



U.S. Small Business Administration
Office of Advocacy

August 2001

Tax Policy and Small Business: New Firm Formation, Growth, and Survival

Proceedings of a conference held July 23, 2001

The Office of Advocacy of the U.S. Small Business Administration was established in 1976 by Congress under Public Law 94-305 to, among other things, examine the current role of small business in the economy, present current and historical data on the small-business sector, and identify economic trends which will or may affect the small-business sector and the state of competition. In fulfillment of this mandate, the Office of Advocacy funds research and publishes reports, such as *The State of Small Business*, *Small Business Profiles*, the *Small Business Answer Card*, and *Small Business Economic Indicators*.

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Tax Policy and Small Business: New Firm Formation, Growth, and Survival

Office of Advocacy
U.S. Small Business Administration
Washington, D.C.: 2000

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Foreword

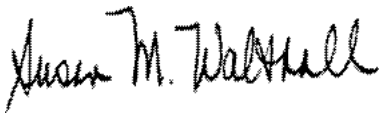
Considering that taxes are a steady complaint from small business owners, the Office of Advocacy certainly was proud to add fuel to the debate by hosting a July 23, 2001 conference titled "Tax Policy and Small Business: New Firm Formation, Growth, and Survival." This forum sparked a healthy dialogue that we hope will have an impact on tax policy in the years to come. The conference was a topic of interest in the *Washington Post*, *Tax Notes*, and other news publications.

Many individuals and organizers were instrumental in making this a successful conference. Thanks to the Senate Finance Committee for providing space in the Dirksen Senate Office Building. Much of the event's success is owed to conference organizer Dr. Donald Bruce (University of Tennessee) and the presenters, Dr. Harvey S. Rosen (Princeton), Dr. William Gentry (Columbia), Dr. James Poterba (Massachusetts Institute of Technology), and Dr. Jonathan Gruber (Massachusetts Institute of Technology). In addition, our discussants enlivened the proceedings with their often pungent commentaries. They included Martin Sullivan (*Tax Notes*), Patrick Von Barga (National Commission on Entrepreneurship), Eugene Steuerle (The Urban Institute), and Jane Gravelle (Congressional Research Service). This distinguished panel, along with keynote speaker Dr. R. Glenn Hubbard (Council of Economic Advisers), provided a program that was well received by the audience in the Senate's Finance Committee room. Thanks also to the Ewing Marion Kauffman Foundation for generously providing support for the conference.

Finally, I would like to thank the Office of Advocacy staff members who contributed the "nuts and bolts" necessary for any successful conference. Dr. Bob Berney, recently retired from Advocacy, was a key contributor, and we wish him well in his retirement.

Feel free to send any comments or questions about the Office of Advocacy or small business tax policy to the Office of Advocacy, U.S. Small Business Administration, Mail Code 3112, 409 Third St., S.W., Washington, DC 20416, or by fax to (202) 205-6928. For answers to technical questions, call (202) 205-6530 or send e-mail correspondence to advocacy@sba.gov.

Thank you,



Susan Walthall
Acting Chief Counsel for Advocacy

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Conference Summary

by Donald Bruce, University of Tennessee (Conference Organizer)

The role of small business in the economy has re-emerged as an important consideration in the development of tax policy. This development is one part of a more general rise in attention devoted to “entrepreneurs” in the policy process. Among the various agencies and branches of the federal government, there is a growing recognition that the design of policy should reflect economic responses to entrepreneurial incentives.

For a long time, the vast majority of policy-oriented economic research focused on the economics of households and large businesses. This focus was partially due to the ready availability of useful data. In recent years, however, a growing empirical literature has focused on the economics of entrepreneurship, yielding both important insights and empirical underpinnings for small business proposals. Also, in recent years this research has started to consider the impact of tax policy on various aspects of entrepreneurship.

The first purpose of this conference was to review recent research on the effects of individual and corporate taxation on entrepreneurship. The discussion included legal and compliance issues, incentives, and impacts on “real” decisions like hiring and capital expenditures, as well as financial decisions and the form of the business. The overarching objective was to revisit the conventional wisdom surrounding taxation and entrepreneurship and to provide guidance regarding the ways our tax policies should recognize entrepreneurs and small businesses.

Conference presenters included four prominent scholars in economic policy research (in order of presentation): Harvey Rosen of Princeton University, James Poterba of MIT, Jonathan Gruber of MIT, and William Gentry of Columbia University. Each presentation was followed by brief commentary from one of four distinguished discussants: Martin Sullivan, consultant and contributing editor for *Tax Notes*; Patrick Von Barga, executive director of the National Commission on Entrepreneurship; C. Eugene Steuerle, senior economist at the Urban Institute; and Jane Gravelle, senior specialist in economic policy at the Congressional Research Service. R. Glenn Hubbard, chair of the President’s Council of Economic Advisers, gave the keynote luncheon address.

Impact of Individual Income Tax on Sole Proprietors and the Self-Employed

Professor Harvey Rosen started the conference with a presentation of his recent research with Robert Carroll (U.S. Treasury), Douglas Holtz-Eakin (Syracuse University, now at the Council of Economic Advisers), and Mark Rider (U.S. Treasury, now at Kennesaw State University) on the effects of taxes on entrepreneurial growth, investment, and labor demand. Rosen began by noting that, at least in a theoretical sense, taxes have ambiguous effects on entrepreneurship. A tax rate cut can increase the return to working, thereby increasing

entrepreneurial effort. Simultaneously, it also increases the amount of income earned at the existing effort level, and could lead to a reduction in entrepreneurial effort.

This fundamental theoretical ambiguity does not translate into empirical ambiguity, however, according to the various results presented by Rosen. His research relies on data from the IRS Statistics of Income files for 1985-1988 and focuses on Schedule C sole proprietors. As these data are highly confidential and protected, all data analyses were undertaken by Carroll and Rider, both of whom were Treasury employees at the time of the research. Beginning with the effects of tax rate changes on the level of receipts, Rosen reported that decreasing a sole proprietor's marginal tax rate from 50 percent to 33 percent (as mandated by the Tax Reform Act of 1986) would lead to an increase in receipts of about 28 percent.

Tax cuts were found to have similar effects on investment and labor demand. Specifically, raising the individual's marginal tax rate by 5 percentage points would reduce the probability of making an investment by 10.4 percent. The elasticity of investment expenditures with respect to the user cost of capital was found to be -1.78 for these entrepreneurs. In terms of labor demand, increasing the tax price (i.e., 1 minus the marginal tax rate) by 10 percent increases the probability of hiring labor by 12.1 percent and increases the total wage bill by about 4 percent.

Rosen summarized this research by noting that "taxes matter." He concluded by emphasizing that targeted tax relief does not help potential entrepreneurs, only existing ones. His work suggests that a broad-based approach such as general marginal rate cuts can provide much greater stimulus toward entrepreneurship.

In his critique of this research, Martin Sullivan echoed the general message that nothing in Rosen's work suggests that targeted tax breaks are appropriate. While he agreed with Rosen's findings and commended the work, he raised a number of important issues. First, Rosen's definition of "entrepreneur" more closely resembles "self-employed," since it likely includes a large sample of consultants and other part-timers. Sullivan also noted that the data sample is highly skewed and called for more descriptive statistics. Despite high median adjusted gross incomes, many of the entrepreneurs represented in the data earn very little income. He was intrigued by the statistical insignificance of the capital gains tax, and also suggested that conclusions regarding the presence of liquidity constraints needed more testing. He summed up Rosen's work by noting that the results were "extremely dramatic" and worthy of further analysis.

For more details see:

Carroll, Robert, Douglas Holtz-Eakin, Mark Rider, and Harvey S. Rosen. 2001. "Personal Income Taxes and the Growth of Small Firms." In James Poterba (ed.), *Tax Policy and the Economy*. Cambridge, MA: MIT Press.

Carroll, Robert, Douglas Holtz-Eakin, Mark Rider and Harvey S. Rosen. 2000. "Income Taxes and Entrepreneurs' Use of Labor," *Journal of Labor Economics*, 18(2) (April): 324-351.

Carroll, Robert, Douglas Holtz-Eakin, Mark Rider, and Harvey S. Rosen. 2000. "Entrepreneurs, Income Taxes, and Investment." In Joel B. Slemrod (ed.), *Does Atlas Shrug?* New York: Russell Sage Foundation, 427-455.

