# The Inegalitarian Spiral:

## How Industrial Concentration Increases Rents, Depresses Growth, and Disproportionately Harms Minority Communities

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# Contents

## ABSTRACT

The “invisible hand” is quite absent from American markets, and the government has taken its place in creating and protecting monopolies, duopolies, and oligopolies through regulation (Posner & Weyl, 2018). The primary purpose of this essay is to synthesize the research findings of Pistor, Piketty, Philippon, Tepper & Hearn, and others, and to propose how increasing market concentration is augmenting economic inequality, particularly through (i) expanding the legal privileges of intellectual property (patents, copyright, and other intangible assets), (ii) creating new barriers to entry through state regulation, and (iii) allowing for higher market power rents and suppressed wage growth which increases the difference $r - g$. Furthermore, I seek to explain how/if industrial concentration disproportionately harms black American communities because (a) black Americans have lower average income than white Americans and therefore suffer more from monopoly pricing, and (b) are three times less likely to innovate than are white Americans (Bell, Chetty, Jaravel, Petkova, & Van Reenen, 2017), therefore suffering more from the lower levels of innovation created by increased industrial concentration. Overall, more rigorous data collection and research are necessary to support the central claim of this paper – that increased concentration leads to disproportionately lower levels of innovation for black Americans.

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## Introduction

Research on industrial concentration and economic inequality has recently become a hotly debated topic within economics. While the increased concentration of industries in the United States is very well documented, new research has yet to settle the debate over the causes of this trend.[1] While increasing concentration during the 1990s was best explained by factors such as price competition and increasing productivity, this has not been true since 2000; now, high market concentration is more reflective of higher entry barriers and lower levels of competition (Covarrubias, Gutiérrez, & Philippon, 2019). Along with the increase in concentration has come increases in markups. This type of monopoly pricing is a form of regressive taxation which disproportionately affects those at the bottom of the wealth distribution; since those at the bottom of the wealth distribution spend a much larger percentage of their income on consumption than do those at the top,[2] higher market power in an industry means redistribution of money from consumers to shareholders. This is no negligible sum, either: it is estimated to be, at minimum, a few hundred billion dollars that is transferred from the bottom to the top of the wealth distribution through the mechanism of market power rents (Khan & Vaheesan, 2017). And the markups are rising: the average markup in 1980 was 18%, and is now upwards of 70% (De Loecker & Eeckhout, 2017). While higher markups do not necessarily imply higher firm profits, Loecker and Eeckhout show that firms with higher markups indeed have higher dividend margins – and therefore higher profits for firms, and higher costs to consumers.

[1] Philippon has outlined the six leading hypotheses: 1. Industry concentration metrics are not useful; 2. domestic competition has decreased; 3. the rise of superstar firms; 4. lower search costs; 5. increasing globalization; 6. the rise of intangible assets.

[2] See (Carroll, Slacalek, Tokuoka, & White, 2017). They have estimated that those in the bottom 20% of the wealth distribution have an MPC of nearly 50%, while those of the top 1% have an MPC of 5%.

In this paper, I argue that this increasing industrial concentration, characterized by decreased competition, the protection of intangible assets, and higher levels of regulation, has reduced the invention rates in the United States, particularly the invention rates of black Americans.[3] I will begin Section I by discussing lawyers' role in creating economic inequalities quite generally; in Section II, I will demonstrate the role of the state in upholding these inequalities. In Section III, I will continue with the analysis of the evolution of industrial concentration, rising firm profits, and decreased investment, which depress wages and economic growth. In Section IV, I will proceed with the primary purpose of this essay: exploring the link between rising industrial concentration and lower levels of innovation. I will also briefly discuss other avenues through which industrial concentration disproportionately harms minorities: lack of economic growth, lower wages, lower levels of business dynamism, and other channels. In Section V, I will conclude with central finding of this paper: increasing industrial concentration goes hand in hand with decreased innovation and has the largest negative consequences for black Americans and other minority communities.

