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Policy Brief

Public Policy and Entrepreneurship

Douglas Holtz-Eakin

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Introduction

The image of the American entrepreneur retains an enduring fascination in the minds of the public and policy makers alike. For example, testifying several years ago at a congressional hearing on “the entrepreneurial spirit in America,” Wisconsin's Senator Robert Kasten said of entrepreneurs: “They create new jobs. They provide new competition to existing businesses. They help to improve product quality, help to reduce prices, add new goods and services never before thought of, advance new technologies, America's competitive stance.”¹ His statement captures the view that entrepreneurial enterprises are valuable sources of technological advance, jobs, and dynamism, a trait commonly attributed to small business as a whole.

Our national affection toward entrepreneurs also manifests itself in attitudes towards small business. “Start-up,” “family,” and other small-scale businesses carry an important weight in discussions of national policy. This durable affection stems in part from the perception that small business is the vehicle by which entrepreneurs provide needed vigor to the economy.

In the newly established democracies of Eastern Europe a widely discussed challenge is the need to regenerate a vital entrepreneurial sector. The centralized regime pushed the mass production paradigm to its limit, at times concentrating the entire production of a good in a single factory. The dismal record of poor quality products and stagnant

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economic growth highlights the need for the competition and vigor provided by start-up enterprises.

The national focus on small business is not merely talk. Many government policies are directed toward aiding small businesses. For example, fulfilling a Clinton campaign promise, the Revenue Reconciliation Act of 1993 (RRA93) permits the exclusion of 50 percent of capital gains on qualifying investments in start-ups and small businesses held for five or more years.²

This *Brief* surveys the various notions of "small business," presents criteria that should underlie policies toward business, and reviews the case for public policies to stimulate entrepreneurship and small business. It concludes that it is surprisingly difficult to construct a case in favor of systematically favoring small businesses. Indeed, it is probably not useful to think of creating a "small business climate" through policies like targeted tax breaks, wage subsidies, loan guarantees or outright grants. Instead, policies should be devoted to developing an environment favorable to innovation, employment, and growth in the economy as a whole.

Who Are the Entrepreneurs?

Entrepreneurs are usually characterized by their daring, risk-taking, animal spirits, and so forth. Economist Joseph Schumpeter, whose work highlighted the power of entrepreneurial forces, chose these words:

To act with confidence beyond the range of familiar beacons and to overcome that [social] resistance requires aptitudes that are present in only a small fraction of the population and that define the entrepreneurial type... (Schumpeter 1942).

Unfortunately, the design and implementation of public policy requires less literary, more prosaic criteria to identify entrepreneurs. A bit of introspection suggests that this is likely to be a difficult task. Some

entrepreneurs never start out as small businessmen. It is easy to imagine— indeed many could even name— a highly entrepreneurial individual whose efforts were contained within a large corporation, directed toward not-for-profit activities, or otherwise expended far from the solo businessman/small business frontier. While clearly the first step is to identify an entrepreneur, the difficulty in doing so represents a major argument against trying to direct policy toward entrepreneurs.

What is a “Small” Business?

Let us accept for the moment the notion that for entrepreneurial reasons it is useful to develop policies to aid small firms. What, exactly, is a small business? That is, how does one draw the line separating small firms from large firms? Historically, there have been at least three defining characteristics:

- The first and perhaps most obvious is **revenues, sales or other output-based measures**. A firm crosses the line from “small” to “large” when its production or profit reaches becomes sufficiently large. We can think of firms as small or large just as we think of individuals as poor or rich. The graduated structure of the corporation income tax implicitly endorses this way of framing the issue: a “small” firm has less than \$50,000 in taxable profit; medium-sized firms lie in the range of \$50,000 to \$75,000; and large firms exceed \$75,000 in profits. As it turns out, the tendency to think of firms in the same terms as people, while tempting, leads to considerable difficulties. I return to this notion in what follows.
- A second obvious candidate is the **number of employees**. The popular image of a “mom and pop” operation centers on a business with few employees. More recently, the political and popular fascination with job creation (particularly “good job” creation) has made it common to divide employers on the basis of the number of jobs. Within the policy sphere, the Office of Advocacy, Small Business

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Administration, frequently uses this employment criterion to identify small businesses.