Capital Gains Taxation, Firm Financial Policy, and the Supply of Capital to Small Firms

James Poterba continued the conference by shifting the focus to the supply of venture capital to entrepreneurial pursuits. An important but largely overlooked area of research has been the importance of capital gains taxes in the decisions of venture capitalists to invest in new enterprises. Poterba noted that the capital gains tax cut in the late 1970s helped increase the supply of start-up capital through the mid-1980s.

Four key attributes of start-up enterprises were noted, along with associated areas of tax policy. First, the probability of entrepreneurial failure is very high. Consequently, loss offset provisions become particularly important. Second, it is difficult to distinguish the return to capital from the return to labor. Poterba cautioned that the ability to move income across the two types requires policymakers to be careful in designing tax rules that specifically address one type of income or the other. Third, if the enterprise succeeds, the demand for external finance increases, thereby increasing the importance of capital gains tax policy. Finally, it is potentially very difficult to value entrepreneurial enterprises and to measure their income. Poterba echoed Rosen's general theme that it is highly difficult to target tax relief to the appropriate sources.

Poterba placed particular emphasis on the value of nominal loss carry-forwards, noting that the current annual limit of \$3,000 is worth less in present discounted value terms for larger losses and, since it is not indexed for inflation, provides a lower real benefit each year. Two potential means of tax-based entrepreneurial subsidies, then, would be either to increase the annual limit or to index it for inflation.

Areas for further research were noted based on the various sources of financing for start-up firms. For example, since equity investments are taxed at the personal capital gains tax rate, investors' portfolio choices should be analyzed. Poterba noted that the u-shaped trend in the differential between the top personal income and capital gains tax rates could serve as suitable variation. Additionally, corporate venture subsidiaries provide a significant source of capital, but the corporate capital gains tax has largely been overlooked in this literature.

In terms of policy recommendations, Poterba pointed out that the capital gains tax is a rather blunt instrument for entrepreneurial tax relief, as only a small share of realized capital gains are generated from small businesses or venture capital investments. Similarly, despite the important advantages of reducing the tax cost of the policy and of encouraging favored activities at the expense of non-targeted activities, tax targeting toward entrepreneurs involves a number of potential pitfalls. First, those businesses outside the targeted group may "masquerade" as favored activities without really altering their business

operations, leading to increased tax costs and misdirected resources. Second, other businesses will implement changes in order to meet targeting criteria, leading to additional efficiency costs. Finally, defining the target group would be difficult and subjective.

Patrick Von Bargaen agreed with Poterba's analysis but raised a number of important insights. First, he noted that the 1978 liberalization that allowed the investment of a small amount of pension assets in riskier projects also helped increase the supply of venture capital in subsequent years. He also mentioned that the key concern among entrepreneurs was that the differential between income and capital gains tax rates exists, not necessarily that it has changed over time. Among Von Bargaen's suggestions for other areas of research were bankruptcy laws that can work with loss offset provisions to ease the burden on failing enterprises, and the differential between capital gains and corporate income tax rates, which can be important in many situations.

For more details see:

Burman, L., *The Labyrinth of Capital Gains Tax Policy*. Washington: Brookings Institution, 1999.

National Venture Capital Association, *2001 Yearbook*. Washington: NVCA, 2001.

Poterba, J., "Capital Gains Tax Policy Toward Entrepreneurship," *National Tax Journal* 42 (September 1989), 375-389.

Keynote Address

R. Glenn Hubbard, chair of the President's Council of Economic Advisers and himself a key player in the recent economic literature on taxes and entrepreneurship, provided a more global picture of this topic in his luncheon speech. He began by reemphasizing the prominent position that entrepreneurship has assumed in the administration's policy agenda. Noting that entrepreneurship policy is much broader than tax policy, Hubbard portrayed the start-up process as an outgrowth of a larger portfolio choice problem. Researchers thus have much to gain from the literature on corporate governance rules and structure. The enforceability of contracts and the uniformity of accounting procedures also play key roles in entrepreneurial start-up, growth, and survival rates.

Hubbard emphasized that the United States has enjoyed higher potential productivity, greater pools of available financing, stronger intellectual property rights, and better competition policies than other nations. This was an important point, as reducing impediments to entrepreneurship is quite different from (and superior to) providing subsidies to entrepreneurs. Letting private capital markets work and relying only on broad-based approaches to tax policy would, according to Hubbard, maximize efficiency gains and minimize any adverse distributional impacts of overall entrepreneurship policy.

In responding to questions from the audience, Hubbard reported that overall fundamental tax reform, while still important to the current administration, would probably not be

undertaken before Social Security and Medicare financing were dealt with. He noted that loss offset provisions (as discussed by Poterba) need to (and probably will) be addressed soon. Finally, he assured participants that the recent tax cuts will certainly be pro-entrepreneur, in that they will increase labor demand, capital demand, and entry.

Health Insurance Aspects of the Small-Business Tax Environment

Jonathan Gruber followed Hubbard's remarks with a discussion of the availability and use of health insurance among small businesses. He began by noting that 90 percent of the insurance coverage in the United States is employer-based (most of the working poor are actually insured) but 42 million Americans lack health insurance coverage. The significant tax subsidies for employer-provided health insurance, along with economies of scale and benefits from risk pooling, have perpetuated this arrangement. Gruber also pointed out that more than two-thirds of the uninsured are in families with full-time, full-year workers. Further, 60 percent of the uninsured have annual family incomes over \$20,000 and 21 percent over \$50,000.

When firms offer insurance, employees are very likely to take it, regardless of cost or firm size. However, Gruber's findings showed that small businesses are more price-sensitive (presumably because nearly all large firms already provide health insurance). To increase take-up rates, then, Gruber advocates going after the firms that do not offer health insurance rather than employees who are offered coverage but who opt not to take it. The key problem, as described by Gruber, is "catching the tuna while the dolphins swim close by." He presented important evidence that the smallest firms and those that offer the lowest wages are the businesses least likely to offer insurance.

According to Gruber's simulations, removing the entire tax subsidy for health insurance would reduce the offering of health insurance by 18 percent among all firms, but by 34 percent among the smallest firms. Removing only the income tax subsidy would shrink these reductions to 11 and 21 percent. The key result is that the offering decision, especially among the smallest firms, is highly sensitive to changes in the tax subsidy.

With this, Gruber advocated tax credits for firm purchases of insurance coverage as opposed to a system of tax credits for individual purchases of nongroup insurance. The problems with individual credits include the fact that about half of the uninsured do not pay taxes, the credit would come many months after the purchase of coverage, the remaining costs would still be too high for many uninsured individuals, and the group coverage market would be undercut. An individual credit system could reduce the probability that many small businesses would offer coverage in the first place.

A system of targeted tax credits for firms could be more cost-effective, according to Gruber, despite the inherent difficulty in targeting the right firms. His evidence on offering rates by firm size and average wages could be helpful. Gruber noted that a smooth double-phaseout would eliminate the various "cliffs" that would involve dramatic changes in the subsidy for small income changes. He closed by noting that any political "loosening" of the targeting rules would lead to reduced efficiency and greater costs.

Eugene Steuerle criticized these findings, noting that such targets violate standard principles of horizontal equity. Granting subsidies on the basis of employer size or average wages would lead to differential treatment of similar individuals. Further, this type of targeting would hide the true cost of insurance to the employee, cause significant distortions, increase insurance costs, and potentially cause over-coverage. If the true intent is redistribution, Steuerle recommended enhancing the funding and scope of Medicaid as a more efficient alternative. He also suggested that “sticks” such as penalties for non-coverage might be more cost-efficient than the “carrots” recommended by Gruber.

For more details see:

Gruber, J. and M. Lettau, “How Elastic is the Firm’s Demand for Health Insurance?” *National Bureau of Economic Research Working Paper No. 8021*, November 2000.

Gruber, J. and J. Poterba, “The Elasticity of Demand for Health Insurance: Evidence from the Self-Employed,” *Quarterly Journal of Economics*, 109(3), August 1994, 701-734.

Impact of Taxes on Firms’ Financial Policy and Entrepreneurial Risk-Taking

In the day’s fourth and final session, William Gentry discussed two important areas of related research. First, he outlined his thoughts on the broader issue of taxes and firm financial policy. Despite the conventional wisdom that the U.S. corporate income tax encourages the use of debt (which is deductible by the firm but taxable for the investor) rather than equity (which is taxed at the corporate and individual levels), many business forms, including sole proprietorships, partnerships, and subchapter S corporations, that have grown dramatically in recent years, can escape the double taxation of equity. The individual tax system can have more important effects on small businesses through its effect on overall savings and on portfolio choices.

