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Audience: American voters in United States

No one can argue with the fact that basic research, scientific research with no known application, has lead to many technological inventions, including nuclear power plants, computers, and everything in between. With a promising history of applications, many view basic research as a public good that should be funded by the government. However, even though basic research is both beneficial and satiating to the common man’s curiosity of the world, government funding is unnecessary and detrimental to basic research, because public funding reduces preexisting private support and causes universities to only do research that leads to more funding.

Basic research is useful in opening doors to new practical inventions and is a quest for understanding the universe for its own sake. For example, magnetic Resonance Imaging, or the very useful diagnostic tool MRI, was only made possible by basic research into how atoms give off “radio signals” as a result of “magnetic fields” (<https://www.facebook.com/thoughtcodotcom>). Even basic research in astronomy, which is often seen as interesting albeit a waste of resources, may have answers to everyday problems. For example, studies of the sun and its source of energy from fusion have sparked interest and hope for new, more efficient energy sources (“Why Fund Science?”). However, some critics point out that not all basic research will lead to useful applications. Although they are right, the risk of having no application is a small price to pay for tremendous innovations and advancements of society. Even without the reward of inventions, basic research enables humans to better appreciate and understand the beauty of the universe. During interim, my class on the beauty of mathematics surprised me with how captivating and satisfying understanding mathematical proofs was for its own sake. Although not useful and not practical, exploring the universe not for what it can do but what it is satisfies our thirst for knowledge and our appreciation of beauty. Basic research seeks to not only explore unexplored territory for societal advancement but is also a manifestation of our desire to appreciate the universe for what it is, not what it can be used for.

Because of its indirect but vital role in life changing inventions and its satisfying product of a better understanding of the world around us, many people believe it should be funded by the government. One of the most common arguments for federal support is that private companies would be driven by profit to only pursue research that would be guaranteed to make a profit. According to Nathan Myhrvold, former Microsoft worker who “founded Microsoft Research,” companies who have done research in the past have regretted their publications since other companies will take the discovery, make a product from it, and make more profit than those who did the work of researching. He rightly points out that while Bell Labs invented the transistor, Intel and Microsoft, not Bell Labs, made enormous profit off of its applications (Myhrvold). Although such exceptions do exist, the overall trend is that government funding “crowds out” private support (“Who Should Fund Science?”). For the second half of the 20th century (beginning with World War II and the infamous Manhattan project), most of scientific research was federally funded, but recently the government funding has stopped increasing. From 2005 to 2015, while government fundings stayed the same, private funding rose from 10 to 24 billion dollars (“Who Should Fund Science?”).

In addition to being unnecessary in the face of private investment, government funding of basic research has caused financial issues with universities. With government funding, universities were able to charge overhead for research grants that were used for more than just research. Universities became so accustomed to these extra finances, that they expected grants in their finances, eventually becoming dependent on government resources for research grants(“Who Should Fund Science?”). As a result of the government reducing support for research, universities have produced “less reproducible science and [have most likely cut] ethical corners to survive” in order to gain government funding (Herman and Neuhauser). In other words, the scientific research under the pressure for more government funding has actually reduced the quality of research. While some may argue that this crisis could have been averted had the government increased funding, the main issue is that universities were able and chose to become so reliant on research funding in the first place. Although not perfect, private sectors, who may or may not seek a profit from conducting basic research, would probably be less likely to skew data in favor of funds, since any false conclusions would cause the company to waste money and time in trying to work with that science. In contrast, researchers in universities who make profit from researching and not the application (which would only work if the basic research was accurate and well done) will not be as pressured to be accurate as they are pressured to make their research favourable for more funding.

In conclusion, while basic research is crucial for advancing technology and society by opening doors to new inventions and innovations, government funding is unnecessary in the face of private spending and has been shown to have negative effects on the quality of university research and the support from the private sector.

Works Cited

https://www.facebook.com/thoughtcodotcom. “How Magnets and Radio Waves Changed Medicine Forever.” *ThoughtCo*, 2018, www.thoughtco.com/magnetic-resonance-imaging-mri-1992133. Accessed 24 Apr. 2019.

“Why Fund Science?” *Rpi.Edu*, 2015, homepages.rpi.edu/~newbeh/WhyFundScience.html. Accessed 24 Apr. 2019.

“Who Should Fund Science?” *Cato Institute*, Apr. 2019, www.cato.org/publications/commentary/who-should-fund-science. Accessed 24 Apr. 2019.

Myhrvold, Nathan. “Even Genius Needs a Benefactor.” *Scientific American*, vol. 314, no. 2, 19 Jan. 2016, pp. 11–11, www.scientificamerican.com/article/basic-science-can-t-survive-without-government-funding/, 10.1038/scientificamerican0216-11. Accessed 24 Apr. 2019.

Herman, Brian, and Claudia Neuhauser. “Is It Time for a New Model to Fund Science Research in Higher Education?” *The Conversation*, 19 Dec. 2018, theconversation.com/is-it-time-for-a-new-model-to-fund-science-research-in-higher-education-63691. Accessed 24 Apr. 2019.

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