requirement that the incumbent companies also offer at wholesale the various piece-parts of their networks to entrants at wholesale rates is referred to as "unbundling" of the incumbent's network. Unbundling has been mandated by Congress as a mechanism to accelerate entry because full facilities-based entry is expensive and would require years to complete given the effort required to build complete new networks to parallel existing local-company networks.

10. For a useful summary of the FCC auction process, see Federal Communications Commission, Wireless Telephone Bureau, *The FCC Report to Congress on Spectrum Auctions*, WT Docket 97-150, October 9, 1997.

11. I use the term "mobile" to describe wireless telephone services that use cellular networks in order to allow subscribers to use their receivers over a wide geographic area. "Fixed" wireless service is generally understood to be a wireless service in which the user must remain close to his business or residence to use his telephone receiver.

12. The FCC Report (see note 10, above) claims that Congress authorized spectrum auctions for more laudatory reasons, including the improvement of the Commission's spectrum-allocation process. But it also points out that the first item in its required 1997 report was a tabulation of revenues raised and a projection of future potential revenues.

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THE GOLDEN GOOSE?
UNDERSTANDING (AND TAXING) THE SAVING OF ENTREPRENEURS

R. Glenn Hubbard

ABSTRACT

Studies of household saving decisions have paid relatively little attention to the role of entrepreneurial decisions in wealth accumulation. This paper highlights three empirical findings about the role of entrepreneurial decisions in household wealth accumulation. First, entrepreneurial households own a substantial share of household wealth and income, and this share increases throughout the wealth and income distribution. Second, the portfolios of entrepreneurial households, even wealthy ones, are very undiversified, with the bulk of assets held within active businesses. Third, wealth-income ratios and saving rates are higher for entrepreneurial households even after controlling for age and other household characteristics.

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One consistent explanation of these findings is that costly external financing for entrepreneurial investments (coupled with potentially high returns on those investments) raises saving by continuing and entering entrepreneurs, all else being equal. This explanation is similar in spirit to the analysis of effects of "costly external financing" on investment by corporations.

The conclusion that entrepreneurial saving and investment decisions are interdependent has potentially significant implications for analysis of effects of tax policy on business owners. In particular, entrepreneurial decisions are likely to be substantially more affected by changes in marginal income tax rates and capital gains tax rates than other decisions. In addition, the importance of entrepreneurship in explaining wealth mobility (and arguably, then, social mobility) raises the question of whether public policies toward entrepreneurship and entrepreneurial investment might influence mobility.

I. INTRODUCTION

Wealthy households are to studies of wealth accumulation what banks were to Willie Sutton: They're where the money is. While recent models of household saving decision emphasizing insurance- and capital-market imperfections can explain much of the variation in wealth accumulation among households in the United States (see, for example, Hubbard, Skinner, and Zeldes 1994, 1995; Aiyagari 1994), those models do less well at explaining wealth accumulation among the very well-to-do. That failure is not easily excused when one realizes that the top one percent of U.S. households in 1989 owned about 29 percent of total household wealth (based on data from the 1989 wave of the Panel Study on Income Dynamics, PSID) or about 36 percent (based on the 1989 Federal Reserve Board Survey of Consumer Finances, SCF). This concentration of wealth is substantially greater than that of income, with the top one percent of households earning about 18 percent of total income in the PSID and the SCF.

Why do the wealthy save so much? In this paper, I focus on the saving decisions of active business owners, or "entrepreneurs."[1] Entrepreneurs' wealth accumulation represents a significant fraction of the asset holdings of the wealthy. The 8.6 percent of households that are business owners (in a sense I make more precise in the next section) in the 1989 Survey of Consumer Finances own about 39 percent of household net worth. Moreover, as I explain later, business households hold more wealth at all ages.

I emphasize in particular one explanation for high rates of wealth accumulation for business owners. Becoming an entrepreneur and continuing as an entrepreneur require up-front investments (in, for example, fixed capital or working capital) to realize potentially significant returns from ideas, skill, or market power. While such expected returns may be much higher than those obtained from financial assets (returns conventionally used in the study of household saving decisions), entrepreneurs must often finance up-front investments with personal assets or income. That is, while studies of effects of "costly external financing" on corporate investment decisions stress links between retained earnings and investment, holding constant measures of investment opportunities (see, for example, the review of studies in Hubbard 1998), analyses of investment decisions of entrepreneurs should focus analogously on the interdependence of household saving and investment decisions. The high potential returns available to many entrepreneurs–coupled with costly external financing–could, in principle, lead to relatively high saving rates for entrepreneurs.[2]

Policymakers and economists have recently focused attention on entrepreneurial businesses. In late 1997, while large-scale layoffs were announced at International Paper, Kodak, and Levi-Strauss, among other firms, the United States announced the lowest official unemployment rate in 24 years. The reconciliation of these two events is the growth in new jobs produced by small business. According to a recent article in the *Financial Times*, for example, 85 percent of the new jobs formed in the United States between 1991 and 1996 were created by small companies (Griffith 1997).

Assigning a prominent role to entrepreneurial decisions has potentially wide-ranging complications for the analysis of saving decisions by economists and policymakers. The large share of wealth traceable to business owners suggests the usefulness of incorporating entrepreneurial selection and investment decisions into macroeconomic models of consumption and saving decisions. In addition, as I argue later, tax policy may have particularly significant impacts on the saving and investment decisions of entrepreneurs.

