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Tax Policy and Entrepreneurship: A Framework for Analysis

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Key Findings

- There is growing concern by scholars, policymakers, and the general public that America is facing a retreat in the level of economic growth and dynamism enjoyed by Americans since the beginning of the 20th century. A key element of America's dynamism problem is a drop in entrepreneurship.
- The retreat of American economic dynamism may have multifaceted origins, and policymakers will have to consider changes in policy ranging from regulation to housing. Tax policy has a role to play, as taxes are one of the top barriers entrepreneurs list in surveys on their work. While it may take years or decades to determine the right mix of public policy to revive dynamism, changes to tax policy can contribute to the solution in the short to medium run.
- A more neutral tax code would increase incentives to work, save, and invest for all in the economy, including entrepreneurs. Removing tax barriers for entrepreneurs would improve America's dynamism while making America's tax code more neutral, efficient, and simple for all taxpayers.
- Taxes influence the risks entrepreneurs take, the incomes they earn, and their fixed costs. Policymakers should consider the impact of the tax code on the entrepreneurial community as a vehicle for accelerating economic growth and dynamism.

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Introduction

There is growing concern by scholars, policymakers, and the general public that America is facing a retreat in the level of economic growth and dynamism enjoyed by Americans since the beginning of the 20th century. The slowdown in economic growth rates has been matched with declining innovation indicators, including startup formation rates, employment in new firms, and the proportion of people moving across state lines.¹ Though these trends have been in motion for the last three decades, there is evidence that the recessions in 2001 and 2007 to 2009 accelerated them.

A key element of America's dynamism problem is a drop in entrepreneurship.² Fewer people are deciding to become entrepreneurs, who are the source of new businesses and generate most net new jobs.³ Dynamism's decline is having disparate effects on regions and cities within the United States, contributing to economic stratification and political angst.⁴

The retreat of American economic dynamism may have multifaceted origins, and policymakers will have to consider changes in policy ranging from regulation to housing. Some focus on encouraging a stronger culture of innovation and entrepreneurship, while others attend to long-run challenges around education and human capital. A mix of policies will be necessary to properly address a deep-running problem in the American economy.

Tax policy also has a role to play, as taxes are one of the top barriers entrepreneurs list in surveys on their work.⁵ While it may take years or decades to determine the right mix of public policy to revive dynamism, changes to tax policy can contribute to the solution in the short to medium run.⁶

Ideally, entrepreneurs would not make decisions to start businesses, invest, and engage in risk because of the tax code. Startups and incumbents should compete in a competitive market, allowing market forces to determine the efficient allocation of resources in the economy. A more neutral tax code would increase incentives to work, save, and invest for all in the economy, including entrepreneurs. Removing tax barriers for entrepreneurs would therefore improve America's dynamism while making America's tax code more neutral, efficient, and simple for all taxpayers.

This paper provides an overview of how tax policy effects entrepreneurial activity, including how tax rates and the structure of tax policy influence entrepreneurs' decisions to take risks. It will highlight why policymakers should care about entrepreneurship from the perspective of economic growth, outline a conceptual framework to generalize the role taxes play in an entrepreneur's decision-making, and review the literature examining the relationship between tax policy and entrepreneurship. This should help guide policymakers' thinking to ensure that tax policy does not

1 See generally, Kenan Fikri, John Lettieri, and Angeles Reyes, "Dynamism in Retreat: Consequences for Regions, Markets, and Workers," Economic Innovation Group, February 2017, <https://eig.org/dynamism>.

2 Ryan Decker, John Haltiwanger, Ron Jarmin, and Javier Miranda, "The Role of Entrepreneurship in US Job Creation and Economic Development," *Journal of Economic Perspectives* 28(3), Summer 2014, <https://www.aeaweb.org/articles?id=10.1257/jep.28.3.3>.

3 John Haltiwanger, Ron Jarmin, and Javier Miranda, "Business Dynamics Statistics Briefing: Jobs Created from Business Start-Ups in the United States," Ewing Marion Kauffman Foundation, 2009, <https://www.kauffman.org/what-we-do/research/business-dynamics-statistics/business-dynamics-statistics-briefing-jobs-created-from-business-startups-in-the-united-states>.