Gentry asserted that tax policy rarely moves organizations across the various types of financing (internal equity, debt, or external equity), but it can have important effects within each particular category. Changing capital income taxation can, for example, change the level of saving as well as the supply of available credit. A capital gains tax rate cut can increase the supply of entrepreneurial talent, as described earlier by Poterba. A key component is that taxes on risk reduce both the mean expected return and the standard deviation; taxes can serve an important insurance role as a result.

Gentry then turned to a presentation of his recent work with Glenn Hubbard on the importance of tax progressivity to entrepreneurial start-ups. This unique empirical research, the first in this area to explicitly deal with progressive rate structures, uses panel data and controls for the simultaneous effect of entrepreneurship on tax rates themselves. Their findings suggest that increasing the progressivity of the tax system would reduce the probability of entry, a result that is more consistent with income taxes as success taxes rather than taxes as insurance against risk. More precisely, the findings suggest that flattening the marginal rate

structure could increase the rate of small business formation. This general result was found to be robust to an array of sensitivity analyses.

Nonetheless, discussant Jane Gravelle responded, “I just don’t buy this.” She cited the careful and thoughtful analysis undertaken by Gentry and Hubbard, but suggested a number of possible improvements. First, she noted that taxpayers’ incomes are a key omitted variable, and the basic results could be biased as a result. Further, she noted that the authors’ measure of tax rate progressivity (or convexity) cannot possibly explain much of the decision to become self-employed, and that ideas of bounded rationality prevail in this case: these individuals probably do not have a good grasp of tax code progressivity. She suggested that a focus on marginal tax rates might be more appropriate, and that removing the low end of the income distribution from the sample might give a cleaner result.

For more details see:

Gentry, W. M. and R. G. Hubbard, “Tax Policy and Entry in Entrepreneurship,” Manuscript, Columbia University Graduate School of Business, 2000. (Revision to be made available at www.columbia.edu/~wmg6).

Summary

In closing, the conference was a tremendous success in that a vast body of economic literature on taxes and entrepreneurship was presented and critiqued in the presence of a wider audience—some 120 participants were registered—than that typically enjoyed by professional economists. A number of vitally important policy areas were discussed and the importance of tax policy toward entrepreneurs was brought to a new level.

As conference organizer, I struggled to identify a set of “unanswered questions” for future research. To be sure, the theoretical ambiguity described by Rosen has translated to a certain degree into empirical ambiguity—more research is needed on the basic effects of taxes on entrepreneurial entry, survival, and growth. Also, little is known about the importance of tax avoidance and evasion in these processes, primarily due to a lack of useful and credible data. Finally, there is certainly room for more analysis of the fundamental question of whether or not small businesses should be tax-favored. If they are the primary generators of innovation and employment growth and also help to ensure a competitive business environment, preferential tax policy may be warranted. More research is needed on these topics.

We now know that tax policy does have an effect on sole proprietors and other small businesses, but does this make good policy? Is there a socially optimum amount of entrepreneurship in the economy? If so, can tax policy be designed to achieve it in the absence of an efficient market for entrepreneurship? The work of Rosen, Poterba, Gruber, Gentry, and others has contributed greatly to the understanding of these issues and should encourage volumes of future research in this important area.

Appendices

Appendix A

Program Agenda

The Office of Advocacy presents



**Tax Policy and Small Business:
New Firm Formation, Growth, and Survival**
Monday, July 23, 2001 Room SD-215, Dirksen Senate Office Bldg.

*Sponsored by the Office of Advocacy, U.S. Small Business Administration
Cosponsored by the Kauffman Center for Entrepreneurial Leadership*

Program

- 8:30-9:00** **Registration and Coffee**
- 9:00-9:15** **Welcome** Robert Berney, Chief Economist, Office of Advocacy
Susan Walthall, Acting Chief Counsel, Office of Advocacy
Patrick Von Bargen, Executive Director, National Commission on Entrepreneurship
- Overview** Prof. Donald Bruce, University of Tennessee (conference organizer)
- 9:15-10:30** **Impact of Individual Income Tax on Sole Proprietors and the Self-Employed**
- Introduction** Brian Headd, Acting Director of Economic Research, Office of Advocacy
- Presentation** **Prof. Harvey Rosen, Princeton University**
- Discussion** Martin Sullivan, Consultant and Contributing Editor, *Tax Notes*
- 10:30-10:45** **Break**
- 10:45-12:00** **Capital Gains Taxation, Firm Financial Policy, and the Supply of Capital to Small Firms**
- Introduction** Russ Orban, Assistant Chief Counsel, Office of Advocacy
- Presentation** **Prof. James Poterba, Massachusetts Institute of Technology**
- Discussion** Patrick Von Bargen, Executive Director, National Commission on Entrepreneurship
- 12:00-1:15** **Box Lunch and Keynote Speaker**
- Introduction** Susan Walthall, Acting Chief Counsel, Office of Advocacy
- Speaker** **R. Glenn Hubbard, Chair, Council of Economic Advisers**
- 1:15-1:30** **Break**
- 1:30-2:45** **Health Insurance Aspects of the Small-Business Tax Environment**
- Introduction** Ken Simonson, Senior Economic Advisor, Office of Advocacy
- Presentation** **Prof. Jonathan Gruber, Massachusetts Institute of Technology**
- Discussion** C. Eugene Steuerle, Senior Economist, The Urban Institute
- 2:45-3:00** **Break**
- 3:00-4:15** **Impact of Taxes on Firms' Financial Policy and Entrepreneurial Risk-Taking**
- Introduction** Robert Berney, Chief Economist, Office of Advocacy
- Presentation** **Prof. William Gentry, Columbia University**
- Discussion** Jane Gravelle, Senior Specialist in Economic Policy, Congressional Research Service
- 4:15** **Concluding Remarks**
- Prof. Donald Bruce, University of Tennessee
 Robert Berney, Chief Economist, Office of Advocacy

Appendix B

Conference Sponsors and Speakers



Tax Policy and Small Business: New Firm Formation, Growth, and Survival Conference Sponsors and Speakers

Sponsor: Office of Advocacy, U.S. Small Business Administration

Robert E. Berney is chief economist, Office of Advocacy, SBA, a post he has held three times since it was created in 1978. He has alternated that position with teaching in the economics department at Washington State University, from which he retired as professor of economics at the end of 2000. His areas of concentration have been finance and public finance. He holds a Ph.D. in economics from the University of Wisconsin.

Cosponsor: Kauffman Center for Entrepreneurial Leadership

Conference Organizer

Donald Bruce is research assistant professor in the Center for Business and Economic Research and assistant professor of economics at the University of Tennessee, Knoxville. He specializes in policy research, focusing primarily on the economic and behavioral effects of taxation. He holds a B.A. in economics from Drew University in New Jersey and a Ph.D. from Syracuse University, where he also taught and received a university-wide outstanding dissertation award for his work on taxation, self-employment, and housing. He has also taught at Colgate University.

Speakers

William Gentry is associate professor of economics and finance at the Graduate School of Business at Columbia University and a faculty research fellow at the National Bureau of Economic Research. His research is concentrated in public finance, including: effects of taxes on the capital structure of firms and on household investment decisions; distributional implications of tax reform; and taxes and entrepreneurship. Previously, he taught at Duke University. He received an S.B. from the Massachusetts Institute of Technology and a Ph.D. in economics from Princeton University. He received the National Tax Association's award for outstanding doctoral dissertation in public finance.

Jonathan Gruber is professor of economics at the Massachusetts Institute of Technology, where he has taught since 1992. He is also a research associate and the director of the Program on Children at the National Bureau of Economic Research. He is a co-editor of the *Journal of Health Economics* and an associate editor of the *Journal of Public Economics*. His recent areas of particular interest include the economics of employer-provided health insurance, the efficiency of the current system of delivering health care to the indigent, the effect of the Social Security program on retirement behavior, and the economics of smoking. He holds a B.S. from MIT, and a Ph.D. in economics from Harvard. In 1997-1998, he served as Treasury's deputy assistant secretary for economic policy.