The paper is organized as follows. In Section II, I offer a working definition of "entrepreneurs" and document the role of entrepreneurs in accounting for variation among households in wealth accumulation and

portfolio allocation. In Section III, I discuss the role of costly external financing for entrepreneurs in accounting for entrepreneurial saving and investment. Implications for effects of tax policy on entrepreneurial decisionmaking are described in Section IV. Section V concludes.

II. THE ROLE OF BUSINESS OWNERS IN WEALTH ACCUMULATION

A. Who Is an Entrepreneur?

A focus on "entrepreneurship" or active business ownership raises a practical question: What does it mean to be an "entrepreneur"? Someone who is self-employed? Someone who has some self-employment income? Someone who makes business investments? Someone who creates jobs? Many descriptions of entrepreneurship by economists or by businesspeople are quite broad. The celebrated economist Joseph Schumpeter characterized the bold spirit of entrepreneurs: "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, p. 132).

Unfortunately, while colorful, such a definition is not promising for empirical work. In addition, a definition of "entrepreneurship" must be connected to the decision of which source of data to use in empirical tests of links between business ownership and household saving decisions.

Because I want to focus on ways in which the saving and investment decisions of business owners are linked, I would like to define an "entrepreneur" as someone whose income derives importantly from earnings on up-front investments. Specifically, following my research with William Gentry (Gentry and Hubbard 1997b), I require (in addition to a household's identifying itself as owning one or more active businesses) an investment in active business assets of at least $5,000.[3] To study links between business ownership and wealth accumulation, one must collect information on household characteristics, business ownership and investment, and wealth and its composition. To pursue this, I use the cross-section of households in the 1989 Federal Reserve Board Survey of Consumer finances and the panel of households spanning the 1983

Survey of Consumer Finances and the 1989 Survey of Consumer Finances.[4]

B. Do Entrepreneurs Save More?

Using information on wealth and income from the cross-section of households in the 1989 Survey of Consumer Finances, Table 1 shows average and median household wealth-income ratios by age, education, income, and entrepreneurial status. Gentry and I use three groups for age: "young" (under age 35), "middle-aged" (between 35 and 54), and "old" (55 or older). We use three education groups: less than high school, high school graduate, and college graduate. We decompose income into quintiles, with five groups in the highest income quintile. Entrepreneurial status is as I defined it above.

Two features of Table 1 are particularly noteworthy. First, for households as a whole, wealth-income ratios generally rise with income, consistent with the findings for various groups of households by Diamond and Hausman (1984), Hubbard (1986), and Dynan, Skinner, and Zeldes (1996). Second, variation in wealth-income ratios is substantial between entrepreneurial and non-entrepreneurial households.

To explore this possibility more closely, Table 2 presents entrepreneurs' share of the population, assets, and net worth. Entrepreneurs have considerably more wealth per capita than nonentrepreneurs. Overall, entrepreneurs account for 8.6 percent of the population and 39 percent of household net worth.[5] For the overall population, the result reflects the fact that entrepreneurs are generally higher in the distribution of wealth and income. However, this concentration of wealth among entrepreneurs holds, albeit to a lesser degree, within income groups.[6] Combined with the information reported in Table 1, this pattern suggests that any explanation of whether or why the "rich" save more must emphasize whether or why business owners save more.

As Table 3 shows further, the results in Table 1 are not driven simply by heterogeneity in household income. Entrepreneurs are absolutely richer both overall and in each income group. Though not shown, mean and median net worth is substantially higher for entrepreneurs than for nonentrepreneurs in each of our three age groups.

Table 4 provides summary information on average and median wealth-income ratios by age groups. For nonentrepreneurs, the average wealth-income ratio is bunched relatively tightly within an age group. In

addition, the median wealth-income ratio rises slightly through the income distribution for each cohort. The differences between the entrepreneur and nonentrepreneur samples suggest that large differences between rich and poor households within an age cohort reflect differences between entrepreneur and nonentrepreneur households. Furthermore, because entrepreneurs typically have higher income than other households, the difference between entrepreneurs and nonentrepreneurs could confound tests ignoring business ownership of whether the rich save more.

If one sorts by education (as a proxy for lifetime income), as in Table 1, the wealth-income ratios of nonentrepreneurs do not differ much by education group. The major difference in average and in median wealth-income ratios is between entrepreneurs and nonentrepreneurs.

Thus far, I have emphasized differences in wealth or wealth-income ratios between entrepreneurial and nonentrepreneurial households over the life cycle. Using the panel of households in the 1983 and 1989 Surveys, one can also focus more directly on "saving," as defined by the change in net worth between the two periods. Specifically, define the saving rate as the change in net worth divided by the average income (1983 and 1989) average, divided by six (the number of years between the two surveys of Consumer Finances). As Table 5A shows, entrepreneurial entrants (those not entrepreneurs in the 1983 survey and becoming an entrepreneur by the 1989 survey) and continuing entrepreneurs (entrepreneurs in both the 1983 and 1989 Surveys) have substantially higher saving rates than nonentrepreneurs.[7] Table 5B documents the fact that entrepreneurial entrants and continuing entrepreneurs have higher wealth-income ratios in both surveys.

