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## America's Underappreciated Entrepreneur: The Federal Government

Imagine a world in which the United States government — not the private sector — is the economy's indispensable entrepreneur, innovating at the frontiers of science and technology, able and willing to take risks and to persevere through uncertainty.

That is the world depicted in "The Entrepreneurial State," a recent book by Mariana Mazzucato, an economist at the University of Sussex who specializes in innovation. And it is, in fact, the way the United States has operated since World War II. Through the National Institutes of Health, the Defense Advanced Research Projects Agency and other agencies and departments, the government has for decades gone beyond financing research and creating the conditions for innovation to occur; it has also envisioned the future, engaged in the riskiest experimentation and overseen the commercialization process.

Professor Mazzucato documents the leading role of the government in, for example, "all the technologies which make the iPhone smart," including the

Internet, wireless systems, global positioning, voice activation and touch-screen displays. That is not to detract from Apple's role, but to put it into context. Without government, the technological revolution that has allowed iProducts to exist would not have happened.

Ditto the leading role of government in aviation and space technologies, pharmaceuticals and biotechnology, and more recently, in nanotechnology, which could be the next "general purpose" breakthrough, akin to electricity or computers.

The private sector never has been and never will be up to tasks like that. Even in the bygone heyday of Bell Labs, corporate investment was alongside, not in place of, government investment. Today, the scope, duration and cost of breakthrough research is either beyond the private sector's corporate and philanthropic resources or outside its profit model. A salient point in "The Entrepreneurial State," amplified in a review by Martin Wolf, the chief economics commentator of The Financial Times, is that corporations today often spend surplus

cash on share buybacks rather than on fundamental innovation.

In brief then, it is an essential role of the federal government — in the interest of tomorrow's prosperity — to invest and engage in scientific and technological discovery. And it is a role the government has played well, until now. After rising steadily for decades, federal financing for research and development peaked in 2009, at \$165.5 billion, bolstered by that year's stimulus spending. It has since sunk to levels last seen almost a decade ago, falling to \$133.7 billion this fiscal year.

That roughly \$32 billion drop is even greater when adjusted for inflation, and it encompasses both defense- and non-defense fields, including health, energy, the environment, climate, technology and electronics. One key area, basic science, received about \$40 billion in the peak year 2009. Since then, it has fallen, to \$30 billion last year, one of the sharpest declines ever. The future does not look much brighter. Constrained by austerity-induced budget caps, the research and development budget recent-

ly proposed by President Obama for fiscal year 2015 was only \$135.4 billion, the lowest request of his presidency. Chances for more money on top of the budget caps, as Mr. Obama has called for, are virtually nil. And given that Congress invariably enacts less than the president asks for, the trend is all downhill.

Worse, the direction is unlikely to re-

*Washington must invest more in science and get a better return.*

verse as long as prevailing rhetoric reinforces the notion of an inefficient government sector versus a dynamic private sector. To win budget battles going forward, Democratic policy makers and administration officials must also win the debate in favor of entrepreneurial government. The fact that they have not

successfully made that case in recent years is a result of both implacable Republican opposition and their own tendencies to exalt the private sector while ignoring its many roots in public spending.

Correcting that misimpression is crucial to building and sustaining support for public involvement in science and technology. Equally important is developing ways to ensure that taxpayers share in private-sector profits that ensue from government efforts. Fair and adequate corporate taxation is the obvious way, but that is currently a political non-starter. Non-tax models also need to be considered — for instance, requiring recipients of federal grants to pay a portion of subsequent profits to the government or establishing a federally backed innovation fund that lets the government retain an equity stake in companies that use the fund.

The goal, as expressed by Professor Mazzucato, is not for taxpayer-provided research to spare the private sector from risks, but for government and the private sector to take risks together and enjoy the rewards as one.