a 10% increase in basic research funding leads to a 6.4% increase in the number of new compounds included in applications to the US Food and Drug Administration. The development of new pharmaceutical products or devices can bolster economic development when they are exported or licensed to other countries and can contribute to a favorable balance of trade.

There are direct and indirect economic benefits of investing in biomedical research. Healthcare improvements result in a more able-bodied workforce, leading to substantial improvements in productivity. Biomedical research also keeps healthcare spending down. Historically, these cost savings for the US health system have translated into a return of investment of three dollars for every dollar allocated to biomedical research (*Med. J. Aust.* 177, 368–371; 2002).

Yet, in spite of such advantages, governments drag their feet when

the time comes to make budget allocations for biomedical research. The US National Science Foundation (NSF) Authorization Act, which called for a doubling of the NSF budget by 2007, was passed by the US government in 2002. Yet these budgetary increases were never put into effect, and, in fact, NSF funding has *decreased* since that bill was passed. Because of these budgetary shortfalls, the NSF had to turn down grant proposals that were deemed “very good” or “excellent” by the reviewers of those grants.

And with the current economic crisis, it looks as if the US government will again ignore its promise to increase research funding. In 2007, the US National Academy of Sciences issued a report called *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. The report made specific recommendations to keep the American science enterprise strong, suggesting, for example, an increase in federal funding of basic research by 10% per year over seven years.

On the basis of these recommendations, in August 2007, President George Bush signed the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act into law. This law called for an increase in government support of research and education, including a doubling of the NSF budget and a push toward high-risk, high-reward research, at a cost of \$43 billion over the first three years.

Yet, over a year after the bill was passed, the programs mandated by the America COMPETES Act have yet to be financed. Congress must not use the current economic crisis as an excuse to decrease funding for biomedical research but, instead, as an opportunity to spur the economy by implementing the funding requirements called for by the America COMPETES Act.

Opportunities to invest in biomedical research and drive economic growth are not restricted to the US and should also be acted upon by the governments of other developed—as well as developing—nations that have the financial ability to invest in research. For example, in spite of the current global economic climate, last month China allocated 9 billion yuan (\$1.3 billion) to biomedical research funding over the next two years (*Nature* 455, 142; 2008).

A long-term strategy is needed for recovery from the current economic crisis, and investment in biomedical research must be part of that strategy. Investments in such research can improve not just the health of the citizenry but also the health of the global economy.