Table 6 presents transition probabilities within the distribution of wealth-income ratios for continuing entrepreneurs (Table 6A), entrepreneurial entrants (Table 6B), exiting entrepreneurs (Table 6C) and nonentrepreneurs (Table 6D). Households continuing as entrepreneurs or entering as entrepreneurs are more likely to move up in the overall wealth-income distribution. Moreover, the link between entrepreneurship and wealth-income ratios is not simply driven by unusual changes in current income associated with entry into or maintenance of entrepreneurship. As Tables 7 and 8 show, households continuing as entrepreneurs or entering as entrepreneurs are more likely to move up in both the overall wealth distribution (Table 7) and the overall income distribution (Table 8).

To summarize, entrepreneurs are richer, save more, and are more upwardly mobile than nonentrepreneurs. Variation in wealth-income ratios is greater between entrepreneurial and nonentrepreneurial households than between groups based on age or income.

Going beyond this descriptive information, Gentry and I (1997b) report more systematic empirical tests of whether household wealth-income ratios and saving rates are higher for entrepreneurs, controlling for life-cycle and demographic variables (including age, marital status, educational status, number of children, employment status, home ownership status, and pension participation). Our tests produced two main findings. First, entrepreneurial households have higher wealth-income ratios, even after controlling for these variables. Second, using the panel data, entrants into entrepreneurship and continuing entrepreneurs have substantially higher saving rates than nonentrepreneurs, even after controlling for other determinants of saving. In addition, based on the wealth transitions reported earlier in Table 8, this pattern does not appear to reflect just changes in income upon entry into business ownership.

C. Do Entrepreneurs Allocate Their Wealth Differently?

If capital markets facing business owners were perfect, choosing to be a business owner need not have a significant impact on portfolio allocation. Business owners could own a small share of their active business, selling off claims to others and using the proceeds for portfolio diversification. In fact, entrepreneurs' assets are held disproportionately in their active businesses, as Table 9 shows, and portfolio shares for liquid assets, stocks, and bonds are significantly lower for entrepreneurs than for nonentrepreneurs. Indeed, these differences remain (though they are smaller) if one uses entrepreneurs' portfolio shares in nonbusiness wealth in the comparison.

To summarize, empirical analyses of household wealth-income ratios and saving rates suggest that entrepreneurs save more and have more wealth. In addition, entrepreneurs generally hold quite undiversified portfolios, heavily weighted toward their active business assets. As I noted at the outset, costly external financing for entrepreneurs offers one explanation for these patterns in saving rates and portfolio allocation. I now turn to a more precise discussion of this channel and then to a dis-

cussion of how it affects analysis of effects of tax policy on entrepreneurs' saving and investment decisions.

III. COSTLY EXTERNAL FINANCING AND ENTREPRENEURIAL SAVING AND INVESTMENT

A substantial body of research by economists has analyzed the importance of "financing constraints" on the timing and level of capital investment by corporations (see, for example, the review of studies in Hubbard 1998). These studies emphasize that, to the extent that information and incentive problems in capital markets raise the cost of external financing relative to the internal financing, changes in internally generated funds can influence investment, even after controlling for measures of underlying investment opportunities. Moreover, the anticipation of future financing constraints can lead firms to accumulate retained earnings in liquid assets to finance future investments.

Interestingly, while most empirical studies have focused on the investment decisions of relatively large firms, the decisions of entrepreneurial ventures actually correspond more closely to underlying theories. Entrepreneurial ventures offer a least three sets of decisions which could be affected by costly external financing:(1) entry into (or exit from) entrepreneurship, (2) the choice of technology (that is, labor-intensive versus capital-intensive), and (3) the level of investment. Just as related decisions for large businesses can be influenced by the availability of internal funds, the "saving" and "investment" decisions of entrepreneurs are likely to be closely linked.

A. Entry

First, past saving decisions are likely to affect entry into entrepreneurship. Models of entrepreneurial selection generally focus on the individual's decisions about whether to work for someone else for wage income or for himself or herself as and entrepreneur (see, for example, Evans and Jovanovic 1989). Under perfect capital markets, an individual's wealth is irrelevant: The individual would enter entrepreneurship if expected entrepreneurial earnings exceed expected wage income. Costly external financing distorts the entry decision for potential entrepreneurs with low net worth. Holding entrepreneurial ability constant, entrepreneurial earnings depend on capital invested. When external financing is costly relative to internal financing, both the probability of entry and the capital stock increase with initial assets (see Gentry and Hubbard 1997b).

An empirical question arises: Given that a household is nonentrepreneurial in one period, do initial assets influence the probability of becoming an entrepreneur by the next period, after controlling for household characteristics and work experience? The answer appears to be "yes." Using the Survey of Consumer Finances data described earlier, Gentry and I (1997b) show that higher initial assets raise the probability of entry into entrepreneurship, except for very high levels of initial assets. Such a pattern is consistent both with an "entrepreneurial ability" story (in which variation in entrepreneurial ability among households not seen by the researcher is correlated with initial assets) and with a "costly external financing" interpretation. Support for a role for costly external financing is provided by the heavy internal financing of businesses (as indicated by the less diversified portfolios) and the relatively high saving rates for entrepreneurial entrants prior to entering.

