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Taxes, Spending, and Innovation

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Taxes, Spending, and Innovation

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Abstract

Part I: Billionaire Taxes, <https://ssrn.com/abstract=3326615>.

Part III: After Paying Ultra-High Net Worth Wealth Taxes, How Much Would Billionaires Have Left to Live on?, <https://ssrn.com/abstract=3340925>.

Key Takeaways:

- Innovation is the product of teamwork.
- Engineers and scientists play a critical role.
- Scientific research is insufficiently rewarded financially.
- Taxes can boost innovation by funding human capital investment and basic research.
- The amount of investment is important – who owns financial assets is not.

In formulating taxation and public investment policies, we should carefully consider data and the peer reviewed literature. Claims that we can drive more innovation and growth through a higher concentration of resources in the hands of a small number of billionaires — while providing fewer resources to middle and upper middle-class knowledge workers — are not empirically supported.

Taxes, Spending, and Innovation

Key Takeaways

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Opponents of [ultra-high net worth taxes](#) argue that taxing billionaires will drive down “innovation” (see [here](#), [here](#) and [here](#)). And indeed, if providing revenue to the government were the equivalent of destroying capital, it probably would.¹ However, taxing billionaires more—and using the revenue to [tax other people less](#) or subsidize public investments that more directly [contribute to innovation](#)—could boost the rate of innovation.

Presumably, “innovation” in this context means scientific or technological advances that lead to improvements in productivity, or improvements in quality of life or health. Or new business processes that lead to similarly positive outcomes.

Innovation is often the work of a large group of people working together. Large companies and even startups do not consist exclusively of a founder or figurehead, but rather of a team of highly educated skilled workers building on scientific and technical discoveries and legal and financial infrastructure which predate them.

It is therefore difficult to attribute innovation to a single person or class of persons. However, there are two readily available proxies for who drives innovation: Nobel prizes in scientific fields² and patent authorship.³

The overlap between Nobel prize winners in science and known billionaires is zero. The cash portion of the Nobel prize is approximately \$1.1 million. The medal can be auctioned off for perhaps another \$2 million. Prize winners can write books, lecture, or teach, but these are [not particularly lucrative activities](#), even for most Nobel prize winners. Most Nobel prize winners are late-career academic scientists who earned modest compensation for most of their working lives. Scientists working in industry are typically paid better, but rarely above a six-figure salary.

¹ A recent [analysis](#) that found links between statutory state income and state corporate tax rates and the location of innovation controlled for R&D tax credits, GDP per capita, population density, and state fixed effects. However, the ability to fund R&D tax credits and fund public investments (education; infrastructure) that support high productivity and high population density depends on tax revenue or previous borrowing that requires higher tax revenue. Thus, the study over-controlled and effectively assumed that taxes were a pure drag on the economy rather than a source of funding for public investment.

² The Nobel Peace Prize, which is given to powerful political leaders, presumably should not count as “innovation” although reducing the risk of war is an important contribution to social welfare).

³ Patents are an imperfect proxy for innovation. Many patents are not valuable, and many innovations are not patentable. But there are few better proxies available.

Nobel prize winners can help an early-stage biotech raise seed capital, but this doesn't seem to otherwise improve chances of success (which are always slim).

A modest salary for decades, plus a few million dollars toward the end of one's life is not enough wealth or income for someone to be subjected to ultra-high net-worth taxes. To the extent that ultra-high net-worth taxes disincentivize work, they will not discourage future Nobel prize winners.

Nobel prizes are awarded for important but abstract research with many potential applications. Typically, such basic research creates tremendous value for society, but the value that is created cannot be captured and monetized by the innovative scientists who create it.

The patent system is meant to reward innovation by granting a time-limited legal monopoly for useful methods or processes and thereby facilitate value capture. Patents are typically authored by scientists, engineers, and doctors. Occasionally they may be authored by corporate managers, consultants, and entrepreneurs. Patent authors are overwhelmingly middle class and upper middle class, not billionaires. Patents per capita are strongly linked to the share of the population with advanced degrees in science and engineering. There is a close connection between scientists, engineers, and innovation.

Commercializing and scaling innovative technologies depends on many non-technical business skills, such as the ability to articulate a vision, to know what customers want, to tell the company's story to investors and customers, and to attract and retain talent.

Steve Jobs and Elizabeth Holmes both excelled at these skills. But salesmanship and charisma or even persistence are not enough. The important difference between Apple and Theranos is that the engineers at Apple were able to solve the scientific and technical problems that were required to make their products work, while those at Theranos could not. (If Holmes or her investors had [scientific training](#)—or listened to advice from those who did—they might have realized how unlikely their venture was to succeed before burning \$100 million of capital).

Few of the scientists or engineers whose work leads to innovative companies' success will become billionaires as a result. The inventor of Valium—one of the most successful drugs in history—was paid a [single dollar](#) for this innovation by his employer, Roche. Early stage companies don't seem to care enough about taxes to invest much in tax planning, even though it would potentially boost the value of their companies (see [here](#) and [here](#)).