- Finally, one could use **asset accumulation** as the measure of “size.” For example, the capital gains tax preference introduced in RRA93 is limited to firms with \$50 million or less in assets.
- This hardly exhausts the possibilities. For example, in the case of subchapter S-corporations (corporations that benefit from limited liability, but are taxed like partnerships), the measure of “size” is the **number of shareholders**.³

The definition clearly matters, as firms are configured differently on the basis of income, employment, and assets. Consider two equally profitable businesses, one in the oil extraction business, the other in management consulting. The former will likely have much greater assets and lower employment, other things equal, than the latter. Which is the small business? And do we wish to set policies to favor one over the other?

Are Small Businesses Entrepreneurial or Just Small?

This question is central to the issue of preferential treatment, or even to deciding which definition of “small” is most useful. And it is ultimately an empirical issue as well; there is no substitute for extensive evidence regarding the correlation between measures of firm size and the propensity to innovate, improve, and market products.

The research literature to date, however, has not provided a clear resolution to this question. In part, the question has been avoided; the entrepreneurial virtues of new businesses are often assumed rather than examined. Also, as the discussion above has highlighted, there is no clear method and set of criteria for evaluating the contribution of small business *per se* to productivity growth in the economy.

In the absence of a strong case based on facts, one must turn instead to principles. What principles should guide public policies toward entrepreneurs?

Public Policy Principles

It is standard to evaluate economic policy using a two-pronged test: economic efficiency and equity or fairness. How do these guidelines help us to formulate small business policies?

Economic Efficiency

Economic efficiency means organizing the broad array of production activities— the products produced; the amount of each product; the firms engaged in production; the use of employees, equipment, and structures in the production process; and so forth— to meet the desires of the population while using as few resources as possible. The central insight of Adam Smith's celebrated "Invisible Hand" is that profit-oriented production for market leads to economic efficiency. Firms have a built-in incentive to use as few resources as possible (because it lowers costs), choose the "right" mix of productive inputs (firms seek out plentiful, cheap resources), produce valued products (those for which the sale price exceeds production costs), and seek out the most highly-valued products (which have the highest prices).

The Invisible Hand lets us down only if market signals somehow become distorted. For example, left to its own devices, the market has a tendency to produce too much pollution because disposal into the air and water is free; the market does not signal the costs of environmental damage. Alternatively, in the absence of patents, copyrights, and trademarks there is less incentive to produce new products and processes. The market provides no means by which innovators may reap their rewards.

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In these examples, there is a clear presumption that the market would produce either “too much” (pollution) or “too little” (innovation) in the absence of specific government policies to address the market’s failures. But what failure is at the heart of policies to aid small businesses?

A corollary to the Invisible Hand theorem is that one must identify special circumstances in which the profit motive alone is inadequate to justify using the power of government to favor small businesses. For example, because firms are cognizant of the relevant costs, the market leads to efficient decisions about choices of inputs. Tax systems should generally avoid taxes that distort those choices.⁴ Taxes or other policies that distort the production arrangements within firms serve only to produce inefficiency and thus lower the level of production in the economy. A straightforward extension of this line of reasoning is that taxes should not influence the arrangements of firms themselves. To the extent that profit motives produce a natural size for a firm or a natural evolution or growth of firms, these efficient tendencies should not be altered by policies that favor small over large firms.

Thus, an efficiency-based argument for preferred tax treatment requires something “special” with regard to small firms or their inputs. Is there something unique about these enterprises?