## I. Lawyers

The law plays an important part in creating and protecting the creation and distribution of wealth globally. The rising concentration of wealth, capital, and markets becomes even more of an asset than it would otherwise be; those firms which have the largest market share in their industries are the firms which can pay lawyers the highest fees to create new ways to code their assets, avoid taxation, and solve disputes in arbitration to avoid creating new precedents in case law. They can move their headquarters or their assets to states which offer lower tax rates (Saez & Zucman, 2019). From the increasing share of intangible assets in firms' market valuations, this

[3] Throughout this paper, "invention rate" refers to the number of (utility) patents filed.

transfer of assets can often be completed with just a few clicks – and a fleet of lawyers facilitates this process. Since market concentration allows high monopoly rents and higher profits, these incumbent firms gain the ability to pay lawyers extravagant fees allows them to further cement their upper hand in their respective industries and to effectively give their assets priority rights and durability.[4] Additionally, when the government protects the excessive market power of firms, it gives those firms a legal license to raise prices.

The trend towards higher industrial concentration has been accompanied by an increase in the number of lawyers employed by the top US law firms: in 1984, the top fifty firms had on average 260 attorneys and $3.4 million in revenue. By 2006, these measures had increased to 975 attorneys and $40 million in revenue (Pistor, 2019, p. 162). While there has yet to be established a causal link between the number and compensation of lawyers and industrial concentration in our economy, the mechanism through which it may work is quite plausible, and Katharina Pistor has made a persuasive case for how lawyers serve to create wealth and affect its distribution (Pistor, 2019). Incumbent firms with large profits can offer high wages to lawyers that assist them in protecting their assets, both tangible and intangible. Lawyers have been an integral part of incumbent firms' strategies to lobby for regulation of industry to make entry more difficult for their possible competitors (Philippon, 2019; Tepper & Hearn, 2018). Economic inequality is often thought to be the result of a centralized decision-making process at the federal level, not the product of decentralized, local or state level court decisions or lawyer's coding strategies. However, the most important laws for protecting wealth – property law, collateral law, trust law,

[4] Priority rights and durability are two essential rights that can turn property into capital (see Pistor, 2019, p. 45 – 47). These rights can only be guaranteed by states. Intellectual property, since its state protection has increased globally in just the past few decades and has led to more entrenched market power for incumbent firms (see Covarrubias, Gutiérrez, & Philippon (2019), then serves to create inequality. This inequality is the product of private lawyers paid by the respective incumbent firms to advocate for higher levels of IP protection, which is then guaranteed by the state.

contract law, and corporate law – are formed at the state level.[5] Additionally, lawyers help to create and legally protect new forms of capital (such as copyright, trademarks, and other forms of IP). Now, the market value of most firms has gone far beyond their physical assets and is much more reflective of the intangible intellectual property that they own,[6] and the expansion of intellectual property law has come from court decisions, not new legislation (Lindsey & Teles, 2017). From rising globalization and increased interstate competition to attract capital, this intangible capital is much easier to ping around the world to whichever state offers the lowest tax rate and lowest transparency laws (Saez & Zucman, 2019). While Piketty, Saez, and Zucman have successfully argued for (i) the role of public policy in creating a more equal economic system, (ii) the ways in which those policies have been successfully skirted and manipulated by corporations and high net-worth individuals, and (iii) the increasing returns to skills that has widened the wealth gap, they and other researchers have done little to address how the laws are made and how the legal process favors the wealthy. Pistor has demonstrated that the law is increasingly created not by legislators or even judges but primarily by private lawyers, employed by the top firms in industries which are growing in concentration, who can turn intellectual property into capital. This has profound implications for the distribution of wealth in our society, and has been associated with lower wages, lower competition, and lower rates of invention.