B. Investment by Continuing Entrepreneurs

What about the decisions of continuing entrepreneurs? Under perfect capital markets, nonbusiness asset holdings should not affect business investment decisions. Using the Survey of Consumer Finances data, however, Gentry and I find that household's level of nonbusiness assets is positively associated with its active business investment, even after controlling for household characteristics and a proxy for the cost of capital. Moreover, Evans and Jovanovic (1989), Holtz-Eakin, Joulfaian, and Rosen (1994), and Gentry and Hubbard (1997b) find that a household's nonbusiness assets affect the growth of its business income, a finding inconsistent with perfect capital markets for entrepreneurs. Finally, Holtz-Eakin, Joulfaian, and Rosen (1994) and Gentry and Hubbard (1997b) find that the probability of continuing as an entrepreneur is positively related to nonbusiness asset holdings.

These results suggest strongly that entrepreneurial saving and investment decisions are not independent. To the extent that entrepreneurs expect higher returns on funds invested in active businesses than on financial assets, they have an incentive to invest their assets in their

business and, if their achievable capital investment is less than the desired capital stock, increase their saving to finance business investment.[8] This connection suggests that a reasonable analysis of effects of tax policy on entrepreneurs must go beyond the textbook perfect capital market stories.

IV. TAX POLICY TOWARD ENTREPRENEURIAL SAVING AND INVESTMENT

Tax policymakers are frequently concerned with analysis of taxing the "rich"—again, in large part because that is where the money is. According to the Tax Foundation (1996), the top one percent of taxpayers classified by adjusted gross income paid individual income taxes of $152.7 billion, for an average tax burden of 27.9 percent of total gross income. (This figure does not include payments of corporate income tax, estate and gift taxes, or sales and property taxes.)

Modern analysis of optimal income tax policy focuses on the tradeoff between redistributive and incentive consequences of higher marginal income tax rates; envy is generally excluded as a basis of tax policy. In his pioneering article, Nobel laureate James Mirrlees (1971) concluded that the optimal income tax structure is roughly linear with a low marginal tax rate. Stern (1976) questioned the high labor supply response assumed by Mirrlees and estimated a higher desired value of the marginal tax rate. In the case of entrepreneurs, one must also consider entry decisions, which may be quite responsive to taxation.

More practically speaking, changes in tax policy can have particularly significant effects on entrepreneurs' decisions. Below, I evaluate three such shifts in policy: (1) changes in marginal income tax rates, (2) changes in the capital gains tax rate, and (3) fundamental tax reform.

A. Changes in Marginal Income Tax Rates

Reductions in marginal income tax rates would likely provide a substantial stimulus to entrepreneurial activity and investment. First, reducing progressivity at the top of the earnings distribution makes it more likely that individuals with high entrepreneurial ability will become entrepreneurs, as opposed to working for someone else. This is both because entrepreneurial earnings are more variable than earnings from employment and because successful entrepreneurs are more likely to face the highest marginal tax rates. From the perspective of the would-be entrepreneur, the extent of progressivity (measured by slope of the tax schedule) is a determinant of the decision of whether to become an entrepreneur or to work for someone else.

Second, lower marginal tax rates increase the after-tax value of entrepreneurial earnings. To the extent that entrepreneurs face "financing constraints," the greater after-tax earnings increases the pool of internal funds for reinvestment in the business. Hence, lower marginal income tax rates offer a potent stimulus for capital investment in entrepreneurial businesses.

These effects of lower marginal tax rates on entrepreneurs' decisions are much larger than those measured by conventional analyses of effects of tax policy on "labor supply" and "investment." Traditionally, specialists in labor economics and public finance focus on "hours worked" as a measure of labor supply. Using this definition, losses in economic well-being from progressive labor income taxation are generally estimated to be modest for men (whose hours worked tend to be relatively insensitive to changes in marginal tax rates) and greater for married women. Recently, Feldstein (1995) has argued for shifting the focus to income, in order to measure effects of tax distortions on job selection, effort, amenities, and so on; he estimates much larger losses in economic well-being from high marginal income tax rates. For entrepreneurs, high marginal income tax rates can significantly reduce entrepreneurial entry and continuation, suggesting much larger losses in economic well-being from high marginal tax rates than those obtained by focusing solely on the decisions of employees.

In addition, effects of tax policy on investment by entrepreneurs are likely to be large. Traditional analysis of tax policy on investment stresses effects of income taxes on the marginal return to investing. That is, a reduction in marginal income tax rates, all else being equal, raises the marginal return to investing, and increases business investment (see, for example, the review of evidence in Hassett and Hubbard 1997). To the extent that entrepreneurs face costly external financing, an additional tax effect emerges; lower marginal tax rates increase internal funds and the ability to finance investment. Recent evidence for corporations suggests that this extra stimulus to investment from lower marginal income tax rates can be substantial (see, for example, the review in Hubbard 1998).

B. Changes in the Capital Gains Tax Rate

As with the case of a reduction in marginal income tax rates, a reduction in the tax rate on capital gains would likely affect entrepreneurs more than nonentrepreneurs. First, a lower capital gains tax rate can, in principle, stimulate both entrepreneurial participation and entrepreneurial investment. Second, a lower capital gains tax rate reduces the "lock-in" effect of capital gains taxation on entrepreneurial ventures. Third, a lower capital gains tax rate can increase the supply of funds for entrepreneurial ventures from taxable investors (angels or venture capitalists, for example).