R. Glenn Hubbard is chairman of the President's Council of Economic Advisers. He is on leave as the Russell L. Carson professor of economics and finance in Columbia University's Graduate School of Business, where he taught courses in tax policy, money and financial markets, and entrepreneurial finance. He is also a professor in the Department of Economics of Columbia's Graduate School of Arts and Sciences. He was head of the tax policy program at the American Enterprise Institute and was also a scholar at the National Bureau of Economic Research. He served in the early 1990s as Treasury's deputy assistant secretary for tax analysis in the administration of former President Bush.

James Poterba is the Mitsui Professor of Economics at the Massachusetts Institute of Technology, where he has taught since 1982. He is also editor of the *Journal of Public Economics*, director of the Public Economics Research Program at the National Bureau of Economic Research, associate department head for economics at MIT, and a fellow of the American Academy of Arts and Sciences and of the Econometric Society. His recent work has emphasized the effect of taxation on the financial behavior of households and firms, and the tax treatment of employee benefits such as employer-provided health insurance and retirement saving plans. He has been particularly interested in the analysis of tax-deferred retirement saving programs such as 401(k) plans.

Harvey S. Rosen is the John L. Weinberg Professor of Economics and Business Policy at Princeton University, where he has taught since 1974. He has been co-director of the Center for Economic Policy Studies since 1993. His main field of research is public finance. He has published several dozen articles in scholarly journals on this topic, and authored an undergraduate textbook on it as well. He serves on the editorial boards of several journals dealing with public finance and taxation. From 1989 to 1991 he served as Treasury's deputy assistant secretary for tax analysis. He holds an undergraduate degree from the University of Michigan and a Ph.D. from Harvard University.

Appendix C

“Personal Income Taxes and Small Business” Handouts

PERSONAL INCOME TAXES AND SMALL BUSINESS
Harvey Rosen, Princeton University

SBA Conference
Washington, DC
July 23, 2001

1. Introduction and Motivation

- Key role of entrepreneurs in many public policy debates
- Impact of tax reform on vitality of entrepreneurship
- Roadmap of the talk

2. Conceptual Issues

- Taxes and the entrepreneur's effort
- Spillover effects on other decisions
- Entrepreneurial growth and survival
- Liquidity constraints

3. Data

- Statistics of Income individual tax files
- Exclusions
- Summary information

4. Taxes and the Growth of Small Firms

- Basic statistical strategy: TRA86 as a “natural experiment”
 - Role of the tax price

- Other variables that potentially affect firm growth
- Two-way causality?
- Alternative specifications
- Key result: a decrease in a sole proprietor's marginal tax rate from 50 percent to 33 percent would lead to an increase in her receipts by about 28 percent

5. Taxes and Capital Investment

- Concerns about investment
- Conceptual issues: the user cost of capital
- Data issues
- A preliminary look at the data (Table 1).
- Investment decisions and tax rates (Table 2)
- Multivariate analysis
- Key results
 - Tax rates affect probability of making an investment. E.g., raising each individual's marginal tax rate by 5 percentage points would lower probability of investment by 10.4 percent.
 - Elasticity of investment expenditures with respect to the user cost is -1.78.

6. Taxes and Hiring Decisions

- Abraham Lincoln on the importance of entrepreneurial labor demand
- Wage bill data (Table 3)
- Hiring decisions and tax rates (Table 4)

- Multivariate Analyses
- Key results
 - A 10 percent increase in the tax price reduces the probability of hiring labor by 12.1 percent.
 - A 10 percent increase in the tax price increases the wage bill by about 4 percent.

7. Policy implications and conclusions

- Entrepreneurs' decisions are sensitive to their personal income tax situations.
- Back of the envelope calculation of the impact of President Bush's campaign proposal on entrepreneurs
- Targeted relief versus general rate reductions

Table 1. Self-Employment Transitions and Investment Decisions^a

Panel A. Investment Decisions and Self-Employment Status

		1988		
		No	Schedule C	Schedule C
		Schedule C	No	Investment
			Investment	Investment
1985	No Schedule C	13,252 (0.897)	1,222 (0.083)	304 (0.020)
	Schedule C, No Investment	812 (0.273)	1,705 (0.573)	459 (0.154)
	Schedule C, Investment	185 (0.123)	609 (0.406)	707 (0.471)

Panel B. Investment among Sole-Proprietors in 1985 and 1988

		1988	
		No Investment	Investment
1985	No Investment	1,705 (0.788)	459 (0.212)
	Investment	609 (0.463)	707 (0.537)

^aThe first entry in each cell is the number of observations. The second entry is the number of observations as a fraction of the total number of observations in the corresponding row.

Source: Carroll, Holtz-Eakin, Rider, and Rosen [2000b].

Table 2. Investment Decisions and Tax Rates^a

		Panel A. Lower Tax Rate in 1985	
		1988	
		No Investment	Investment
1985	No Investment	923 (0.813)	213 (0.187)
	Investment	263 (0.557)	209 (0.443)

		Panel B. Higher Tax Rate in 1985	
		1988	
		No Investment	Investment
1985	No Investment	782 (0.761)	246 (0.239)
	Investment	346 (0.410)	498 (0.590)

^aSee note to Table 3.1. Panel (A) includes all sole-proprietors with 1985 marginal tax rates below 34 percent. Panel (B) contains the remainder.
 Source: Carroll, Holtz-Eakin, Rider, and Rosen [2000b]

Table 3. Self-Employment Transitions and Hiring Decisions^a

Panel A. Hiring Decisions and Self-Employment Status

		1988		
		No Schedule C	Schedule C No Wage Bill	Schedule C Wage Bill
1985	No Schedule C	17,486 [0.886]	2,066 [0.105]	180 [0.009]
	Schedule C, No Wage Bill	1,345 [0.251]	3,632 [0.679]	375 [0.070]
	Schedule C, Wage Bill	179 [0.080]	453 [0.201]	1,618 [0.719]

Panel B. Hiring Decisions among Sole-Proprietors in 1985 and 1988

		1988	
		No Wage Bill	Wage Bill
1985	No Wage Bill	3,632 [0.906]	375 [0.094]
	Wage Bill	453 [0.219]	1,618 [0.782]

^aThe first entry in each cell is the number of observations. The entry in square brackets is the number of observations as a fraction of the total number of observations in the corresponding *row*.

Source: Carroll, Holtz-Eakin, Rider, and Rosen [2000a].

Table 4. Hiring Decisions and Tax Rates^a

		Panel A. Lower Tax Rate in 1985	
		1988	
		No Wage Bill	Wage Bill
1985	No Wage Bill	1,849 [0.916]	168 [0.084]
	Wage Bill	220 [0.374]	369 [0.626]

		Panel B. Higher Tax Rate in 1985	
		1988	
		No Wage Bill	Wage Bill
1985	No Wage Bill	1,783 [0.896]	207 [0.104]
	Wage Bill	233 [0.157]	1,249 [0.843]

^aSee note to Table 3.3. Panel (A) includes all sole-proprietors with 1985 marginal tax rates below 34 percent. Panel (B) contains the remainder. The entry in square brackets is the proportion of observations in the corresponding row.

Source: Carroll, Holtz-Eakin, Rider, and Rosen [2000a]

Appendix D

“Taxation, Entrepreneurship, and Small Business Formation” Handouts

TAXATION, ENTREPRENEURSHIP, AND SMALL BUSINESS FORMATION

James Poterba, MIT, July 2001

BACKGROUND: TWO CHANNELS THROUGH WHICH TAXES MAY AFFECT SMALL BUSINESS FORMATION

- 1. Effects on Potential Entrepreneurs - Whether to Start a Business, How Hard to Work**
- 2. Effects on Potential Business Financiers - How Much to Invest, Financial Structure of Investment**

KEY ATTRIBUTES OF START-UP ENTERPRISES

- 1. High Probability of Enterprise Failure**
- 2. Difficult to Distinguish Return to Capital and Return to Labor for Key Participants**
- 3. Substantial Demand for External Finance if the Enterprise Succeeds**
- 4. Potentially Difficult to Value the Enterprise and to Measure Income**

TAX PROVISIONS AFFECTING DECISIONS BY POTENTIAL ENTREPRENEURS

1. Marginal Tax Rates: Comparison of After-Tax Value of Wages and After-Tax Value of Accruing Capital Gains

$$(1 - .386) = .614 \quad \text{vs.} \quad (1 - .20) = .80$$

Tax Deferral Option Makes Capital Gains Even More Valuable

2. Rules for Expenses: Some Business Expenses That Are Not Deductible for Employees May be Deductible for the Self-Employed

3. Loss Offset Provisions: Current Law Levies a Tax on the "Upside" But Limits Value of Tax Benefits in Event of a Loss

4. Specialized Tax Provisions Affecting Tax Liability on Capital Gains: Lower Tax Burden Makes Start-up Activity More Attractive

WHAT IS THE VALUE OF NOMINAL LOSS CARRYFORWARDS WITH A \$3000 ANNUAL LOSS LIMIT?