Externalities. Externalities refer to situations in which a firm’s production generates an effect not captured by the costs of production or the prices charged for its products. The most famous example was introduced earlier: the externality of pollution, a “product” whose (negative) value is not incorporated directly into the firm’s decisions. To “solve” the pollution problem, the standard prescriptions focus on charging the firm— directly, through taxes, or indirectly, by imposing regulations— for the cost of its pollution. In this way the policy “fixes” the market by incorporating fully *all* the costs of production into profit calculations.

But what if the externality is beneficial? Perhaps a new production process or innovative product that permits other firms to generate more or better products? Reversing the logic of the pollution example suggests that the right policy would be to subsidize the production of these beneficial externalities, thereby providing incentives to produce more of the socially desirable activities. Are small firms the primary source of such beneficial externalities?

Recent years have witnessed a revival of the notion that there are key industries or activities that generate externalities beneficial to other industries and firms. The vigorous public debate over semiconductors, high-definition television and flat-screen displays is but one example. Proponents of activist policies argue that products such as these are essential to develop an economy for the 21st century. Moreover, it is not enough just to purchase these products from abroad. Instead, domestic production is necessary to fully reap their benefits because the knowledge gleaned from their development and production will spill over into other activities.

Taking the argument further, proponents of small business argue that they are a unique source of new ideas, new products, and new technologies. If so, government policy intervention (differential tax treatment, regulatory relief, anti-trust exemptions, etc.) would be desirable. Since the private sector is unable to appropriate all of the gains to these activities, the profit motive alone is inadequate to stimulate sufficient entrepreneurial innovation.

Recently, however, Holtz-Eakin and Lovely (1995) examined the virtues of subsidies to firms that generate such spillovers. Interestingly, the results show that the case for a beneficial policy depends both upon the presence of an externality *and* the extent to which the recipient industries have concentrations of monopoly power. Indeed, the interaction of market forces with the existence of "critical" products may require that the government choose a complex mix of subsidies *and*

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taxes for the key products. These are hardly the kind of easily-defensible policies that proponents of entrepreneurs typically envision.

Moreover, it is an unresolved empirical issue as to whether the small business in the economy provides a disproportionate share of innovations and other activities leading to new processes and products. And, even if small firms and entrepreneurs claim numerical superiority in these areas, one must further demonstrate that the market is producing "too few," i.e., that these activities have external effects not captured by the firms themselves. While it is intriguing to speculate, recent research is far from accumulating the weight of evidence sufficient to establish a government policy of treating preferentially the smaller businesses in our economy.

Capital Market Imperfections. In the "perfect" world of the Invisible Hand, firms, projects, and products are evaluated on their merits alone. Banks and other financial market intermediaries finance those products with good prospects and turn down the others. However, substantial recent analyses have demonstrated that credit rationing may prevail as a "rational" business practice. That is, it may be the case that two equally promising projects cannot both obtain financing at the same borrowing rate. Indeed, one of the two projects may not be financed at all. Worse, the possibility arises that an inferior product or firm will receive financing at the expense of a superior rival.

For this reason, researchers have focused on the possibility that such capital market constraints may be a key aspect of the ability to start a new company. A growing body of literature suggests that capital market difficulties may impede the entry into entrepreneurship, the initial capitalization of new ventures, the probability of surviving as a small business, and the growth rate of revenues for entrepreneurial ventures.⁵ That is, there exists both a theoretical presumption that financial markets may need "fixing" and some confirming empirical evidence that capital market constraints reduce the formation of new businesses and lower the survival rate among the least established firms.

Doesn't this clinch the case for aiding small businesses? No, even these studies do *not* establish the proposition that too few businesses are created each year, or that the "wrong" firms get financed. Nor do they establish any presumption that too great a fraction of the newly-founded businesses fail each year. In short, the empirical literature to date does not provide a solid foundation for a general policy of systematic intervention on behalf of small business.