4 Ian Hathaway and Robert E. Litan, "Declining Business Dynamism in the United States: A Look at States and Metros," Brookings Institution, May 5, 2014, <https://www.brookings.edu/research/declining-business-dynamism-in-the-united-states-a-look-at-states-and-metros/>.

5 "Breaking Barriers: The Voice of Entrepreneurs," Ewing Marion Kauffman Foundation, Feb. 28, 2018, https://www.kauffman.org/-/media/kauffman_org/entrepreneurship-landing-page/kauffmanfoundationnationalpolicyurveyofentrepreneursd22618.pdf?la=en.

6 Jared Walczak, Scott Drenkard, and Joseph Bishop-Henchman, "2019 State Business Tax Climate Index," Tax Foundation, Sept. 26, 2018, 15, <https://taxfoundation.org/publications/state-business-tax-climate-index/>.

stand in the way of a revival in American entrepreneurship.

Entrepreneurship and Economic Growth

Given entrepreneurship's salience in public policy debates, entrepreneurship must be well-defined to understand its unique contribution to economic growth and innovation. Entrepreneurs are distinct from their peers because of their willingness to take on risk, to obtain economic profit through new ways to serve a good or service. Those new methods may include creating a new business model, catering to consumer needs more effectively, or providing lower prices than their competitors.

Risk is inseparable from entrepreneurship, as any venture to achieve economic profit is fraught with uncertainty. Israel Kirzner in *Competition and Entrepreneurship* focuses on the alertness required by entrepreneurs to find a potential source of economic profit, which may be missed by others.⁷

The political economist Joseph Schumpeter emphasized the destructive and creative consequences of entrepreneurship, arguing that “carrying out innovations is the only function which is fundamental in history.”⁸

But before understanding how entrepreneurship impacts economic growth, it is important to establish how economic growth happens in general. Neoclassical economics uses a production function, commonly referred to as the Cobb-Douglas production function.⁹

$$Y=AL^{\alpha}K^{1-\alpha}$$

This equation posits that output (Y) is produced by a combination of technology and innovations (A), labor (L), and capital (K). Capital and labor's relationship to total output is represented by their elasticities (a). These elasticities represent the effect of an additional hour worked or an additional unit of capital deployed on total output. For example, an elasticity (a) of .7 means that for a 1 percent increase in L, total output increases by 0.7 percent.

Traditionally, analysis focuses on labor and capital and their respective elasticities. The value of A, representing technology and innovation, is understood to be a residual, which cannot be influenced by policy. However, some economic thinking is changing on this question, arguing that technology and innovation can be influenced and grown through sound public policy decisions.¹⁰

7 Israel M. Kirzner, *Competition and Entrepreneurship* (Chicago: University of Chicago Press, 1978).

8 Joseph A. Schumpeter, *The Theory of Economic Development* (Cambridge, MA: Harvard Economic Studies, 1934), <http://www.hup.harvard.edu/catalog.php?isbn=9780674879904>.

9 Charles W. Cobb and Paul H. Douglas, “A Theory of Production,” *The American Economic Review* 18(1), March 1928, 139-165.

10 James Broughel and Adam Thierer, “Technological Innovation and Economic Growth: A Brief Report on the Evidence,” Mercatus Center at George Mason University, March 4, 2019, <https://www.mercatus.org/publications/entrepreneurship/technological-innovation-and-economic-growth>.

Entrepreneurship and Tax Policy – A Conceptual Framework

The effect of taxation on entrepreneurs and startups can be generalized into a conceptual framework to understand the real-world influence of specific tax policy changes. Taxes influence the risks entrepreneurs take, the incomes they earn, and their fixed costs.

Taxing Entrepreneurs' Income

The income entrepreneurs accrue can be separated into two parts: capital income, or return to an entrepreneur's capital investment, and labor income, or "sweat equity." The latter type of income results from an entrepreneur's effort, skill, and luck, as the entrepreneur is both a business owner and an employee working for the enterprise. The income an entrepreneur earns will contain both capital and labor income.