INITIAL LOSS AMOUNT	PDV OF REAL TAX SAVINGS	TAX SAVING PDV/ INITIAL LOSS
\$3,000	\$1158	.386
\$30,000	9389	.313
\$60,000	15153	.253
\$150,000	22197	.148

Calculations assume a 5 percent annual after-tax nominal discount rate.

WAYS TO REDUCE THE TAX BURDEN ON LOSSES

- 1. Raise Amount of Loss that Can be Included in Each Year's Taxable Income (.148 would become .280 with a \$10K Annual Loss Deduction)**
- 2. Indexation of Initial Loss Amount**

**AN IMPORTANT CHALLENGE:
DOCUMENTING THE LINKS BETWEEN TAX
PARAMETERS AND ENTREPRENEUR
BEHAVIOR**

1. It's Difficult to Measure "Start Up Activity": Self Employment, Number of New Incorporations, Amount of Venture Capital Commitments All Have Limitations

2. Patterns of Behavior -- "The Silicon Valley Mindset" -- May Evolve Slowly, Not Sharply in Response to Tax Changes

3. Taxes Are Not the ONLY Factor Influencing Start-up Activity

SOURCES OF FINANCE FOR START-UP ENTERPRISES

1. Entrepreneurs and Angels: Equity Investments are Taxed at the Personal Capital Gains Tax Rate (20%, 18% for Very Long-Term Gains After 2005)

2. Organized Venture Capital Partnerships: Heterogeneous Tax Treatment, Substantial Role for Non-Taxable Investors

3. Corporate Venture Subsidiaries: Stock Appreciation is Taxed at the Corporate Capital Gains Tax Rate

SOURCES OF FUNDING FOR VENTURE CAPITAL PARTNERSHIPS, 2000

Pension Funds	40%
Endowments & Foundations	21%
Financial and Insurance Companies	23%
Individuals	12%
Other Companies	4%

Source: National Venture Capital Association, 2001 NVCA Yearbook.

TOTAL VENTURE CAPITAL COMMITMENTS, 1996-2000

Year	Public Venture Capital Commitments	Total Market Value of U.S. Equities
1996	11.8	10255.8
1997	17.1	13201.3
1998	29.4	15492.5
1999	60.0	19494.5
2000	92.9	17026.1

**Source: National Venture Capital Association,
Federal Reserve Board Flow of Funds.**

**DISTRIBUTION OF VENTURE CAPITAL
DISBURSEMENTS, BY STAGE OF ENTERPRISE
DEVELOPMENT**

	1995	2000
Early Stage	34.7%	23.0%
Expansion	33.9	54.3
Late Stage	19.4	19.9
Buyout Financing	12.1	2.8

Source: National Venture Capital Association.

**COMPOSITION OF REALIZED CAPITAL
GAINS, 1993**

Corporate Stock	37%
Business Property	15%
Partnerships & Trusts	26%
Mutual Funds	10%
Real Estate (Excluding Homes)	11%
Owner-Occupied Homes	1%

Source: IRS, 1993 Sales of Capital Assets Study.

"TAX TARGETING": ATTRACTIONS AND PITFALLS

Attractions:

- 1. Targeting Reduces the Tax Cost of a Given Type of Subsidy Relative to an Across-the-Board Subsidy**
- 2. Targeting Encourages the Favored Activity and Discourages Non-Targeted Activities**

Pitfalls:

- 1. Activities That Are NOT Part of the Target Group May "Masquerade" as Favored Activities**
- 2. Potential Efficiency Costs of Distorting Activities That Are Outside the Target Area So That They "Qualify"**
- 3. What Criteria Should Be Used to Define the Target? Firm Size? Firm Risk? Sectoral Affiliation?**

FURTHER READING

Burman, L., The Labyrinth of Capital Gains Tax Policy (Washington: Brookings Institution, 1999).

National Venture Capital Association, 2001 Yearbook (Washington: NVCA).

J. Poterba, "Capital Gains Tax Policy Toward Entrepreneurship," National Tax Journal 42 (September 1989), 375-389.

Appendix E

"Taxes, Health Insurance, and Small Business" Handouts

Taxes, Health Insurance and Small Business

Jonathan Gruber, MIT and NBER

July 23, 2001

The Facts

- *90% of insurance coverage in the U.S. is employer-based*

Main cause is tax subsidy to employer provided health insurance - wages are taxed, but health insurance spending is not

Typical employee: 15% federal rate; 15% payroll tax rate; 5% state tax rate = 35% subsidy to health insurance purchase through the employer

Key question: to what extent does this hold the employer-based pool together?

- *Over two-thirds of the uninsured are in families with full-time, full-year workers*

Almost 60 percent of the uninsured have family incomes over \$20,000 per year; indeed, 21 percent of the uninsured have family incomes over \$50,000 per year.

Yet, among those with family incomes of more than \$20,000 per year, only 14 percent of persons are uninsured, and 82 percent are privately insured.

Want to catch the tuna, but the dolphins swim close by!

- *When insurance is offered to employees, they are very likely to take it up, regardless of cost or firm size*

Table showing takeup rates by firm size and average annual earnings of workers in the firm:

	1-9 employees	10-24 employees	25-49 employees	50-99 employees	100+ employees
Avg. Earning <\$15,0000	0.81	0.70	0.70	0.71	0.76
Avg. Earning 15-30,000	0.84	0.83	0.79	0.78	0.82
Avg. Earning 30-50,000	0.88	0.84	0.83	0.90	0.88
Avg. Earning 50,000+	0.89	0.84	0.89	0.75	0.88

As a result, only about 5% of those offered insurance are uninsured

But this group represents about 20% of the uninsured

- *Lack of insurance offering at firms is concentrated in smallest and lowest wage firms*

Table showing offering rate for health insurance by firm size and average annual earnings of workers in the firm:

	1-9 employees	10-24 employees	25-49 employees	50-99 employees	100+ employees
Avg. Earning <\$10,0000	0.24	0.45	0.63	0.81	0.95
Avg. Earning 10-15,000	0.32	0.55	0.76	0.88	0.93
Avg. Earning 15-20,000	0.43	0.70	0.83	0.93	0.98
Avg. Earning 20-25,000	0.50	0.77	0.86	0.95	0.97
Avg. Earning 25-30,000	0.55	0.83	0.92	0.91	0.98
Avg. Earning 30,000+	0.61	0.88	0.94	0.95	0.98

The Evidence

Two key pieces of evidence:

Employees are not very price sensitive in insurance takeup decisions

Two recent studies have examined takeup as a function of firm contribution levels - elasticity less than -0.1

Potential problem with these studies: firm contribution levels are endogenous to employee preferences

My research in progress - FEHBP “experiment” of premium conversion

Preliminary results confirm existing evidence - little price sensitivity

Small firms are price sensitive in their insurance offering decisions

Long literature on price elasticity of demand for insurance

Elasticities in range of 0 to -6!

Two major problems with previous literature:

- Finding exogenous variation in price of insurance
- Who is the marginal worker?