In large part, this "go slow" admonition to policy makers stems from the informational difficulties that lie at the heart of credit market transactions. Entrepreneurs and businesses know a great deal more about their abilities and prospects than banks can ever know. Unfortunately, there is no credible way for them to convey this information directly to the banks. A poor credit risk has an incentive to make exactly the same pitch to the bank as a promising venture. There is no way for the bank to acquire the extra information needed to pick the best businesses. The government faces exactly the same difficulty and unless it somehow has an ability greater than the financial sector to discern the probability of business success, there is little that it can do to more efficiently allocate credit.⁶

This has fairly strong and negative implications for loan programs like that of the Small Business Administration. While it is true that these programs provide a subsidy to borrowers— they receive credit they would not otherwise obtain— it is less clear that society as a whole benefits.

Risk-taking. Businesses, large and small, face risks of financial loss and insolvency. However, the risk of failure is higher for small businesses. Due to their slender financing and less than fully developed markets, the failure rate for small firms is higher than that for larger, established concerns. Does this risk lead to an inadequate formation of new businesses in risky areas? Should policy offset this risk?

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A particularly prominent example of the interaction of policy and risk has been arguments in favor of a lower capital gains tax rate. The *Economic Report of the President, 1990* argues (page 115) "Much of the return to entrepreneurs and their backers who bring new products to market— particularly through start-up ventures— comes through increasing the value of the business. Reducing the tax rate on capital gains will provide a climate that encourages businesses to invest in new technologies and products." Sentiments of this sort presumably lay behind the RRA93 provisions excluding 50 percent of capital gains on qualifying investments in small businesses.

But the case in favor of preferential treatment of small business capital gains is far from clear-cut. First, a canon of personal investment strategy is that one should diversify so that the idiosyncratic risks associated with a single project or firm have a negligible effect on average earnings. Diversification may be undertaken directly, through the selection of individual investments. Alternatively, mutual funds, pension plans and other indirect means may reap the benefits of diversification. If so, the risk does not "matter" and there should be no need for a subsidy to offset the risk. That is, in a sufficiently diversified portfolio, one should not "count" the firm's specific risks at all. Thus, from this perspective, there appears to be little need to subsidize financial backers in the form of a tax cut on capital gains.⁷

But what of undiversifiable or systemic risks that affect all small businesses simultaneously? Imagine a bad recession, or shift in trade policy such as the recent North American Free Trade Agreement (NAFTA). One tempting possibility is that policy should "lean against the wind" of cyclical movements in the economy. Would not this be beneficial, especially in light of the frailty of smaller businesses? Regardless of the merits of the argument, it appears infeasible in practice. The appropriate policy would necessarily treat small businesses differently during economic upturns and downturns. Given the demonstrated inability of the government to use fiscal policy to "fine-tune" the macro economy, the prospects for timely and appropriate treatment of the

small business sector appear nil. Of course, the individual owner-entrepreneur may hold a highly specialized portfolio– the business– and cannot take advantage of the risk-reduction offered by diversification. Even so, the case for preferential treatment is far from clear. Standard economic reasoning does not demonstrate that increased taxation reduces the willingness of individuals to undertake risky investments (see, e.g., Sandmo (1987)). This is not surprising; it is usually quite difficult to establish firm predictions about complex human endeavors. In the best cases, modern surveys, statistical tools and other empirical techniques combine to limit the range of possible outcomes. However, this is not one of those cases, and the relationship between higher tax rates and the propensity to incur risk remains a contentious issue.

But what sort of magnitudes are involved? To gain a feel for this, consider the example presented in Table 1. The entries show the *critical success rate*, the probability of success needed to induce an individual earning \$100,000 per year to undertake a risky business start-up. That is, the table shows the odds of success needed to unleash the individual's entrepreneurial tendencies.⁸ Thus, for example, the fifth entry in the first row indicates that when 40 percent of capital gains are excluded from tax the individual must anticipate success 98.7 percent of the time or better to be induced to start the firm. The row beneath, labeled "Change," shows that this represents a 1.3 percentage point reduction in the critical success rate from that needed with an exclusion of 30 percent of capital gains.