Capital Income

The capital income that an entrepreneur realizes may contain a normal rate of return to waiting and a super-normal return that compensates her for risk-taking. Take, for example, an entrepreneur who earns \$50,000 in income from a venture after two years of work and a capital investment of \$10,000. A portion of that income represents a normal return to waiting; at 3.5 percent per year, the entrepreneur accrues about \$10,715. Any return to capital above the normal rate of return is a super-normal return for engaging in risk. Contrast this with labor income, which is the portion of an entrepreneur's income that comes from putting her effort and skill into the firm.

A higher effective tax rate on entrepreneurs drives up the required gross return an entrepreneur needs to move forward on an investment. The higher gross return covers the additional tax levy, keeping the net return the same as before. If that gross return is not expected to be met, the entrepreneur may reconsider their plans given the opportunity costs.¹¹

Entrepreneurs may take several years to scale, accruing a higher market value for the firm. If the tax code were structured as a pure income tax, the entrepreneur would pay income tax on the increase in the firm's market value every year. For example, consider an entrepreneur who raises her firm's value by 20 percent per year over five years before selling the enterprise. If the firm started with a one-time investment of \$100,000 and was worth \$100,000, the firm would be worth \$248,830 when sold. After subtracting an investment cost of \$100,000, the present-value after-tax return is \$101,157, or about 101 percent.¹²

The tax system permits entrepreneurs to defer capital gains within their firm until they realize those gains upon sale. This lowers the tax burden on entrepreneurs and raises their after-tax returns. In our

11 Consider an entrepreneur who, after evaluating relevant opportunity costs, has found a potential opportunity that yields a post-tax return of 18.75 percent in one year if \$100,00 is invested. She realizes \$125,000 in income and deducts the \$100,000 in investment cost under a full expensing regime to determine her taxable income of \$25,000. If her effective tax rate is 25 percent, she realizes an after-tax return of \$18,750, or 18.75 percent of the \$100,00 investment. If the effective tax rate rises to 30 percent, however, this reduces her after-tax return to \$17,500, or 17.5 percent of the investment. If the expected 18.75 percent return was the minimum post-tax return necessary for the entrepreneur to move forward with the venture, a higher gross return of 26.79 percent is required to pay for the higher tax liability. For a formalized review of how taxes impact the cost of capital and gross returns, see Huaqun Li, "Measuring Marginal Tax Rate on Capital Assets," Tax Foundation, Dec. 12, 2017, <https://taxfoundation.org/measuring-marginal-tax-rate-capital-assets/>.

12 This does not adjust for risk *ex-ante*. This example uses a 3 percent discount rate and assumes that capital investment can be expensed.

example, tax deferral raises the present value of the entrepreneur's after-tax return from \$101,157 to \$102,780.¹³ The deferred tax liability has raised the entrepreneur's net return by over one percentage point.

An increase in the rate of income tax reduces the total expected rate of return by reducing the return to an entrepreneur's imputed labor income. In the case of an entrepreneur facing a 2 percent increase in her effective marginal tax rate, every additional dollar earned by applying more labor into the venture is taxed at that higher rate. The entrepreneur's expected return on capital, by contrast, is not affected by the increased tax rate.

Super-Normal Returns to Capital Income

An entrepreneur seeks to obtain an economic profit by identifying and taking advantage of differences in market prices. The result is a "super-normal return," or a return above what one would expect from a risk-free return to waiting.¹⁴ Put another way, super-normal returns compensate the entrepreneur for engaging in a risky endeavor.

Absent the expectation of a super-normal return, a prospective entrepreneur would have no economic reason to pursue a risky venture. Risk is reflected in the expected value of pursuing a given activity; for example, a 50 percent chance of earning a 10 percent return on investment yields an expected value of 5 percent.¹⁵ As risk increases, the expected return falls. If the expected return is below the expected return of alternative activities, the venture will not be undertaken. Super-normal returns are the expected result of entrepreneurial risk-taking.