Focusing on entrepreneurial business assets as opposed to passive asset holdings represented by employees' saving suggests greater potential gains from capital gains tax reductions than indicated by conventional empirical analysis. This difference partially reflects the first two channels discussed above. The effect of capital gains taxation on entry into and exit from entrepreneurial ventures is ignored in conventional measures of losses in economic well-being from capital income taxation. In addition, lock-in effects are more costly for entrepreneurs for two reasons. First, selling entrepreneurial businesses is often an "all or nothing" decision–that is, the choice is often to sell the entire business as opposed to a small fraction (as, for example, with the sale of a portion of a passive stock portfolio).[9] Second, lock-in makes it costly for entrepreneurs to exploit business development skills by selling one business and starting another.

C. Fundamental Tax Reform

Many commentators have argued that fundamental income or consumption tax reform offers the greatest potential for tax policy to stimulate entrepreneurial saving and investment. As I show below, the truth in this argument can principally be traced to reductions in income tax rates and capital gains tax rates.

Before discussing particular proposals for fundamentals tax reform, let me fix ideas by defining fundamental tax reform as representing tax proposals with the following characteristics:[10]

a. a combination of a business-level tax (with either business cash flow or business income as the tax base) and a household wage tax;

b. economic depreciation under an income tax version of reform and deduction of capital expenditures (expensing) under a consumption tax version of reform;
c. no tax distinction between debt and equity financing;
d. lower marginal tax rates with a single marginal tax rate across business entities and households (though the household tax could incorporate a personal or family exemption).

With these characteristics in mind, one can examine broad proposals for fundamental income tax reform and consumption tax reform.

Beyond reducing marginal tax rates, a critical element of fundamental reform of the income tax is the integration of the corporate and the personal income tax systems. In principle, integrating the systems would eliminate two distortions from the current tax system. First, integration would eliminate the distinction between corporate and noncorporate businesses by abolishing the double taxation of corporate income. Second, this reform would remove the differential taxation of debt and equity financing. Whether the actual tax reform process would deliver these benefits depends on the details of the new tax system, of course.

The U.S. Treasury Department's recent study of corporate tax integration (see U.S. Department of the Treasury 1992; and Hubbard 1993) presents several alternative approaches to integrating the individual and corporate tax systems . Rather than repeat this discussion of the various proposals, I outline a stylized version of one proposal, the Comprehensive Business Income Tax (CBIT). The objective of CBIT is to tax business income once. Essentially, CBIT is a wage tax and a business-level tax on the return to capital of businesses. Broadly speaking, the business-level tax base under CBIT is revenue from the sale of goods or real assets less wages, material costs, and depreciation allowances for capital investments. CBIT does not distinguish whether investment is financed by debt or equity. That is, relative to the current tax system, CBIT would not allow businesses to deduct interest payments from their tax base. Because CBIT taxes business income at the entity level, there is no need for investor-level taxes on capital gains, interest, or dividends received.

CBIT can be thought of as the capital income tax component of a broad-based income tax that collects tax from labor income through a household-level wage tax. I assume, for simplicity, that the marginal tax rate in CBIT is the same as the marginal wage tax rate. With this

assumption, capital and labor income face the same tax rate.[11] In addition, capital income from different types of assets faces a common tax rate irrespective of whether it is financed by debt or by equity.

Converting CBIT into a consumption tax turns out to be relatively straightforward. Instead of measuring business income through depreciation allowances, a consumption tax version of CBIT would allow businesses a deduction for capital investments when assets are purchased. This adjustment converts the combination of CBIT and a wage tax into the Flat Tax proposed by Hall and Rabushka (1983, 1995). It is for that reason that I use the Flat Tax as the illustrative model of a consumption tax here.[12,13] This focus on expensing as the central difference between CBIT and the Flat Tax reflects my emphasis here on the effects of tax reform on entrepreneurial business decisions.

Having described CBIT and the Flat Tax in this way, it is straightforward to see that the Flat Tax does not exempt all of what is commonly called capital income (see also Hubbard 1997). Under the business cash flow tax component of the Flat Tax, the present value of depreciation allowances for one dollar of current investment is one dollar, while the present value is less than one dollar under the income tax. Under some circumstances, the tax savings from depreciation allowances represent risk-free cash flows,[14] which the firm would discount at the risk-free rate of interest. For a "marginal investment" – that is, one for which the expected rate of return just equals the firm's discount rate–the up-front subsidy to investment provided by expensing equals the expected future tax payments. It is in this sense that the "return to capital" is not taxed under a cash flow tax or a consumption tax.

What about investments yielding higher returns? That is, in addition to marginal projects, it is reasonable to suppose that entrepreneurs have access to investments with economic rents associated with returns to ideas, managerial skill, or market power. In this case, what is taxed are rates of cash flow in excess of the firm's discount rate for depreciation allowances. Cash flows representing economic rents are taxed equivalently under the broad-based income tax and the cash flow tax (or consumption tax). For entrepreneurial projects with economic rents, only the return representing the risk-free rate is untaxed under the cash flow tax or consumption tax.

What about risky investments? Risky investments have a higher required rate of return than risk-free investments reflecting a risk premium to compensate savers for bearing risk. Whether either tax system

levies a tax on the risk premium depends on how one defines a "tax." If a tax is defined as an increase in expected government revenue, then both the income tax and the cash flow tax include the risk premium. If, in contrast, a tax is an increase in the discounted present value of government revenue, then neither tax system includes the risk premium. In either case, the central point is that the stylized income tax and consumption tax treat the return to risk-taking similarly.