Table 1. Critical Success Rate and the Effect of Capital Gains Exclusion						
Amount of Investment	Probability of Anticipated Success Needed to Induce an Individual Earning \$100,000 Annually to Undertake a Risky Business Start-up (percent)					
	No Exclusion of Capital Gains	Percent of Capital Gains Excluded From Tax				
		10%	20%	30%	40%	50%
\$60,000	100.0	100.0	100.0	100.0	98.7	97.3
Change		00.0	00.0	00.0	-1.3	-2.7
\$50,000	96.2	94.0	92.0	90.2	88.6	87.1
Change		-2.2	-4.2	-6.0	-7.6	-9.1
\$40,000	87.4	85.0	82.8	80.8	79.0	77.5
Change		-2.5	-4.7	-6.6	-8.4	-10.0
Source: Author's calculations.						

Excluding capital gains from tax does increase an entrepreneur's willingness to invest, expressed as a willingness to accept a lower likelihood of anticipated success, but the magnitudes are not enormous. For example, consider the first row that gives the results for a \$60,000 investment. A 50 percent capital gains exclusion reduces the critical success rate from 100 percent to only 97.3 percent, a change in the critical success rate of only 2.7 percentage points. For lower amounts at risk, the results are more dramatic. The remaining rows show that for a smaller, \$50,000 investment the reduction in critical success rate amounts to only 13 percentage points for a 50 percent exclusion. Or, if the required investment falls to \$40,000, the 50 percent exclusion is equivalent to permitting the critical success rate to be 22.5 percentage points lower.

What is the moral? The tax exclusion does reduce the risk facing the individual, but the effect is not large even for a venture that represents a very large commitment of annual consumption opportunities. As the table indicates, the effects on the critical success rate become larger as the initial outlay declines. But as a matter of public policy the difficulty in targeting exactly the "right" size of investments for subsidy is daunting.

Subsidies also penalize growth. A final argument against preferential treatment of small firms rests on the disincentive effects of eliminating these same preferences as the firm grows. In this way, subsidies to small firms constitute a "tax" on growth. To the extent that the goal is to encourage robust business enterprises, a policy of subsidizing the entry of more firms and then hampering their later development seems perverse.

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Efficiency and Tax Policy toward Small Firms

Thus far, efficiency-related reasoning does not seem to provide much of a basis to single out entrepreneurs and small firms for special treatment. Despite this, tax, regulatory, purchasing and other myriad policies favor small businesses. In the absence of an efficiency-based justification of these policies, how should we evaluate their effects? But differently, what is the harm in such an approach?

Consider the tax provisions that explicitly target small business.⁹ In addition to the preferred capital gains tax treatment in RRA93, perhaps the most significant tax advantage conferred on small businesses is the ability to “expense,” or deduct, up to \$17,500 in capital expenditures per year.¹⁰

What are the consequences? Expensing reduces the cost of capital and lowers the effective tax rate on the return to small business equity capital. To get a sense of the magnitudes involved, consider a manufacturing sector equipment investment. Let the “user-cost of capital” be defined as the annual pre-tax rate of return needed for an investment to provide a competitive post-tax return.¹¹ To gain some intuition, notice that taxing the earnings from the investment raises the user-cost; the investment yield must be greater in order to pay both the tax and meet the market's required rate of return. In the opposite direction, more generous depreciation allowances lower the user-cost; in effect the tax authority provides “matching funds” in the form of lower tax liability. In this instance, the key fact is that expensing amounts to very generous depreciation; the entire investment is deducted in the first year instead of spread out according to a depreciation schedule.¹² Thus, the ability to expense investment provides a reduction in the required rate of return for small business projects. Is the subsidy important?