Super-normal returns can be generated through economic rents from land or from "quasi-rents," as Tax Foundation Senior Fellow Stephen J. Entin describes:

Quasi-rents arise in situations of imperfect competition, where barriers to entry, such as patents, regulatory hurdles, or other protections of incumbent producers by governments delay production of similar goods and services by other potential suppliers. Above-normal profits may also result from access to scarce or specialized resources, a reputation for quality, or successful risk-taking and innovation that lead to a particularly attractive new design, discovering a new oil field, or being the first to offer a new product, where it takes time for the competition to catch up.¹⁶

Activities yielding super-normal rates of return are considered less sensitive to taxes than investments that yield a normal return.¹⁷ Consider the economic rents yielded from owning a piece of land in a valuable neighborhood. A land owner cannot move the land to another location to avoid

13 This is because of the time value of money: the present value of the deferred tax liability in five years is less than the present value of the taxes paid in increments over that duration.

14 Eric Toder, "Taxing Entrepreneurial Income," Tax Policy Center, Urban Institute-Brookings Institution, Jan. 2, 2017, <https://www.taxpolicycenter.org/publications/taxing-entrepreneurial-income>.

15 This assumes that an individual is neutral to risk; someone who is risk-averse or risk-seeking would have a different expected rate of return. For more on the risk preferences of entrepreneurs, see Martin Koudstaal, Randolph Sloof, and Mirjam van Praag, "Risk, Uncertainty, and Entrepreneurship: Evidence from a Lab-in-the-Field Experiment," *Management Science* 62(10), 2015, <https://pubsonline.informs.org/doi/pdf/10.1287/mnsc.2015.2249>.

16 Stephen J. Entin, "Labor Bears Much of the Cost of the Corporate Tax," Tax Foundation, Oct. 24, 2017, 12-13, <https://www.taxfoundation.org/labor-bears-corporate-tax>.

17 Ibid, 13-14.

the tax and remains better off if she earns economic profit from the land's use. The landowner will therefore fully bear a land tax. Quasi-rents yielded from barriers to entry are more sensitive to taxes than economic rents from land, but actors are more limited in their behavioral changes than those earning a normal rate of return.

While land rents and quasi-rents from barriers to entry, patents, or regulatory hurdles may be less sensitive to tax than normal returns, the super-normal returns to risk are sensitive to tax. It is important to consider how taxes affect investment decisions facing prospective entrepreneurs and not only look at retrospective investment.¹⁸

The taxation of super-normal returns presents a challenge to policymakers, as super-normal returns can be generated by risk-taking entrepreneurs or by other means, including returns to luck or imperfect competition. Incumbents may use barriers to entry, regulatory restrictions, or patents to increase their profit margins. While the latter kind of rent should be targeted as a source of tax revenue, taxes on super-normal returns may also dissuade risk-taking by lowering the expected rate of return on prospective entrepreneurial ventures.

Labor Income

An increase in an entrepreneur's tax rate reduces her labor incentive on an extensive and an intensive margin. An entrepreneur may decide to work fewer hours or apply less effort in the business or could decide that it is not worth it to expend any effort given her expected rate of return to her labor.¹⁹

Often, entrepreneurs sustain losses before realizing a super-normal return upon maturing their venture. The intervening time may be used to develop and market a new product or business model, increase market share, and scale the startup to a sustainable firm that can capture the super-normal return. The firm may also appreciate over time, which represents accrued value for the entrepreneur's labor and capital.²⁰

Ideally, the tax code would treat entrepreneurs with losses and entrepreneurs who fail equally to entrepreneurs who succeed. If profits and losses are treated symmetrically in the tax code, then taxes will not alter an entrepreneur's expected return or her decision to engage in risk-taking. In practice, entrepreneurs are limited in when and how much of their net operating losses they can deduct from their future tax liabilities.²¹

It is important to note the benefits that the tax code provides to entrepreneurs. The labor component of an entrepreneur's income is combined with capital income, which receives preferential treatment through a lower tax rate when an entrepreneur sells their business. This gives entrepreneurs a tax advantage over those who choose to earn labor income in traditional employment arrangements. A

18 Ibid, 15.

19 The reduction in the expected return to labor income can be applied both to entrepreneurs operating their own firms and to innovators working for an employer. In the latter case, prospective innovators may reduce their effort, work hours, or investment in the skills necessary to innovate. See below for more details and Garrett Watson, "A High Tax Rate on Star Inventors Lowers Total Innovation," Tax Foundation, Feb. 4, 2019, <https://taxfoundation.org/high-tax-rate-inventors-innovation/>.