To summarize, what is often called the "return to capital" for entrepreneurs and other businesses can be thought of as the sum of the risk-free (or "opportunity cost") return, economic rents, and the returns to risk-taking. In contrast to the base of the consumption tax, the income tax includes the opportunity cost of capital, which is the rate of return on a marginal risk-free investment project.

From the perspective of entrepreneurs, three implications emerge from this discussion of fundamental tax reform. First, the tax base of a broad-based income tax and the tax base of a broad-based consumption tax are not much different for successful business owners (that is, those with economic rents). While the consumption tax does not tax the risk-free return to capital, that return is small for successful entrepreneurs relative to their economic profits, which remain effectively fully taxed. (As I have argued elsewhere (Hubbard 1997; Gentry and Hubbard 1997a), this also implies that adverse distributional consequences of consumption tax reform are generally overstated.) Second, the greater benefit for entrepreneurs from fundamental tax reform comes from reductions in marginal income tax rates and in the capital gains tax rate. Third, tax reform's removal of capital structure distortions may impose costs on currently leveraged business owners to the extent that market interest rates do not fall by the tax wedge (see the discussion in Gentry and Hubbard 1998).

V. CONCLUSION

Studies of household saving decisions have paid relatively little attention to the role of entrepreneurial decisions in wealth accumulation. This paper highlights three empirical findings about the role of entrepreneurial decisions. First, entrepreneurial households own a substantial share of household wealth and income, and this share increases throughout the wealth and income distribution. Second, the portfolios of entrepreneurial households, even wealthy ones, are very undiversified, with

the bulk of assets held within active businesses. Third, wealth-income ratios and saving rates are higher for entrepreneurial households even after controlling for age and other household characteristics.

One consistent explanation of these findings is that costly external financing for entrepreneurial investments (coupled with potentially high returns on those investments) raises saving by continuing and entering entrepreneurs, all else being equal. This explanation is similar in spirit to the analysis of effects of "costly external financing" on investment by corporations. The conclusion that entrepreneurial saving and investment decisions are interdependent has potentially significant implications for analysis of effects of tax policy on business owners. In particular, entrepreneurial decisions are likely to be substantially more affected by changes in marginal income tax rates and capital gains tax rates than other decisions. In addition, the importance of entrepreneurship in explaining wealth mobility (and arguably, then, social mobility) raises the question of whether public policies toward entrepreneurship and entrepreneurial investment might influence mobility.

Table 1. Wealth-Income Ratios, By Age, By Income, and Entrepreneurial Status

	Average W/Y			*Median W/Y*		
	All	*Entrepreneurs*	*Nonentrepreneur*	*All*	*Entrepreneurs*	*Nonentrepreneur*
Overall:	4.6	8.1	3.6	1.8	6.0	1.5
By Age:						
Young	1.8	6.5	1.2	0.4	4.3	0.3
Middle	3.8	6.6	2.9	1.8	5.8	1.4
Old	7.6	11.0	6.5	4.4	11.2	4.1
By Education:						
Low	3.9	11.8	3.2	1.6	7.5	1.5
Middle	4.1	8.8	3.1	1.5	5.7	1.2
High	5.4	7.5	4.4	2.5	6.0	2.2
By Income:						
1st Quintile	4.5	47.1*	4.2	0.4	14.7*	0.4
2nd Quintile	4.3	15.4	3.7	1.5	10.1	1.3
3rd Quintile	3.8	11.8	3.1	1.6	5.9	1.4
4th Quintile	3.4	9.4	2.6	1.6	4.9	1.4
9th Decile	3.7	7.3	3.1	2.4	5.0	2.1
90 - 95	4.8	8.3	4.1	2.9	7.6	2.5
95 - 99	6.3	10.2	4.8	3.7	5.9	3.3
99 - 100	6.1	9.2	5.3	4.5	4.7	4.4

Source: Gentry and Hubbard (1997b).

Table 2. Concentration of Population, Assets and Net Worth, By Income

	Entrepreneurs' Percentage of:		
	Population	*Assets*	*Net Worth*
Overall	8.6	37.7	39.0
Income Quintile:			
Bottom	0.9	6.0	6.3
Second	4.9	17.8	18.3
Third	7.3	22.4	23.9
Fourth	11.2	28.1	30.9
80 - 90	13.4	25.2	26.5
90 - 95	16.9	30.0	29.4
95 - 99	26.7	43.9	44.7
99 - 100	56.3	68.6	68.0

Source: Gentry and Hubbard (1997b).

Table 3. Average and Median Net Worth of Entrepreneurial Status, By Income (Dollars)

	Entrepreneurs		*Nonentrepreneurs*	
	Average	*Median*	*Average*	*Median*
Overall	854800	307000	126228	38250
Income Group:				
Bottom Quintile	186341	53060	25834	2170
2nd Quintile	236805	141500	54851	19850
3rd Quintile	321465	151430	80325	36700
4th Quintile	384543	198800	108698	57352
80 - 90	437828	306449	188716	131500
90 - 95	738285	767000	361625	207160
95 - 99	1600083	970500	723126	429500
99 - 100	5164994	2713000	3130220	1685300

Source: Gentry and Hubbard (1997b).