## II. The Role of the State: Regulation and Inequality

In his book *Capital in the Twenty-First Century*, Thomas Piketty that free market, capitalist systems trend towards economic inequality, but he failed to explain – in fact, never

[5] For a detailed account of the ways that corporate, property, collateral, trust, and contract law are determined in a decentralized way, see Pistor, 2019.
[6] For more information on the shift of capital towards intangible intellectual property, see Pistor (2019) p. 108–131, and *Capitalism without Capital* by (Haskel & Westlake, 2018).

attempted to explain – why it is that the difference *r* - *g* (the difference between the rate of return on capital and the growth rate of the economy) is so high in the first place. Though the research remains underdeveloped, many economists and legal scholars have studied the possibility of the omitted variable that may well explain the reason that the rate of return of capital has remained larger than the rate of growth in the economy: decreasing competition and increasing market concentration.[7] These variables are not inevitable in a capitalist system, but rather come from states' legal codes – namely U.S. law – that allow this activity. For example, the relaxation of anti-trust policy, increased regulatory capture, lobbying, and regulations to make entry more difficult serve to benefit incumbents in an industry and further entrench the leaders in their positions.[8] This is not a characteristic of a free, competitive market, but rather the failure of a state to value and protect free markets. Where monopolies or duopolies exist, there must be the presence of state power to keep them intact and to uphold their advantages.[9] This is a view has lost popularity over the years,[10] but it was a view shared mutually by progressives and neoclassical economists such as Milton Friedman as well. 50 years ago, Friedman said of monopolies, "…in the United States the most important and the strongest monopolies are unquestionably those that derive from governmental privilege…" (*Milton Friedman—Monopoly*, n.d.).

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[7] Notable works on the study of decreasing competition, lower investment, increasing barriers to entry, and increasing market concentration have been developed by Covarrubias, Gutierrez and Philippon (2019); Tepper & Hearn (2018), Lindsey & Teles (2017), and more. See also Autor, Dorn, Katz, Patterson, and Van Reenen (2017) for a detailed account of the "superstar firms" hypothesis.

[8] This is the primary reason that US markets have become less competitive than EU markets since 2000. See *The Great Reversal: How America Gave Up on Free Markets* by Thomas Philippon (2019).

[9] The Food and Drug Administration (FDA), for example, is the most important protector of the market power that allows pharmaceutical firms to charge high drug prices and limit access to generic drugs (Kesselheim, Avorn, & Sarpatwari, 2016).

[10] Despite facts to the contrary, the economy of the US is often claimed to be an example of failed neoclassical/neoliberal economic policies. Rather, it is an example of failed government policy, over-regulation of industry (which monopolistic incumbents often lobby in favor of), lax anti-trust policy, etc. This presents a hole in the arguments of both the political Left and Right in the United States.

Corporate profits have been soaring over the past few decades, and where profits are high, standard economic models predict that more firms should enter the market – but this has not proven to be true (Tepper & Hearn, 2018, pp. 45-48). While the rate of exit has remained stable or perhaps even declined, successful entry has become much less likely during the past 40 years (Philippon, 2019, pp. 80-96). Along with the increasing concentration of those industries, the share of firms less than 5 years old has declined continuously since the 1980s (Philippon, 2019, p. 83). This is another indicator of decreasing competition in the American economy and the increasing fragility of free markets. In this case, the evidence supports Friedman's early conclusion of governmental privilege; the lack of new entrants is mostly explained by excessive state regulation. Recent research has demonstrated that this excessive regulation has been actively encouraged by the incumbent firms and written by their lawyers.[11]

## III. Concentration, Market Power, and Inequality

Concentration and market power of firms has increased over recent decades. Large corporations are the lead producers of patents in the United States, and their share of patents has been growing over the past decade (see Figure 1). Firms make indispensable contributions to innovation in our economy, but as a firm's market share grows larger and larger, its rate of innovation, measured by the number of important patents that it files, falls (Scherer, 2007). Not only does innovation fall in industries with higher levels of concentration, but so does investment (Gutiérrez & Philippon, 2016). For example, the residual difference between net investment and Tobin's *q*, which trended around zero until the early 2000's, has continued to grow and is now around 10 percent (Philippon, 2019, pp. 69-72). In those industries with the highest levels of concentration, this residual is 20 percent; in those with the lowest, it is 0 percent. In other words,