Illustrative computations are shown in Table 2. These figures are based on the assumption that the financial cost of capital is given by the after-

tax rate of interest; interest rates are assumed to be 9 percent in the table.¹³ The rate of inflation is assumed to be 3 percent, while the rate of economic depreciation is set equal to 13.3 percent.¹⁴

The first row of the table shows the results of using a 15 percent tax rate (the lowest corporation income tax rate) on the return to capital. Column (1) indicates that the required user-cost is 17.95 percent when it is possible to expense the investment in question. In column (2), however, one finds that the same investment requires a user-cost of

Tax Rate	Expensing	Depreciation	Subsidy
15%	17.95	20.23	2.28
25%	17.05	21.13	4.08
35%	16.15	22.40	6.25

20.23 percent when granted typical tax depreciation.¹⁵ Thus, the option to expense the investment provides an effective subsidy to the required rate of return equal to 2.28 percentage points.

The remainder of the rows show analogous computations using the remaining rates in the corporation income tax schedules, rates of 25 percent and 35 percent, respectively.¹⁶ In each case, providing immediate write-offs to small business constitutes a substantial subsidy. For a 25 percent tax rate, the hurdle rate of return falls by roughly 4 percentage points, while at the highest tax rate the hurdle rate would be 6 percentage points lower.¹⁷ (Of course, to the extent that investment exceeds the \$17,500 threshold, the marginal investment is not expensed and the subsidy to new investment disappears.)

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Table 2 also embodies the final feature of the tax code directed toward small business. Both small business taxed through the individual income tax (in the form of sole-proprietorships, partnerships, or S-corporations) and those small C-corporations taxed under the corporation income tax face a series of increasing marginal tax rates. In this limited sense, small businesses are ostensibly tax-favored by the lower rates early in the tax schedules.

A glance down the columns of Table 2, however, indicates that the effective subsidy hardly coincides with the reductions in statutory rates. Because the value of interest deductibility and expensing declines as the tax rate is lowered, the user-cost of capital *rises*. For example, moving from a 15 percent to a 25 percent tax rate lowers the user cost from 17.95 percent to 17.05 percent. A further increase in the tax rate to 34 percent lowers the user cost again, this time to 16.24 percent. In contrast, the lower value of depreciation allowances for larger businesses (column (2)) results in a steady increase in the user cost as the tax rate rises.

The table dramatically displays the social impact of these targeted policies: small-firm investments have a *lower* pre-tax return than other business investments; they are attractive solely due to the tax preferences. Unless these firms have a social virtue not captured by the profitability of their projects, every dollar of tax-driven small-firm investment carries with it the sacrifice of another, higher-return, business expansion that was not financed. In short, it is far from costless to subsidize one business form over another.

Fairness

Public policies are typically judged in part by their "fairness." For example, an income tax is horizontally equitable if those with the same income pay the same amount of tax. In the same fashion, vertical equity requires that those with a greater income should pay a greater amount of tax.

But how should we think about fairness and public policy toward entrepreneurs and small businesses? For example, should not small firms get a break? The difficulty is that while appeals to equity carry considerable force with regard to individuals, they are less compelling for firms. An adage as old as the field of public finance is that “firms don't pay taxes, people do.” More generally, “firms” don't benefit (or suffer) from public policy. In the end, the impacts are transmitted to people—workers, managers, financiers and owners.

Worse, applying notions of fairness to firms may lead to inconsistencies in the treatment of individuals. A dramatic example is the recently enacted preferential treatment of small business-related capital gains. This small business policy follows on the heels of a protracted dispute during the Bush administration over the desirability of providing a reduction in the capital gains tax rate. In large part, this debate featured an emphasis on the distributional aspects of capital gains tax reductions. (See Auten and Cordes (1991) for a summary of the issues.) It is not useful here to take a stand on the larger issue of the desirability of reducing taxes on capital gains. However, regardless of one's views, it is straightforward to note that the implications of providing preferred treatment to small businesses investments are the *same* as providing reduced rates in general. Capital gains accrue to savers, the suppliers of capital in the economy. These suppliers occupy a particular stratum in the income distribution (they are typically well-off). From the perspective of fairness, the source of the capital gain *per se* is of no consequence. If fairness demands that capital gains be taxed, small business gains should be taxed as well. Alternatively, if fairness requires that capital gains be in whole or part excluded from tax, then the exclusion should apply to all gains. Fairness applies to people, not firms.