20 Eric Toder, "How Do We Tax The Income of Entrepreneurs?" Tax Policy Center, Urban Institute-Brookings Institution, Sept. 4, 2017, 2, https://www.urban.org/sites/default/files/publication/93726/how-do-we-tax-the-income-of-entrepreneurs_1.pdf.

21 See below for a more detailed explanation of how the treatment of net operating losses can be improved for entrepreneurs.

second advantage an entrepreneur gets from the tax code is the deferral on tax liability for capital income accrued before the firm is sold and the gain is realized.²²

A key driver of the influence of taxes on entrepreneurship is how it changes incentives to engage in effort on the margin. Many entrepreneurs may obtain rates of return above a change in the rate of income tax, earning “inframarginal” returns that are insensitive to the rate change. This is not relevant when evaluating the aggregate effect of a tax rate change on entrepreneurship overall, as entrepreneurs decide to move forward with ventures at the margin. In other words, it is the venture that is on the edge between being profitable and making a loss that will be sensitive to a tax rate increase, affecting the total amount of entrepreneurship in the economy.²³

The Effect of Taxation on Entrepreneurs’ Fixed Costs

Fixed costs imposed by taxation have a different effect on an entrepreneur’s expected return than variable costs do. Fixed costs are expenses that do not change with an increase or decrease in the volume of goods or services sold by a firm. Examples of fixed costs imposed on entrepreneurs include tax compliance and complexity, which must be navigated as a precondition of entry by an entrepreneur.²⁴

The fixed costs created by tax policy influences an entrepreneur’s decision to enter or exit, not the volume of goods or services to produce. Take, for example, an entrepreneur offering a new way to provide legal services to low-income families. The entrepreneur may have to spend \$5,000 to ensure she is tax-compliant and successfully navigate complex reporting requirements. The \$5,000 is considered a fixed cost, independent of the amount of legal services she provides to customers. The volume of services she provides will be determined by the point where the marginal cost of producing an additional hour of service equals the price she can command for the service, independent of the fixed cost imposed by tax complexity.

This may be true even if the firm is running a loss. Imagine, for example, that the firm is making \$10,000 per month on legal services but must spend \$11,000 to remain tax-compliant. The fixed costs of tax compliance puts the firm at a loss of \$1,000 per month, but the entrepreneur would continue to provide legal services. If the entrepreneur shut down, she would be out \$11,000 in tax compliance instead.²⁵ The entrepreneur would operate until the cost of legal services exceeded the price consumers are willing to pay, making her unable to cover her variable costs.

22 Eric Toder, “How Do We Tax Entrepreneurs Income?” 3.

23 Stephen J. Entin, “Labor Bears Much of the Cost of the Corporate Tax,” 17. Less entrepreneurship is associated with a decline in investment, capital formation, and wages.

24 There may be variable costs created by tax complexity if the complexity rises as a firm increases its volume of goods or services sold.

25 Some tax compliance costs may be considered variable costs, though acquiring tax software, hiring accountants, or contracting with outside accounting firms would represent fixed costs in the short run.

Fixed costs created by tax compliance and complexity determine entrepreneur's decision to enter or exit an industry if the costs overwhelm the expected return on investment. It also lowers the total return expected from an investment at the beginning on a venture, which could deter firm entry if other opportunities would yield a higher return.²⁶ Costs imposed on the margin, such as marginal income tax rates, also play a role in determining if an entrepreneur decides to move forward with a business opportunity.

Tax Policy and Entrepreneurship

Tax policy can influence the decisions entrepreneurs make to enter an industry, invest, and engage in risk-taking through two channels: the tax rates entrepreneurs face on their income and the structure of the tax code—for example, how the tax code treats losses and capital investments.