Table 4. Wealth-Income Ratios, By Age, Income Quintile, and Entrepreneurial Status

	Average W/Y		Median W/Y	
	Entrepreneurs	Nonentre-preneur	Entrepreneurs	Nonentre-preneur
35 or younger				
Bottom Quintile	44.3*	0.8	5.5*	0.01
2nd Quintile	3.8*	0.9	4.2*	0.2
3rd Quintile	15.7*	0.6	4.3*	0.4
4th Quintile	6.3	1.6	3.5	0.4
9th Decile	6.3*	1.1	6.2*	0.7
90 - 95	7.7*	1.4	7.4*	1.1
95 - 99	4.5*	1.6	4.0*	1.6
99 - 100	2.8	1.6	1.2	1.8
36 - 54				
Bottom Quintile	13.7	2.5	10.5	0.4
2nd Quintile	7.2	2.2	5.0	1.2
3rd Quintile	7.1	2.2	4.6	1.4
4th Quintile	7.1	2.3	5.0	1.6
9th Decile	7.9	2.9	7.9	2.4
90 - 95	6.6	3.8	6.6	3.0
95 - 99	7.0	3.7	4.3	2.4
99 - 100	5.8	4.6	6.1	3.1
55 or older				
Bottom Quint	45.8*	6.3	31.0*	1.4
2nd Quintile	29.4*	6.5	18.8*	4.3
3rd Quintile	20.4	6.7	9.4	4.9
4th Quintile	21.2	6.0	18.1	4.4
9th Decile	13.4	5.8	10.9	4.3
90 - 95	12.8	7.6	10.7	6.7
95 - 99	17.5	7.7	11.9	6.3
99 - 100	6.8	5.7	6.7	4.3

Note: * denotes cells with fewer than 10 households.
Source: Gentry and Hubbard (1997b).

Table 5A. Median Saving-Income Ratio for 1983 to 1989, By Entrepreneurial Behavior

	Stay In	Enter	Exit	Stay Out	Overall
Overall S/Y	0.165	0.361	-0.483	0.042	0.045
Overall S	9,998	13,547	-20,976	4,671	1,245
Overall Y	61,666	42,001	46,455	24,727	27,619
Median S/Y, By age in 1986					
Young	0.219*	0.387	0.0679*	0.0617	0.072
Middle	0.153	0.358	-0.558	0.0600	0.062
Old	0.244	0.487	-0.431	0.0060	0.0035
Median S/Y, By income in 1982					
1st quintile	-0.622*	1.34*	-1.79*	0.0041	0.0034
2nd quintile	-0.167*	0.128*	-1.88*	0.0203	0.020
3rd quintile	0.352*	0.209	-0.429	0.0664	0.069
4th quintile	0.156	0.387	-0.692	0.103	0.102
9th decile	0.191	0.450	0.0692*	0.0938	0.126
10th decile	0.257	0.454	-0.475	0.113	0.113
Median S/Y, By wealth in 1982					
1st quintile	0.357*	0.423*	n/a*	0.0336	0.0341
2nd quintile	n/a*	0.344	n/a*	0.0609	0.0718
3rd quintile	0.257*	0.445*	-0.0294*	0.0347	0.0445
4th quintile	0.144	0.439	0.0679	0.0953	0.118
9th decile	0.165	-0.182	-0.510	-0.00033	-0.0086
10th decile	0.212	0.407	-0.815	-0.196	-0.330

Notes: Income is measured as the average income (in 1988 dollars) using household income from 1982 and 1988. Saving is measured as the change in the real value of wealth over the six-year period divided by six.
* denotes cells with fewer than 10 households.
Source: Gentry and Hubbard (1997b).

Table 5B. Wealth-Income Ratios in 1982 and 1988, By Entrepreneurial Status

	Wealth-Income Ratio in 1982		Wealth-Income Ratio in 1988	
	Average	Median	Average	Median
Stay in	9.01	6.11	11.40	7.91
Enter	3.87	2.50	7.26	3.95
Exit	8.40	6.45	6.43	3.98
Stay out	2.87	1.30	3.56	1.72

Note: Averages are the ratio of average wealth to average income for the group.
Source: Gentry and Hubbard (1997b).

Table 6A. Wealth-Income Ratio Transition Probability Matrix, Households that Remain Entrepreneurs

Wealth-Income Ratio Quintile in 1982:	Wealth-Income Ratio Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	0.0	0.0	0.0	1.83	0.0
2nd	0.0	1.73	0.06	0.0	4.82
3rd	0.0	1.36	3.68	1.92	5.48
4th	0.0	1.23	5.69	5.94	7.05
Top	0.0	0.35	2.13	14.99	41.75

Table 6B. Wealth-Income Ratio Transition Probability Matrix, Households that Enter Entrepreneurship

Wealth-Income Ratio Quintile in 1982:	Wealth-Income Ratio Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	0.0	0.44	2.26	1.62	0.0
2nd	0.79	13.75	1.09	2.97	9.77
3rd	0.0	0.0	3.53	4.03	6.04
4th	0.0	2.58	3.91	12.84	11.41
Top	0.0	0.0	7.05	7.19	8.74

Table 6C. Wealth-Income Ratio Transition Probability Matrix, Households that Exit Entrepreneurship