[11] See, for example, Tepper & Hearn (2018); Philippon (2019); Lindsey & Teles (2017); (Salop & Baker, 2015)

low levels of investment in the US economy come exclusively from those industries in which competition is lower and market power is higher. Corporations own a large and increasing percentage of total patents, copyrights, and other forms of intellectual property that help them maintain their market power, further slowing economic growth. Add this to the list of ways that oligopolies dampen wage growth, slow down economic growth (↓g), and increase rates of return (↑r), and we start to see how Piketty's famous insight – that inequality grows when the rate of return on capital is greater than economic growth – may be determined and upheld by the legal system and the strategic interactions of large firms.[12] This is a possibility that Piketty himself fails to discuss in any detail.[13] In fact, even a perfectly efficient redistribution (i.e. giving cash to the poor) is likely to have a much lower effect on aggregate output when the market is dominated by firms with high levels of market power.[14] This is another mechanism through which high levels of industrial concentration, especially in industries which represent a larger share of US GDP, can result in higher economic inequality even with an expansion of the welfare state.[15]

## IV. The Effects of Concentration on Invention Rates

Industrial concentration can affect invention rates and social mobility in various ways. Firstly, the number of patents is highly (negatively) correlated with income inequality; the greater the number of patents per capita filed in a state, the lower the ratio of the income of the 90$^{th}$ percentile to the 10$^{th}$ percentile (Akcigit, Grigsby, & Nicholas, 2017). Importantly, however,

[12] This remains speculation; there are a myriad of unconsidered or unimagined ways in which these two concepts may be related, and a long list of omitted variables and concerns of endogeneity. However, it certainly warrants further exploration.
[13] In fact, the terms "market concentration" and "market power" appear nowhere in the book *Capital in the Twenty-First Century*.
[14] For a detailed discussion of the relationship between market power and the fiscal multiplier, see (Woodford, 2011).
[15] This is quite a simple approach that makes many assumptions but is nonetheless a useful analytical tool; see Woodford (2011).

this only holds true when patent rights are given to new market entrants, not incumbent firms. Furthermore, Akcigit et al. (2017) found that innovation is positively correlated with social mobility only if the Schumpeterian paradigm holds true (if innovation is undertaken by entrants and not incumbents). This has important implications for social mobility and wealth distribution; while more income will go to successful innovators, or the owners of those patents (i.e. more income goes to the top income shares), the process of creative destruction should lead to high levels of economic mobility through the creation of jobs and through its positive effects on economic growth.[16] Increasingly, however, the rights of patents are in the hands of corporations and their shareholders, not in the hands of inventors. Using a simple linear regression model, I show that the share of patents going to individuals is highly negatively correlated with top 10% net personal wealth share (see Figure 2).[17]

Let us now examine the channels through which high industrial concentration in the United States can lead to lower invention rates. The lower levels of entrepreneurial dynamism in the U.S economy shows not only in concentration indices or entry rates, but also in the patent data: prior to 2005, 10 percent of all utility patents were granted to American individuals and 44.5 percent by U.S. corporations.[18] In 2018, only 4.4 percent of utility patents were granted to American individuals, with 45.5 percent granted to U.S. companies. While the large decline in the share of patents going to U.S. individuals appears to have been accompanied by little change in the number of patents going to U.S. corporations, the difference is made up largely with the share going to foreign corporations – 40.6 percent prior to 2005, and 48 percent by 2018.

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[16] See "The Schumpeterian Growth Paradigm" by Aghion, Akcigit, and Howitt (2015), available at https://doi.org/10.1146/annurev-economics-080614-115412

[17] Of course, we cannot draw conclusions from such a simple linear regression, but it is a useful illustration nonetheless.

[18] Data from the US Patent and Trademark Office's *Utility Patents Report*, available at https://www.uspto.gov/web/offices/ac/ido/oeip/taf/all_tech.htm#PartA1_2b

Overall, the combined share of patents going to U.S. individuals was 4.4 percent in 2018, compared to greater than 10 percent prior to 2005 (see Figure 1). Along with this increase in patents going to corporations, the top 10 percent wealth share is growing (see Figure 3).