Gruber and Poterba (1994) look at self-employed - elasticity of -1.8

Finkelstein (2000) looks at removal of tax subsidy in Quebec - elasticity of -0.5

Gruber and Lettau (2000)

- Use ECI data on firms and employee characteristics
- Match this to information on tax subsidy - varies due to national and state tax reforms

Estimate elasticity of offering of -0.3

- Elasticity is -0.6 for small firms, and zero for all others

Elasticity of conditional spending of almost -1

- Smaller elasticity of -0.65 for smaller firms; -1.3 for largest firms

Benefits are determined by combination of preferences of median & highest paid workers

- Use fact that have data on sample of workers in firm to model offering and spending as function of distribution of tax price
- Find that tax price of median worker and of highest paid worker jointly matter for offering and spending

Implications: very significant impacts of removing or even limiting the tax subsidy to employer-provided insurance

- Remove entire tax subsidy:
 - S insurance offering falls by 18%
 - S spending among those offering falls by 41%
 - S total spending falls by 59%
 - S offering among smallest firms falls by 34%!
- Remove income tax subsidy only:
 - S insurance offering falls by 11%
 - S spending among those offering falls by 27%
 - S total spending falls by 39%
 - S offering among smallest firms falls by 21%

The Policies

Tax credits for purchase of nongroup insurance

Popular concept is to subsidize individual purchase of nongroup insurance

Typical plan parameters (Bush proposal):

- \$1000 for individuals; \$2000 for families
- Refundable, advanceable credit
- Use for nongroup insurance only
- Phase out between \$15-\$30K for singles and \$30-60K for families

Estimate impacts using microsimulation model developed for Kaiser Family Foundation

Model now out of date, so try to casually update - working on a more rigorous update - but effect of Bush-like plan likely to be roughly 2 million covered

Basically, four fundamental problems with nongroup tax credits:

- About half of uninsured don't pay taxes - can be really be made refundable?
- Don't get tax refund until next spring - can it really be made advanceable?
- Remaining costs too high
- Undercuts group market - particularly price sensitive small firms

Note key tension between resolving third and fourth problems

Can we resolve this by extending tax credit for employee share of employer premiums (e.g. PPI proposal)?

Adds a lot of buck with little bang because takeup is so high and so price inelastic

Much better to target the dollars at firms directly

Tax Credits for Firm Purchase of Insurance

Alternative is to directly subsidize firms

Problem: most firms offer insurance already - *targeting* is key

Earlier table shows how to target: small and low wage firms

But don't want to create disincentives to hiring or higher pay - get around this with smooth double-phaseout

Design of a sensible tax credit:

- Maximum subsidy rate of 40% for firms with 10 or fewer employees and average annual earnings at \$10,000 or below
- Subsidy rate drops by 1% for each 1 employee above 10, so that it reaches zero for firms with 50 or more employees
- Subsidy rate phases out with wages at a rate which depends on firm size. For firms of 10 or fewer employees, the phase out is slow and doesn't fully phase out until average wage is roughly \$28,000. For larger firms, the phaseout is more rapid, so that only the very lowest wage firms receive the subsidy.

Results of this approach:

- Cost: \$3.8 million per year
- Newly Insured: 2.2 million
- Cost per newly insured: \$1720
- "Implicit tax" on hiring: \$82 on average; maximum of \$720
- "Implicit tax" on a \$100 raise for an employee: \$1.2 on average; 99% of firms less than \$10; maximum of \$15

So much more cost effective to subsidize firms than individuals - work through existing structure

But key is ability to target - if politics loosened up targeting, efficiency could drop dramatically - true with any incremental reform plan

Appendix F

“Taxes, Financial Policy, and Financial Risk-Taking” Handouts

Taxes, Financial Policy and Entrepreneurial Risk-Taking

William M. Gentry
Columbia University

Presentation for
Tax Policy and Small Business Conference
Office of Advocacy, U.S. Small Business
Administration

July 23, 2001

Outline

- Comments on tax policy & financial structure
 - Importance of organizational form choice
 - Internal equity, debt & external equity
- Entry as an example of entrepreneurial risk-taking
 - “Tax Policy and Entry into Entrepreneurship,” co-authored paper with Glenn Hubbard

Taxes and Corporate Finance

- Conventional wisdom: the U.S. tax system (a “classical” corporate tax) encourages corporations to borrow rather than issue equity
 - Equity is taxed twice: corporate & shareholder taxes
 - Debt is tax deductible for the firm but taxable for the investor
- Conventional wisdom applies to C-corporations
 - Many organizational forms avoid the corporate tax

Organizational Form Choice

- Organizational forms that avoid double taxation
 - Sole proprietorship, partnerships, Limited Liability Companies, subchapter S-corporations
- Critical characteristic: publicly-traded equity
 - “Tax” organizational form is endogenous to financial structure -- external equity linked to the corporate tax
 - Many closely-held firms face only the individual income tax

Alternative Channels for Tax Policy

- While the conventional wisdom of corporate finance does not necessarily apply to all small businesses, tax policy can have other, more subtle influences on firm financial policy
- Two channels:
 - Overall level of saving
 - Portfolio choice

Marginal Sources of Finance for Entrepreneurs

- Internal equity
 - Unconstrained entrepreneur
 - Entrepreneur facing capital market constraint (i.e., unable to obtain outside financing)
- Debt
- External equity (venture capital) -- relatively rare

Taxes & the Level of Saving

- Internal equity
 - Unconstrained case: a tax rate change will have a small effect on the level of business equity since this entrepreneur would increase all types of savings in response to the change in the after-tax rate of return
 - Constrained case: by lowering the entrepreneur's average tax rate, a change in tax policy can increase business investment by increasing the entrepreneur's cash flow (an "income" effect)

Taxes & the Level of Saving

- Debt
 - A change in capital income taxation may change the level of saving with a corresponding change in the supply of credit (begs the question of the openness of the economy)
- External equity
 - Same effect as debt

Taxes & Portfolio Choice

- Assume a cut in the capital gains tax rate makes assets that generate capital gains more attractive
- Internal equity
 - Pure financial investment: small effect since many assets generate capital gains
 - Return to labor is fungible between capital gains & wages (Poterba): cut in capital gains tax increases the supply of entrepreneurial talent

Taxes & Portfolio Choice

- External investors
 - A lower capital gains tax rate pushes investors to supply financing through equity contracts (e.g., contracts that produce capital gains)
 - Bad news for businesses that rely on borrowing
 - Good news for businesses that rely on external equity (e.g., Poterba's venture capital story)
 - Caveat: a tax on pure risk reduces mean and variance

Tax Policy and Entry into Entrepreneurship

- Paper co-authored with Glenn Hubbard
- Paper under revision
- Previous version available at:
www.columbia.edu/~wmg6
- I will update my website with new versions; or send me e-mail to be on a mailing list:
wmg6@columbia.edu

What is Entrepreneurial Activity?

- “Entrepreneurship” is important for wealth accumulation and social mobility
- Possible definitions:
 - Active business investment?
 - Self-employment?
 - Due to data constraints, we focus on “self-employment” but we have some evidence on entry into “business ownership”

Tax Policy Concerns

- *Do* taxes affect “investment” decisions of entrepreneurs?
 - We focus on the discrete entry decision, interpreting it as risk taking rather than fixed investment
- *Should* the tax system affect these decisions?
 - Engines of growth vs. lottery gambles?
 - Holtz-Eakin & Kao find that increases in the birth rate of firms leads to higher productivity

Relevant Tax System Features

- Given our data and tax incentives for business form, we focus on the individual income tax
- Level of tax rates
 - Standard models of investment & labor supply
- Tax base differences
 - E.g., fringe benefit rules or hidden consumption
- Non-linearity of tax rates
 - Marginal tax rates usually increase with income
 - Loss offset rules

Proportional Taxes and Risk

- For portfolio choice, a proportional tax may increase risk-taking since the government shares in the mean and variance
- Tax system as insurance
- Caveat: entrepreneurship is often a discrete choice with idiosyncratic risk

Convexity and Risk

- For a given level of tax rates, additional progressivity decreases entry unless potential entrepreneurs are highly risk-averse
- “Success tax”
 - More convexity \Rightarrow less entry
- “Insurance story”
 - More convexity \Rightarrow more entry

Analogy to Incentive Pay

- Firms use non-linear compensation (e.g., bonuses) to motivate workers
- A progressive tax schedule erodes some of the incentive effects of compensation schemes (though contracts may depend on the tax system)
- For self-employment, a convex tax schedule reduces the incentive to enter

Other Taxes and Convexity

- Estate tax
 - Another form of “success tax”
- Corporate income tax
 - Successful firms are more likely to incorporate and face double taxation
- Capital gains tax
 - Selling a business may allow some escape from high tax rates but buyers may capitalize future taxes into the purchase price

Previous Empirical Work

- Level of tax rate: inconclusive effects
 - Time-series: Long; Blau; Fairlie and Meyer
 - Cross-section: Long; Moore; and Schuetze
 - Bruce on entry and exit
- Investment and labor demand (morning session)
 - Carroll, Holtz-Eakin, Rider, and Rosen
- Convexity?