The ability to raise capital is important to a companies' success, and billionaires clearly do have a lot of capital to invest. But the [amount of capital](#) available for investment in each asset class

may be far more important to innovation than who owns the capital or who decides how it will be invested. (see also [here](#)).⁴

U.S. corporate law has separated ownership of firms from control of firms. The identity of investors in large firms is more or less irrelevant to the operation of businesses and the extent to which they innovate. [Shifting tax burdens](#) so that a few less shares are held by billionaires and a few more are held by people who are middle class is unlikely to affect operations much. Very few money managers can beat the stock market. Even venture capitalists typically just [buy a portfolio with a lot of risk](#) but do not consistently generate alpha (high risk-adjusted returns).

Public policy can be used to promote innovation by raising taxes and extensively funding high quality science, math, and engineering education, or by encouraging [immigration](#) of people with those skills.

Billionaires can promote innovation by donating money to [universities](#) or hospitals or artists. But so too can [governments](#) through taxation and public investment, for example through the NSF, NIH, NEA, DARPA, Medicare or general funding for Universities, healthcare or the arts. Public grant-making institutions typically have expert review mechanisms that are intended to allocate funding based on scientific merit, not political ideology.

Ultra-high net worth individuals typically direct a relatively high portion of their philanthropy to universities, hospitals and cultural institutions. But philanthropy for all givers—not just billionaires—adds up to only around [2% of GDP](#). The very wealthy give at higher rates than most, and to the extent that taxing wealth could reduce such productive charitable donations, it may be advisable to use some of the revenue to increase public funding. A majority of scientists [overwhelmingly agree](#) that governments should play an important role in the economy.

The most important connection between taxation and innovation may be the extent to which taxes fund public investments and research that contribute to innovation.

Domestic [centers of innovation](#) (measured by patents per capita) are almost all located in the northeast corridor, the west coast, Illinois, and Michigan—high tax areas with high levels of public investment and strong universities. Internationally, centers of innovation are located primarily in [East Asia and continental Europe](#).

These are not hotbeds of cut-throat individualism and anti-government sentiment.

⁴ The best argument that can be made for a link between inequality and innovation might be that those with high incomes and high wealth are more risk-tolerant and therefore more inclined to invest in high risk asset classes like venture capital. But if wealth were distributed more evenly, [financial intermediaries](#) with long time horizons such as pensions, insurance companies, banks, industrial corporations could invest in Venture Capital firms or Entrepreneurial ventures on behalf of smaller investors who are more risk averse in their individual capacities. [Intermediaries](#) can also reduce information and search costs. Indeed, institutional investors already account for the [vast majority](#) of VC investment.

Some members of the Forbes 400 founded companies with a strong reputation for innovation.⁵ As noted above, those companies' success was built on the work of thousands of other people.

In addition, the Forbes 400 is not a representative sample of billionaires. Instead, it is a self-selected subset: those who wish to publicize their wealth.

Many ultra-high net-worth individuals—particularly those who [inherited](#) their wealth—place a premium on privacy. Through the use of investment vehicles and trusts whose beneficial ownership [need not be publicly disclosed](#) and personal discretion, it is easy for them to maintain their privacy.

Entrepreneurs who are directly involved in the management of companies and need to attract investors and talent may find it advantageous to publicize their financial success.

But for those who inherited their wealth and do not actively manage a business themselves, there are few advantages to fame and the scrutiny it brings, and many disadvantages. The disadvantages range from the banal—attracting unwanted solicitations for investment or charitable contributions—to the serious—becoming a target for fraud or putting one's family at risk for kidnapping.

Even with strong selection bias toward entrepreneurship in the Forbes 400 list, a substantial proportion [inherited](#) much of their wealth. Heirs collecting dividends and interest are not obviously more innovative than retirees collecting Social Security or Medicare benefits.

One of the most important prerequisites to innovation may be hard work. Evidence from experiments and quasi random exogenous shocks shows that [increasing wages increases work effort](#) and hours. However, [increasing wealth](#) reduces work hours (see also [here](#)). Thus, taxing wealth more and wages less would lead to higher levels of effort and higher levels of productivity.

In formulating taxation and public investment policies, we should carefully consider data and the peer reviewed literature. Claims that we can drive more innovation and growth through a higher concentration of resources in the hands of a small number of billionaires—while providing fewer resources to middle and upper middle-class knowledge workers—are not empirically supported.

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Related Coverage

Michael Simkovic, [Billionaire Taxes](#), TaxProf Blog, Feb. 1, 2019

Neil H. Buchanan, [What Kind of Constitutional Mess Might a Wealth Tax Create?](#), Dorf-on-Law, Feb. 7, 2019

⁵ These companies are not always [quite as innovative](#) as is often assumed.