Bell et al. (2017) demonstrate in their paper that being an inventor (i.e. filing a utility patent) is highly causally explained by the income level of one's parents and the invention rate of others in one's neighborhood. With declining rates of invention among individuals, in part caused by the growing concentration of American industries, the new generation of "lost Einsteins"[19] is growing because (i) the growing concentration of American industry is suppressing consumption, increasing firm profits, and lowering wages, particularly earning below the median income; and (ii) through lower exposure of young children to inventors. Being exposed to innovation from family, friends, or other role models in one's neighborhood have a significant causal effect on future invention rates.[20] If innovation rates of U.S. individuals are falling, however, then the aggregate exposure rates of children to inventors will fall. And, since family income remains one of the strongest predictors of future invention rates, it will fall most heavily for children from families earning less than the median income.[21] Since black families are more likely to be below median income than are white families,[22] this fall in innovation will have a disproportionately large effect in their communities. This is likely to be true because the industries with the highest HHI are the industries which primarily extract rents from low-income

[19] These lost Einsteins are defined by Bell et al. (2017) as "individuals who would have had highly impactful inventions had they been exposed to innovation in childhood."
[20] "…exposure to innovation during childhood through one's family or neighborhood has a significant *causal* effect on a child's propensity to become an inventor." (Bell, Chetty, Jaravel, Petkova, & Van Reenen, 2017)
[21] Bell et al. (2017) demonstrate that "…children from high-income (top 1%) families are ten times as likely to become inventors as those from below-median income families." Since industrial concentration not only is associated with a higher share of patents going to corporations instead of individuals, but also with market power rents, it serves to negatively impact low-income individuals more.
[22] See the evolution of median family incomes by race and ethnicity from 1967 to 2017; available at https://www.census.gov/content/dam/Census/library/visualizations/2018/demo/p60-263/figure1.pdf

consumers, whose spending represents a higher share of their income as compared to high-income consumers. For example, industries such as hospitals, health insurance, and pharmaceuticals have a disproportionately large negative impact on low-income families because they function as a consumption tax.[23] Decreased competition is bad for consumers, and it has a secondary effect of lowering the invention rates of young children. This serves to harm consumers even more and to exacerbate already large inequalities between income groups and between racial groups.

## V. Conclusion

In this paper, I have explored the various ways in which industrial concentration has led to higher levels of inequality. While Piketty acknowledges that the difference $r$ - $g$ has many possible explanations, he relies too heavily on taxation and public policy without sufficient discussion of legal codes, court decisions, lobbying, and other market distortions that increase concentration, artificially slow economic growth, and capture higher rents. Increasing industrial concentration serves to increase the difference $r$ - $g$, which helps to explain why inequality has been growing much faster in the USA than in Europe over the past few decades.

Additionally, while Bell et al. (2017) explore the different causal explanations for an individual's probability of becoming an inventor, they do not discuss the decreasing invention rates of individuals overall and how this could lead to growing levels of inequality and decreasing levels of growth, competition, and social mobility. By synthesizing these different research topics, we can develop a clearer view on how they are intricately linked and mutually

[23] See Figure 4, from Saez and Zucman (2019), for an example of how private health insurance works as a poll tax that primarily hurts the middle and working classes. Importantly, however, this cost is not so high simply because health insurance is private, but also because it is extremely concentrated.

interdependent. While it has long been known that competitive markets with free entry and exit are better for productivity growth, economic growth, and efficiency, it is becoming clearer that a decline competition has more consequences than is predicted in traditional economic models. Growing industrial concentration and higher market power rents harm consumers not only through suppressed wages and lagging economic growth, but also through a decrease in invention rates since an increasing share of patents is going to corporations instead of individuals. This puts downward pressure on social mobility, since those “lost Einsteins” have fewer opportunities to be exposed to role models in their commuting zones and are therefore less likely to become inventors. While this research shows promise, much more data collection, analysis, and research are needed to truly establish empirical support for the claims in this paper.

## Appendix

*Figure 1: Share of Utility Patents, Corporations vs Individuals*, data available at https://www.uspto.gov/web/offices/ac/ido/oeip/taf/all_tech.htm#PartA1_2b