Tax Rates and Entrepreneurship

The economic literature has found that tax rates have a mixed to negative effect on entrepreneurial activity.²⁷

Corporate income tax rates are associated with lower levels of entrepreneurship.²⁸ One study of 17 European countries between 1997 and 2014 found that corporate income tax rates had significant effects on firm entry rates, and that “this evidence is consistently robust across a variety of specifications.”²⁹ Lower corporate income tax rates increase firm entry, the authors argue, by increasing the return to risk and incentivizing incomes to shift from personal to corporate taxation.³⁰ The authors also find that lower corporate income tax rates spur greater firm entry when there is a better tax compliance infrastructure, suggesting that countries will see more benefit from lower corporate income tax rates if they make it more difficult to hide income through profit and loss account manipulation.³¹ Corporate income taxes may also uniquely harm entrants over incumbent firms.³²

26 Take, for example, a venture with an expected return of 10 percent after five years in operation. If tax compliance costs lower the expected return (discounted and risk-adjusted income less all costs) to 9.5 percent, some entrepreneurs may decide to pursue an alternative opportunity with an expected return of 9.8 percent instead.

27 Mina Balamoune-Lutz and Pierre Garello, “Tax Structure and Entrepreneurship,” *Small Business Economics* 42(1), 2011, 26, https://www.researchgate.net/publication/241754024_Tax_Structure_and_Entrepreneurship.

28 Abhiroop Mukherjee, Manpreet Singh, and Alminas Žaldokas, “Do Corporate Taxes Hinder Innovation?” *Journal of Financial Economics* 124(1), April 2017, <https://www.sciencedirect.com/science/article/pii/S0304405X17300041>.

29 Marco Da Rin, Marina Di Giacomo, and Alessandro Sembenelli, “Entrepreneurship, Firm Entry, and the Taxation of Corporate Income: Evidence from Europe,” *Journal of Public Economics*, 95(9-10), October 2011, <https://www.sciencedirect.com/science/article/abs/pii/S0047272710000757>.

30 Ibid, 4.

31 Ibid, 28.

32 Elie Applebaum and Eliakim Katz, “Corporate Taxation, Incumbency Advantage, and Entry,” *European Economic Review* 40(9), 1996, <https://www.sciencedirect.com/science/article/pii/0014292195000593>.

Economists have taken advantage of differences in state tax policy to understand how taxes interact with entrepreneurship. Economists Mark Curtis and Ryan Decker use county-level startup data to find that “young employer firms are particularly susceptible to tax policy shocks relative to established firms.”³³ For every percentage-point increase in corporate income tax rates, employment in startup firms goes down by 3.7 percent.³⁴ State individual income tax rates and the presence of an estate tax may also reduce a state’s share of national entrepreneurship.³⁵

Personal income taxes also influence entrepreneurship. The reduction in marginal tax rates after the Tax Reform Act of 1986 led to an increase in hiring rates by entrepreneurs; a decrease in marginal tax rates by 10 percent was associated with a 12 percent increase in the mean probability of hiring workers.³⁶ The progressivity of individual income taxes reduces an entrepreneur’s expected rate of return at higher income levels, which effectively operates as a tax on success.³⁷ Progressivity has an independent negative effect on firm entry rates, as a progressive tax rate schedule reduces the return to risk at higher payoffs.³⁸ This result is expected, as economic theory suggests that entrepreneurs respond to higher marginal tax rates by reducing the labor they expend in response to a lower return.

Some studies find a positive relationship between higher marginal income tax rates and entrepreneurship.³⁹ If personal income tax rates are higher than corporate income tax rates, some entrepreneurs with losses may decide to change organizational form *ex-post* to offset other income tax liability. This is a net subsidy to risk-taking, though rules exist to limit how often firms change organizational form and the amount of their tax loss harvesting.⁴⁰

Entrepreneurial Innovation and Tax Policy

Innovative activity by entrepreneurs is also influenced by tax rates. Within startups, inventors, research & development labs, and engineers engage in innovative activity that requires risk-taking. Many of these innovators are not self-employed but instead work within large, often incumbent, firms.⁴¹

Risk-taking by inventors and innovators working in startups and incumbent firms is changed by personal income tax rates. Expected incomes play a large role in individual decisions to enter an occupation with a high up-front cost to obtain necessary skills or education. As top marginal income tax rates rise, individuals may decide to avoid working in innovative occupations given the low

33 E. Mark Curtis and Ryan A. Decker, “Entrepreneurship and State Taxation,” Finance and Economics Discussion Series 2018-003, Federal Reserve Board, 2018, <https://doi.org/10.17016/FEDS.2018.003>.