Empirical “Want Operator”

- Long panel of households
- Measures of entrepreneurial investment (capital and time)
- Measures of convexity in the tax system
 - Tax provisions
 - *Ex ante* distribution of entrepreneurial outcomes

Empirical Implementation

- Panel Study of Income Dynamics (PSID)
 - Self-employment of head of household
 - 1979-1993
 - No capital investment data
 - Business ownership tests: 1984, 89 & 94 data
- Include tax variables in statistical analysis of entry into self employment for household heads

Tax Variables from NBER TAXSIM

- From basic household demographic and income data, TAXSIM provides federal and state tax payments and marginal tax rates
- We use household characteristics in year t and project the tax rate using the year $t + 1$ tax code
- Tax rate measure -- What is the household's tax rate if the head continues working for someone else?
(Assuming 5% growth in wages)

Tax Convexity Measure

- Project successful and unsuccessful income and demographics into the $t + 1$ tax code
- Distribution of projects is linked to opportunity cost as measured by current labor income
- We do not account for imperfect loss offset for returns to capital, corporate taxes, capital gains taxes, or the estate tax

“Successful” and “Unsuccessful” Outcomes

- Some facts (Table 2): experience over 3 years
 - Entrants experience more variable wage growth
 - Because entrants can return to employment, distribution of wage growth differs more for upside than for downside

Table 2: Wage Growth and Self Employment		
	Real Wage Growth over Three Years (%)	
	Entrants from Year t to Year $t+1$	Non-entrants from Year t to Year $t+1$
Mean	33.4	10.1
Standard Deviation	172.3	84.5
5 th percentile	-85.4	-78.1
10 th percentile	-64.8	-46.6
25 th percentile	-32.5	-15.1
Median	3.14	2.65
75 th percentile	43.9	22.7
90 th percentile	119.3	57.1
95 th percentile	234.0	95.2
Number of observations	1,156	36,189

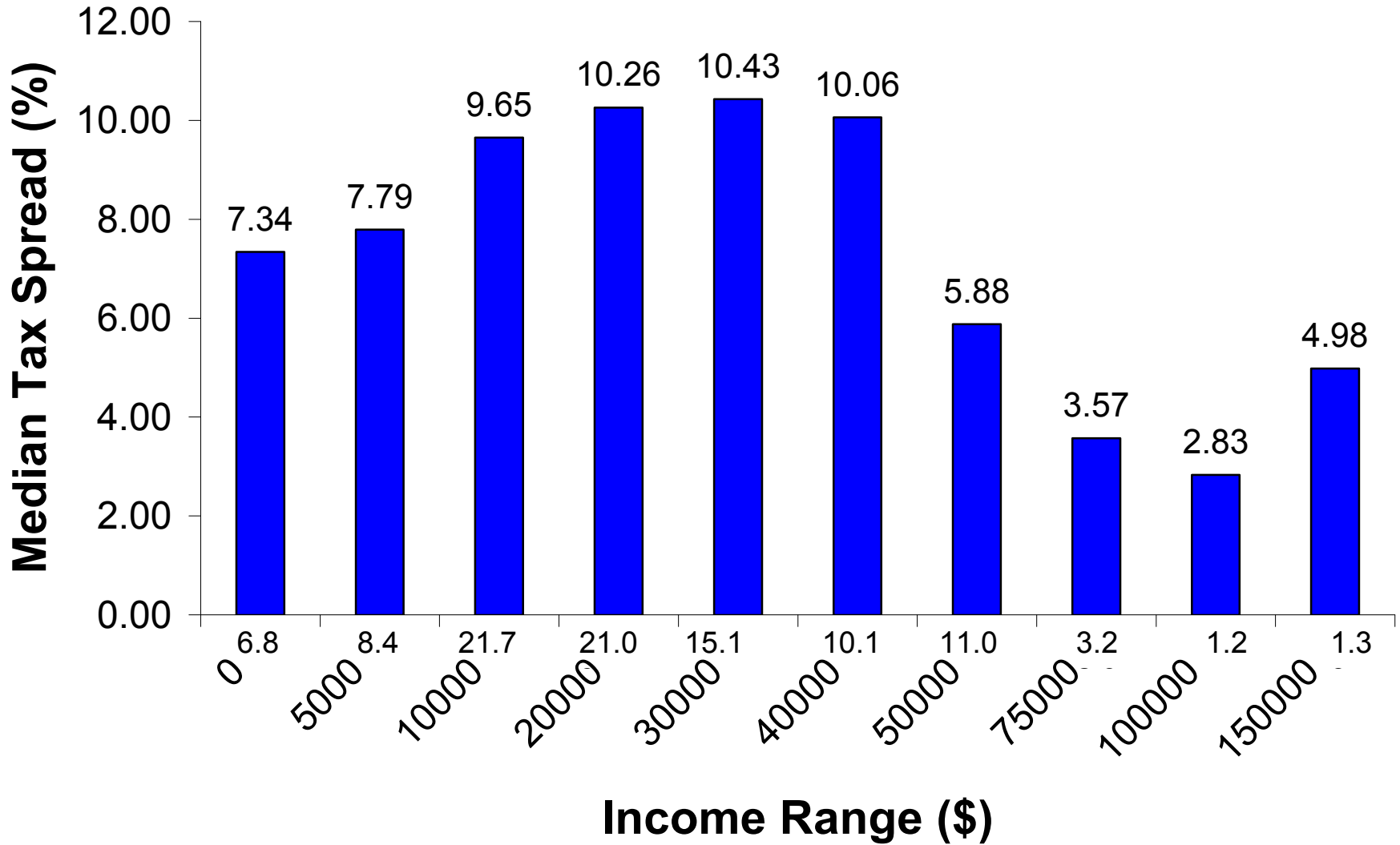
Source: Authors' calculations based on data from the PSID, 1978-1993.

- Entrants' observed wage growth defines "successful" and "unsuccessful" outcomes
 - Successful outcomes: \uparrow by 25% (pr = 0.4), 50% (pr = 0.4), 100% (pr = 0.15), 200% (pr = 0.05)
 - Unsuccessful outcomes: \downarrow by 10% (pr = 0.5), 25% (pr = 0.3), 50% (pr = 0.15), 75% (pr = 0.05)
 - Sanity check: single-point definitions
- Spread (i.e., convexity measure) =
 (Weighted average of MTRs | Successful) –
 (Weighted average of MTRs | Unsuccessful)

Identification of Convexity

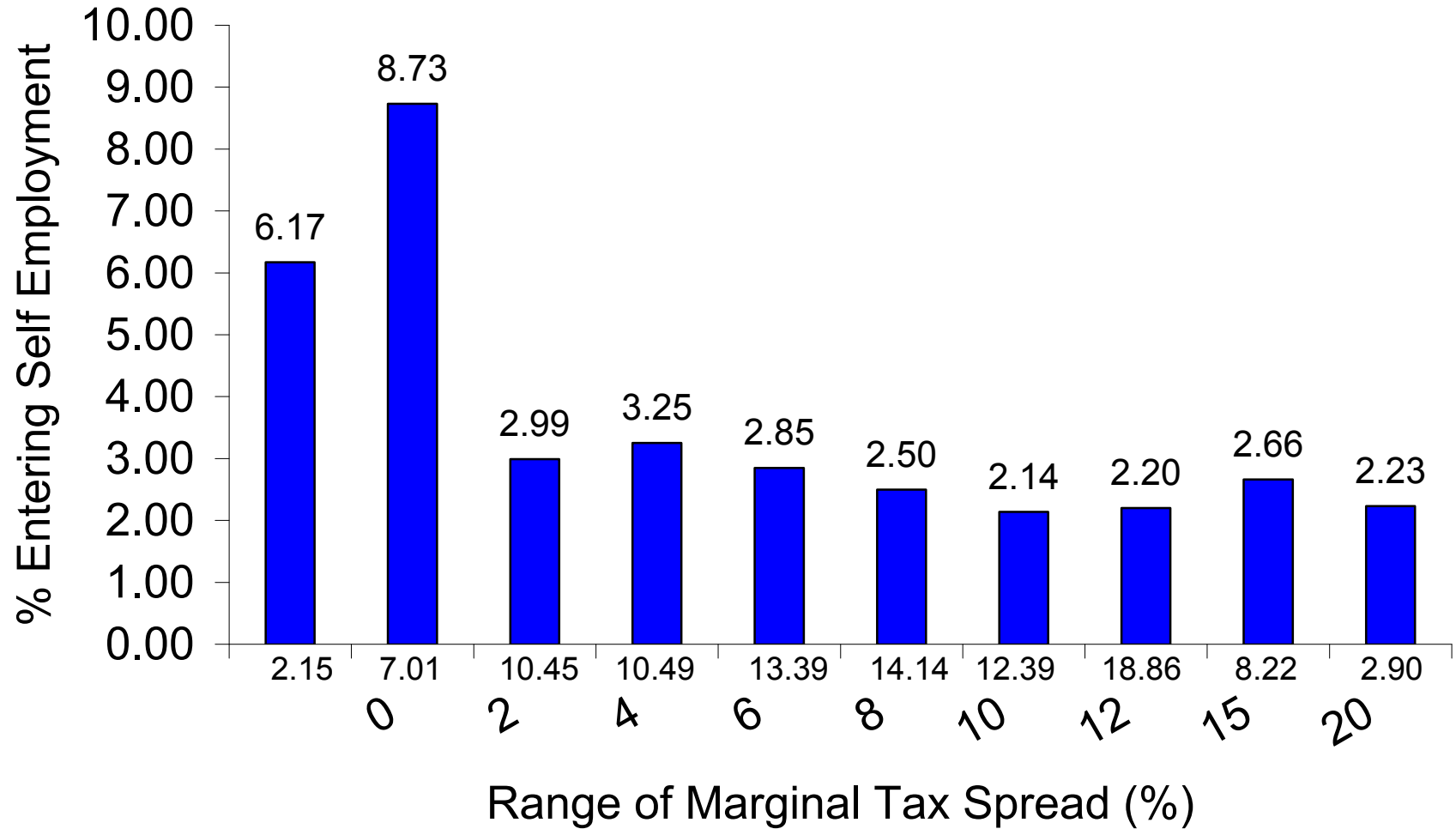
- Level and composition of income
- Changes in tax code over time
- State of residence
- Convexity need not be positively correlated with the level of the tax rate or with income