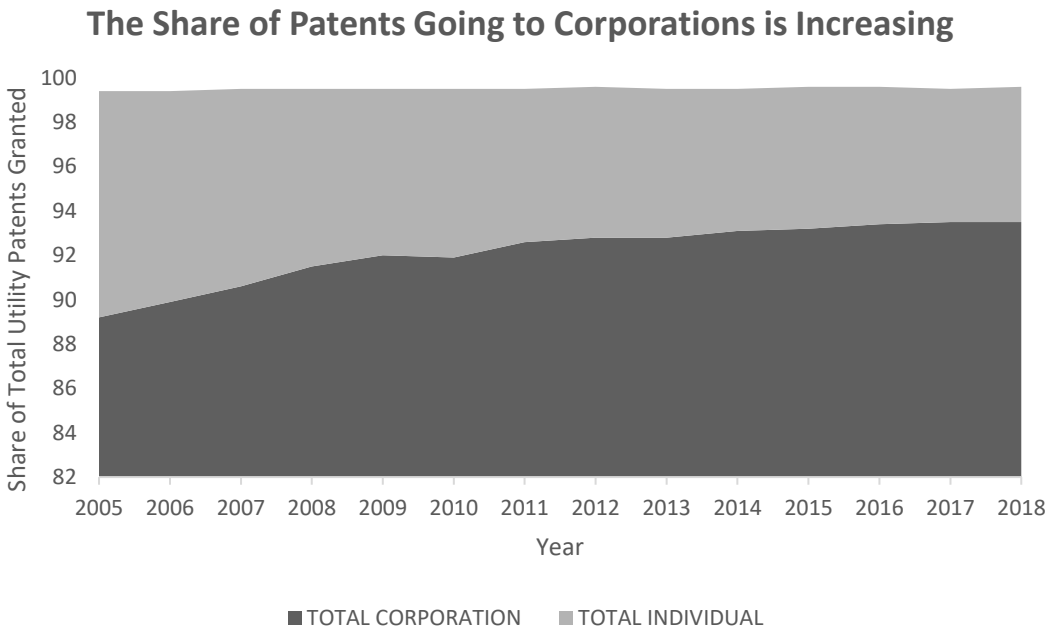



*Figure 2: Correlation of Total Individual Utility Patent Share and Net Personal Wealth Share of Top 10% in the United States, 2005-2014* (patent data from https://www.uspto.gov/web/offices/ac/ido/oeip/taf/all_tech.htm#PartA1_2b, wealth share data from https://wid.world/country/usa/)

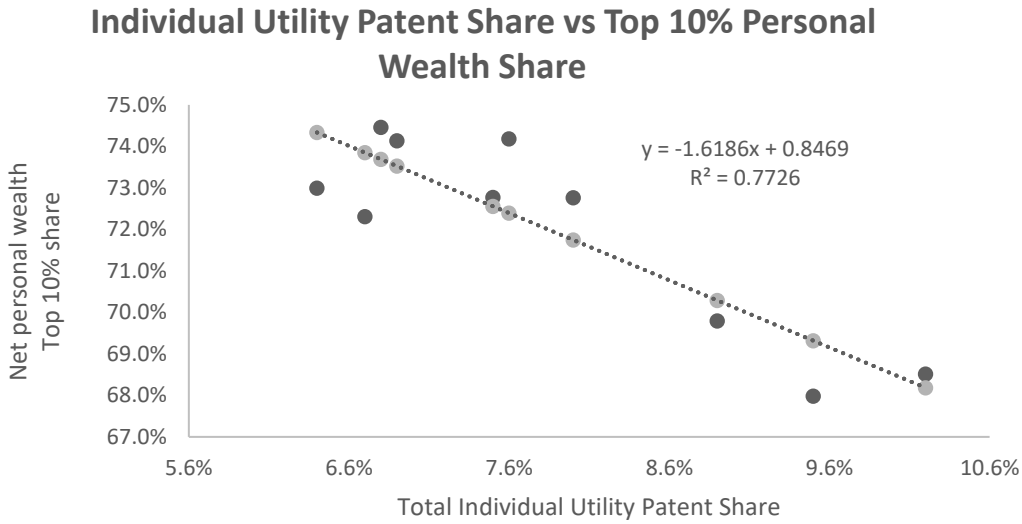


*Figure 3: Decreasing Individual Share of Utility Patents, Increasing Share of Top 10% Net Personal Wealth, 2005-2014*