34 Ibid, 2.

35 Donald Bruce and John Deskins, “Can State Tax Policies be Used to Promote Entrepreneurial Activity?” *Small Business Economics* 38(4), May 2012, <https://link.springer.com/article/10.1007/s11187-010-9262-y>.

36 Robert Carroll, Douglas Holtz-Eakin, Mark Rider, and Harvey S. Rosen, “Income Taxes and Entrepreneurs’ Use of Labor,” *Journal of Labor Economics* 18(2), April 2000, <https://www.jstor.org/stable/10.1086/209961>.

37 William M. Gentry and R. Glenn Hubbard, “Success Taxes, Entrepreneurial Entry, and Innovation,” National Bureau of Economic Research, June 2004, <https://www.nber.org/papers/w10551>.

38 Ibid, 21.

39 For example, see Yannis Georgellis and Howard J. Wall, “Entrepreneurship and the Policy Environment,” *Federal Reserve Bank of St. Louis Review* 88(2), 2006, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=921026.

40 Roger H. Gordon and Julie Berry Cullen, “Taxes and Entrepreneurial Activity: Theory and Evidence for the U.S.,” National Bureau of Economic Research, June 2002, 3, <https://www.nber.org/papers/w9015>.

41 William M. Gentry and R. Glenn Hubbard, “Success Taxes, Entrepreneurial Entry, and Innovation,” 15.

payoff.⁴² As Stanford economist Charles Jones puts it, “High incomes are the prize that motivates entrepreneurs to turn a basic research insight that results from formal [research and development] into a product or process that ultimately benefits consumers.”⁴³ Raising top marginal income tax rates from 30 to 60 percent tends to negatively affect innovation by top inventors more than marginal tax rate increases up to 30 percent.⁴⁴

Superstar inventors, those who create a disproportional amount of innovation as measured through patents and inventions, are sensitive to individual and corporate income taxes. Using patent data from between 1976 and 2010, economists Enrico Moretti and Daniel Wilson find that there are “large, stable, and precisely estimated effects of personal and corporate taxes on star scientist’s migration patterns.”⁴⁵ This result confirms results by an earlier study finding similar effects on inventors’ international mobility from tax rates since 1977.⁴⁶ The location and number of superstar inventors may be a chief constraint for innovation levels to remain at or above the levels the developed world has enjoyed historically.⁴⁷

Tax policy is one of many considerations prospective innovators consider when deciding where to locate and whether to enter an innovative occupation. Inventors are less sensitive to tax rates in areas where there is more agglomeration, or an abundance of innovators already living and working closely together.⁴⁸ This helps explain why cities such as San Francisco and New York City maintain their dynamism despite their relatively high overall tax burden.⁴⁹ When controlling for agglomeration effects, taxes influence individual decisions to enter innovative activity (the extensive margin) and how hard they work on research and hire employees (the intensive margin).⁵⁰

Structural Effects of the Tax Code on Entrepreneurship

In addition to the level and progressivity of tax rates, the structure of the tax code also influences the decisions of entrepreneurs to enter an industry, invest, and innovate. The tax treatment business losses and investment are especially important structural elements of the tax code for entrepreneurs.

42 Garrett Watson, “Ocasio-Cortez’s Proposed 70 Percent Top Marginal Income Tax Rate Would Deter Innovation,” Tax Foundation, Jan. 14, 2019, <https://taxfoundation.org/ocasio-cortezs-70-percent-tax-rate-deter-innovation/>.

43 Charles I. Jones, “Taxing Top Incomes in a World of Ideas,” National Bureau of Economic Research, Sept. 6, 2018, <https://www8.gsb.columbia.edu/faculty-research/sites/faculty-research/files/finance/Macro%20Workshop/toptax.pdf>.

44 Garrett Watson, “A High Tax Rate on Star Inventors Lowers Total Innovation,” and Alexander M. Bell, Raj Chetty, Xavier Jaravel, Neviana Petkova, and John Van Reenen, “Do Tax Cuts Produce More Einsteins? The Impacts of Financial Incentives vs. Exposure to Innovation on the Supply of Inventors,” National Bureau of Economic Research, January 2019, <https://www.nber.org/papers/w25493>.