Figure 1: Median Tax Spread vs. Income



The number at the top of the bar is the median spread in the income range; the number at the bottom of the bar is the percentage of the sample in the income range. The larger numbers along the x-axis define the income ranges.

Figure 2: Entry Probability vs. Tax Spread



The number at the top of each bar is the percentage of household heads that enter self employment in the range of marginal tax rate spreads; the number at the bottom of each bar is the percentage of households in each ranges of marginal tax rate spreads. The larger numbers along the x-axis define the ranges of the convexity measure.

Other Control Variables

- The usual suspects
 - Income: labor income, spouse’s labor income, dividends & interest, property income
 - Demographics: age, race, marital status & transitions, number of kids, education, homeownership, and rural location
 - Time & place: Census region by year effects; in sensitivity analysis, we include state effects or state by year effects (with similar results)

Basic Findings (Table 4)

- “Marginal tax rate level” effect is negative which is inconsistent with tax avoidance; in the sensitivity analysis, this effect is not stable across specifications
- Coefficient on marginal tax rate spread is negative and significant
 - \uparrow Convexity \rightarrow \downarrow prob (entry): consistent with “success tax” story, but not with “insurance” story
 - Similar story if we use average tax rates instead of marginal tax rates or modify the weights on the definition of convexity

Table 4: Marginal Effects from Entry Probits into Self Employment				
	(1)	(2): Marg. tax rate convexity measure	(3): Two point convexity measure	(4): Ave. tax rate convexity measure
Tax rate on employment		-0.000314 (0.000147)	-0.000346 (0.000149)	0.000378 (0.000261)
Convexity in tax rate (spread)		-0.00173 (0.000240)	-0.000947 (0.000169)	-0.00617 (0.000605)
Head's labor earnings	-3.90 (1.14)	-2.01 (1.17)	-2.11 (1.22)	0.268 (1.13)
Head's labor earnings squared	0.911 (0.311)	0.472 (0.277)	0.515 (0.291)	-0.133 (0.263)
Spouse's labor earnings	-1.67 (1.43)	-4.03 (1.53)	-2.21 (1.52)	-0.978 (0.169)
Spouse's labor earnings squared	-0.203 (1.71)	0.104 (0.150)	-0.183 (1.74)	3.66 (1.14)
Dividend and interest income	1.01 (0.289)	0.750 (0.281)	0.888 (0.284)	0.234 (0.291)
Other property income	2.36 (0.322)	2.04 (0.304)	2.18 (0.313)	1.44 (0.270)
Minority	-0.0124 (0.00233)	-0.0123 (0.00226)	-0.0125 (0.00227)	-0.0131 (0.00212)
Female head	-0.0208 (0.00244)	-0.0198 (0.00240)	-0.0205 (0.00241)	-0.0204 (0.00233)
Single (single = 1)	0.00310 (0.00328)	0.00340 (0.00922)	0.00369 (0.00326)	0.00334 (0.00314)
Number of kids	0.00158 (0.000967)	0.00196 (0.000987)	0.00146 (0.000999)	0.00232 (0.00102)
Less than high school	0.00515 (0.00333)	0.00335 (0.00321)	0.00355 (0.00325)	0.00293 (0.00314)
Some college	0.0101 (0.00333)	0.0103 (0.00329)	0.0105 (0.00331)	0.0110 (0.00327)
College	0.0125 (0.00369)	0.0131 (0.00367)	0.0133 (0.00371)	0.0142 (0.00371)
Some post-college education	0.0140 (0.00550)	0.0123 (0.00525)	0.0130 (0.00537)	0.0133 (0.00531)
Number of obs.	53,151	53,151	53,151	53,151
Pseudo-R ²	0.070	0.078	0.075	0.088

Source: Authors' calculations, as described in the text. Estimated models include census region effects by year, age dummies for 5 year age ranges for the head of household, dummy variables for homeowners, marital transitions, and rural residents (not reported). The sample pools data from 1978 to 1993. We drop observations with average or marginal tax rates larger than 75 percent or smaller than -20 percent. The estimated coefficients and standard errors for labor earnings are multiplied by 10^7 and for labor earnings squared are multiplied by 10^{12} . The estimated coefficients and standard errors for capital income and property income are multiplied by 10^6 . The marginal effects are evaluated at the mean values of the variables; for the dichotomous variables, marginal effects are for changes from zero to one. Robust standard errors are in parentheses.

What Does This Mean?

- Mean convexity is 9.0 percentage points (s.d. of 5.3 ppt.); the mean entry probability is 3.3%
- A 3 percentage point reduction in the mean convexity would increase the expected entry probability from 3.3% to 3.8%
- The entry decision is sensitive to the shape of the tax schedule -- flattening the rate structure could increase the rate of small business formation

Specific Example

- For a household in which husband earns \$90,000 and wife earns \$50,000, OBRA '93 increased the convexity of the tax system by 5.2 percentage points without changing their marginal tax rate
- This increase in convexity reduces their probability of entry from 2.7% to 1.9%, which is a 30 percent decrease

Is It the “Success Tax”?

- Convexity can arise because success \uparrow the MTR or because being unsuccessful \downarrow the MTR.
 - So far, we’ve restricted the behavioral responses to be the same.
 - Decomposing the effect: “Upside” versus “downside”
- “Success tax” effect is about 60% larger than the “downside” effect

Sensitivity Analysis

- Are the results robust?
- What makes the convexity measure tick?
 - Or, in technical terms, what source of variation in convexity identifies our model?

Sensitivity Analysis

- Choice of sample
 - Similar results for men, married men, and if we exclude minorities
 - The result holds across income quintiles, age groups, and education groups
- Functional form for controlling for earnings
 - The effect of the level of the tax rate depends heavily on how we control for earnings but the convexity effect is relatively stable

Sensitivity Analysis

- Intertemporal & interstate variation
 - Allowing for the effects to vary by year yields fairly similar results across years (a bit noisy)
 - Controlling for state effects or state-year effects yields similar results to the base case, suggesting that variation from income composition is key
- Business Ownership? (1984, '89 & '94 data)
 - Similar story for transitions to owning business assets

Conclusions from Sensitivity Analysis

- Strong evidence of “success tax” effects on entry
- No strong evidence of level effects on entry
- Recall, though, that we abstract from conventional “labor supply” distortions
- Variation across sources of income is critical for identifying the model

Conclusion

- Tax policy has potentially large effects on entrepreneurial entry
- We predict that flattening the rate structure would increase entry
- Our story is driven by changing the payoffs to risk-taking rather than an incentive to avoid taxes
- Important given links among entrepreneurship, mobility, and household wealth accumulation