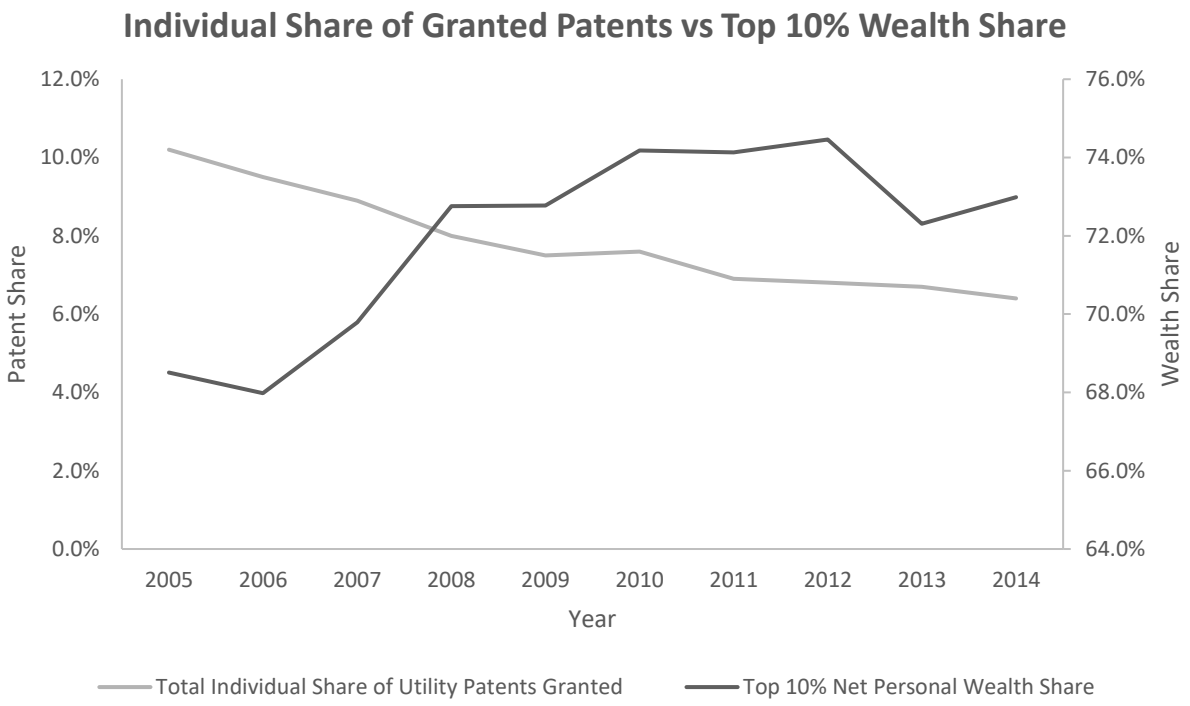
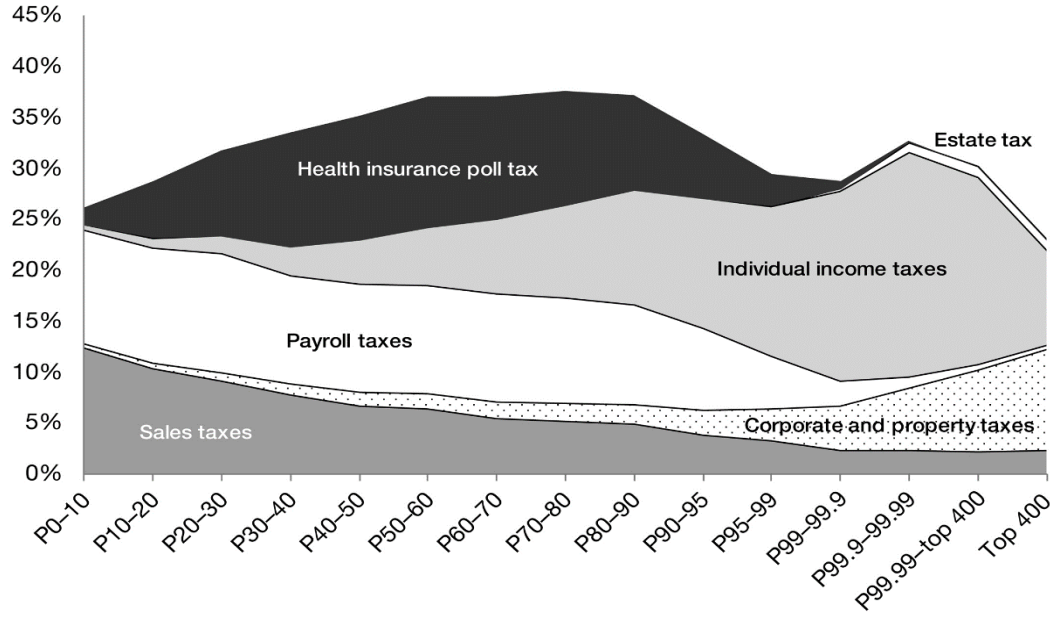