45 Enrico Moretti and Daniel Wilson, “The Effect of State Taxes on the Geographical Location of Top Earners: Evidence from Star Scientists,” *American Economic Review* 107(7), July 2017, <https://www.aeaweb.org/articles?id=10.1257/aer.20150508>.

46 Ufuk Akcigit, Salomé Baslandze, and Stefanie Stantcheva, “Taxation and the International Mobility of Inventors,” *American Economic Review* 106(10), October 2016, <https://www.aeaweb.org/articles?id=10.1257/aer.20150237>.

47 Seth G. Benzell and Erik Brynjolfsson, “Digital Abundance and Scarce Genius: Implications for Wages, Interest Rates, and Growth,” National Bureau of Economic Research, February 2019, <https://www.nber.org/papers/w25585.pdf>.

48 Ufuk Akcigit, John Grigsby, Tom Nicholas, and Stefanie Stantcheva, “Taxation and Innovation in the 20th Century,” National Bureau of Economic Research, October 2018, 4, <https://www.nber.org/papers/w24982>.

49 As Akcigit, Grigsby, Nicholas, and Stantcheva put it, “Corporate inventors are most sensitive to taxation, and positive agglomeration effects play an important role, perhaps by offering a type of compensating differential for taxation.” See Ufuk Akcigit, John Grigsby, Tom Nicholas, and Stefanie Stantcheva, “Taxation and Innovation in the 20th Century,” Cato Institute, Feb. 6, 2019, <https://www.cato.org/publications/research-briefs-economic-policy/taxation-innovation-20th-century>.

50 Ibid, 3.

Entrepreneurs often face losses for a time before becoming profitable and realizing super-normal returns on investment. This makes the tax treatment of those losses important to entrepreneurs, who will not have taxable income until they become profitable. The tax code treats business profits and losses asymmetrically: a business profit incurs an immediate tax liability, while a business loss does not always yield an immediate tax benefit.⁵¹

An entrepreneur with a net operating loss must “carry over” the loss to a future tax year. Due to the time value of money and inflation, these losses are worth less than if they were immediately realized to offset tax liability. A partial solution to this problem is to incorporate an inflation adjustment and a real return to capital into the net operating loss to equalize their tax treatment, though this would not help businesses that go out of business before reaching profitability.⁵²

Financers of entrepreneurial ventures also face a tax asymmetry when they have a capital loss. Federally, the tax code permits up to \$3,000 in deductions for capital losses per tax year, with any capital losses above \$3,000 required to be “carried forward” to future tax years, when they can be deducted against future capital gains. This penalizes financing of risky ventures, as capital losses realized in the future have less value than those realized in the present.^{53 54}

Finally, this discussion should not be considered exhaustive. Numerous other tax policies influence the entrepreneurial community, including issues that impact all businesses. These include the tax code’s bias against capital investment, bias towards debt investment over equity investment, and depreciation provisions, among others.⁵⁵

Conclusion

Tax policy can help America reverse its decline in economic dynamism. Structural barriers in the tax code that put entrepreneurs at a disadvantage should be remedied so that entrepreneurs can make decisions to take risk based on market signals, not the tax code.

The tax code as currently constructed is not entirely a headwind for entrepreneurs. On the contrary, the tax code confers several advantages to entrepreneurs, including the deferral of tax on imputed labor income and a preferential tax rate on capital gains. The key for policymakers is to identify places where the code can be improved so that it does not stand in the way of entrepreneurs’ success.

51 Kyle Pomerleau, “The Tax Code as a Barrier to Entrepreneurship,” Written Testimony Before the U.S. House Committee on Small Business, Tax Foundation, Feb. 15, 2017, 2, <https://taxfoundation.org/tax-code-barrier-entrepreneurship/>.

52 Ibid, 3.

53 Ibid, 3.

54 Section 1244 of the Internal Revenue Code (IRC) permits investors to deduct up to \$100,000 capital losses from qualifying small business stock immediately against ordinary income. Expanding this provision could help mitigate the distortions limits on capital losses create in the tax code.

55 Garrett Watson, “Unequal Tax Treatment is Contributing to Rising Debt Levels for Entrepreneurs,” Tax Foundation, Dec. 13, 2018, <https://taxfoundation.org/unequal-tax-treatment-contributing-rising-debt-levels-entrepreneurs/>.