Conclusion

There seems to be widespread support for special help to small businesses which is manifested in preferential tax treatment of these

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enterprises. However, consideration of the standard efficiency and equity criteria for such a subsidy provides little support for such policies.

Entrepreneurs *do* struggle. New ventures scramble for financing. Small businesses frequently merge and nearly as frequently fail. But in issues of public policy, "zero" is rarely the right answer. Policy should not aspire to zero struggle, no scrambling and no failure. In the end there is a "right" amount of business failure. Is the current rate too high, or even too low? We do not know enough to answer this fundamental question, much less to determine which firms to target for success or failure.

Notes

1. *Hearings before the Subcommittee on Entrepreneurship and Special Problems Facing Small Business of the Committee on Small Business, United States Senate, S. Hrg. 99-677, U.S. Government Printing Office, Washington, D.C., 1986.*
2. Internal Revenue Code, Section 1202 describes the qualified small business stock to which this tax preference applies. See DeLap and Brandt [1994].
3. See Plesko (forthcoming) for a discussion of the rules associated with S-corporations.
4. See Diamond and Mirrlees (1971).
5. See, for example, Evans and Leighton, (1989), Evans and Jovanovic (1989), or Holtz-Eakin, Joulfaian, and Rosen (1994a, 1994b).
6. This reasoning does not apply to credit market discrimination (or the spillover of product market discrimination into credit markets); see, e.g., Bates (1991). In these instances there is a direct rationale for government intervention.
7. Poterba (1989) indicates that a large fraction of venture capital is supplied by tax- exempt entities such as pension funds, making the likely impact of preferential treatment much smaller than even the analysis of individual behavior would suggest.
8. Details of the computations are available from the author.

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9. I focus here on explicit preferential treatment of small businesses. A broader definition might include as well the fact that small businesses are less likely to be corporate entities, and thus do not pay the corporation tax, or that the mix of debt and equity may yield a lower effective tax rate on small businesses.
10. The limit increased from a limit of \$10,000 in 1993. Section 179 expensing provisions are limited by taxable income in any year and are phased out by the amount of qualified investment in excess of \$200,000.
11. Specifically, following Hall and Jorgenson (1967), the user-cost of capital in the presence of the tax code is given by

$$\frac{c}{q} = \left(\frac{\rho - \pi + \delta}{1 - \tau} \right) (1 - \tau z)$$

where c is the annual value of production from the investment, q is the purchase price of capital equipment, ρ is the after-tax financial cost of capital, π is the rate of inflation, δ is the rate of geometric depreciation, τ is the tax rate, and z is the present value of depreciation allowances provided for a dollar of investment.

12. Recent tax reform proposals center around the move to consumption tax base in which the return to saving and investment are not taxed. In practice, these schemes typically permit expensing. Notice that with expensing, $z=1$ and the user-cost in note 10 is no longer affected by the tax rate, τ . Thus, consumption-tax reforms are neutral with respect to

firm size.

13. The current prime rate of interest is 9 percent.
14. Taken from Hulten and Wykoff (1981), p. 94.
15. In column (2), $z=0.2814$, the 1988 value taken from Cummins, Hassett, and Hubbard [1994], Table 1, page 8. Increasing the value of z modestly to account for the slightly lower inflation in recent years has little effect on the results.
16. The use of these rates ignores the 5 percent surcharge on corporate revenues between \$100,000 and \$335,000. In this range, the marginal tax rate is 40 percent.
17. In addition, the 1991 *Statistics of Income, Corporation Income Tax Returns* indicates that the ratio of net depreciable assets to business sales is 50 percent lower (0.128 versus 0.256) for firms with under \$100,000 of assets than for all firms. The lower capital intensity of these firms implies that the effective output subsidy is smaller than that suggested by the cost of capital computations alone. I thank Eric Toder for emphasizing this feature.

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