*Figure 4: Health Insurance as a Poll Tax*, graph from Saez and Zucman (2019), available at https://taxjusticenow.org



**Bibliography**

Akcigit, U., Grigsby, J., & Nicholas, T. (2017). *The Rise of American Ingenuity: Innovation and Inventors of the Golden Age* (No. w23047; p. w23047). https://doi.org/10.3386/w23047

Bell, A. M., Chetty, R., Jaravel, X., Petkova, N., & Van Reenen, J. (2017). *Who Becomes an Inventor in America? The Importance of Exposure to Innovation* (Working Paper No. 24062). https://doi.org/10.3386/w24062

Carroll, C., Slacalek, J., Tokuoka, K., & White, M. N. (2017). The distribution of wealth and the marginal propensity to consume. *Quantitative Economics, 8*(3), 977–1020. https://doi.org/10.3982/QE694

Covarrubias, M., Gutiérrez, G., & Philippon, T. (2019). *From Good to Bad Concentration? U.S. Industries over the past 30 years* (Working Paper No. 25983). https://doi.org/10.3386/w25983

De Loecker, J., & Eeckhout, J. (2017). *The Rise of Market Power and the Macroeconomic Implications* (No. w23687; p. w23687). https://doi.org/10.3386/w23687

Gutiérrez, G., & Philippon, T. (2016). *Investment-less Growth: An Empirical Investigation* (Working Paper No. 22897). https://doi.org/10.3386/w22897

Haskel, J., & Westlake, S. (2018). *Capitalism Without Capital: The Rise of the Intangible Economy*. Princeton, New Jersey: Princeton University Press.

Lindsey, B., & Teles, S. (2017). *The Captured Economy: How the Powerful Enrich Themselves, Slow Down Growth, and Increase Inequality*. New York, NY: Oxford University Press.

Philippon, T. (2019). *The Great Reversal: How America Gave Up on Free Markets*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

Piketty, T. (2014). *Capital in the Twenty-First Century*. Belknap Press: An Imprint of Harvard University Press.

Pistor, K. (2019). *The Code of Capital: How the Law Creates Wealth and Inequality*. Princeton University Press.

Posner, E., & Weyl, E. G. (2018). *Radical Markets: uprooting capitalism and democracy for a just society*. Retrieved 11 3, 2019, from https://www.worldcat.org/oclc/1030268293

Saez, E., & Zucman, G. (2019). *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*. WW Norton.

Tepper, J., & Hearn, D. (2018). *The Myth of Capitalism: Monopolies and the Death of Competition*. Wiley.

Khan, L., & Vaheesan, S. (2017). Market Power and Inequality: The Antitrust Counterrevolution and its Discontents. Retrieved November 3, 2019, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2769132&download=yes

*Milton Friedman—Monopoly*. (n.d.). Retrieved from https://www.youtube.com/watch?v=tdLBzfFGFQU

Salop, S. C., & Baker, J. B. (2015). Antitrust, Competition Policy, and Inequality. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2567767

Scherer, F. M. (2007). *Technological Innovation and Monopolization* (SSRN Scholarly Paper No. ID 1019023). Retrieved from Social Science Research Network website: https://papers.ssrn.com/abstract=1019023

Woodford, M. (2011). Simple Analytics of the Government Expenditure Multiplier. *American Economic Journal: Macroeconomics*, *3*(1), 1–35. https://doi.org/10.1257/mac.3.1.1