Wealth-Income Ratio Quintile in 1982:	Wealth-Income Ratio Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	0.0	0.0	0.0	0.0	0.0
2nd	0.0	0.58	0.48	0.0	0.01
3rd	0.32	4.03	4.13	2.07	1.98
4th	1.05	7.70	10.66	5.91	7.06
Top	1.09	2.40	11.84	14.21	24.48

Table 6D. Wealth-Income Ratio Transition Probability Matrix, Nonentrepreneurial Households

Wealth-Income Ratio Quintile in 1982:	Wealth-Income Ratio Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	13.82	6.90	1.17	1.01	0.24
2nd	6.42	7.09	5.88	1.44	0.45
3rd	2.34	4.97	6.67	5.38	1.85
4th	0.68	1.23	4.86	7.28	4.61
Top	0.19	0.99	1.54	3.99	8.99

Note: Entries in each panel of the table sum to 100 percent.
Source: Gentry and Hubbard (1997b).

Table 7A. Wealth Transition Probability Matrix, Households that Remain Entrepreneurs

Wealth Quintile in 1982:	Wealth Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	0.0	1.83	0.0	0.0	0.0
2nd	0.0	0.0	0.0	0.0	0.0
3rd	0.0	1.73	0.65	3.22	0.27
4th	0.0	0.7	2.37	10.67	4.70
Top	0.0	1.23	0.0	11.25	61.38

Table 7B. Wealth Transition Probability Matrix, Households that Enter Entrepreneurship

Wealth Quintile in 1982:	Wealth Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	0.0	0.0	0.0	1.58	0.0
2nd	0.40	6.53	12.96	2.85	8.52
3rd	0.0	0.82	2.06	3.47	3.94
4th	0.0	1.78	1.13	4.54	16.12
Top	0.0	0.0	0.0	12.02	21.30

Table 7C. Wealth Transition Probability Matrix, Households that Exit Entrepreneurship

Wealth Quintile in 1982:	Wealth Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	0.0	0.0	0.0	0.0	0.0
2nd	0.0	0.0	0.0	0.0	0.0
3rd	0.0	2.68	4.06	1.18	0.0
4th	0.0	1.13	4.43	6.80	4.19
Top	1.09	2.76	13.54	27.66	30.46

Table 7D. Wealth Transition Probability Matrix, Households that Stay out of Entrepreneurship

Wealth Quintile in 1982:	Wealth Quintile in 1988				
	Bottom	2nd	3rd	4th	Top
Bottom	13.80	7.20	1.50	0.77	0.08
2nd	6.90	7.44	5.37	1.03	0.72
3rd	2.20	6.14	8.45	3.52	1.77
4th	0.39	0.88	4.43	9.78	4.57
Top	0.09	0.56	1.27	3.49	7.66

Note: Entries in each panel sum to 100 percent.
Source: Gentry and Hubbard (1997b).

Table 8A. Income Transition Probability Matrix, Households that Remain Entrepreneurs

Income Quintile in 1982:	Income Quintile in 1988				
	Bottom	*2nd*	*3rd*	*4th*	*Top*
Bottom	0.0	0.89	0.0	0.0	0.09
2nd	0.61	4.47	1.62	0.38	0.0
3rd	1.22	3.80	2.67	4.58	0.86
4th	0.0	2.06	4.83	10.81	7.29
Top	0.0	8.59	1.00	6.31	37.93

Table 8B. Income Transition Probability Matrix, Households that Enter Entrepreneurship

Income Quintile in 1982:	Income Quintile in 1988				
	Bottom	*2nd*	*3rd*	*4th*	*Top*
Bottom	1.22	0.43	0.00	0.78	0.63
2nd	1.68	3.60	6.89	0.39	0.58
3rd	0.0	2.43	7.73	7.63	4.54
4th	0.0	1.23	6.12	19.43	10.61
Top	0.07	0.0	1.86	2.83	19.33

Table 8C. Income Transition Probability Matrix, Households that Exit Entrepreneurship

Income Quintile in 1982:	Income Quintile in 1988				
	Bottom	*2nd*	*3rd*	*4th*	*Top*
Bottom	0.0	3.46	5.89	0.0	0.48
2nd	1.01	2.34.	1.52	0.65	0.00
3rd	2.60	1.41	5.31	4.91	5.72
4th	0.00	3.82	6.12	5.12	10.09
Top	1.20	0.96	1.89	16.54	18.94

Table 8D. Income Transition Probability Matrix, Households that Remain Nonentrepreneurial

Income Quintile in 1982:	Income Quintile in 1988				
	Bottom	*2nd*	*3rd*	*4th*	*Top*
Bottom	13.19	4.70	4.23	0.55	0.13
2nd	5.89	8.74	4.14	2.69	0.56
3rd	2.38	4.77	6.45	4.96	1.51
4th	0.79	1.90	4.52	6.20	4.91
Top	0.76	1.25	0.87	4.31	9.60

Note: Entries in each panel sum to 100 percent.
Source: Gentry and Hubbard (1997b).

Table 9. Portfolio Allocation of Entrepreneurs and Nonentrepreneurs, 1989

	Entrepreneurs				*Nonentrepreneurs*		
Asset:	*% with Asset*	*Conditional Median*	*Portfolio Share*	*Portfolio Share**	*% with Asset*	*Conditional Median*	*Portfolio Share*
Liquid	98.2	8000	5.2	8.8	84.3	2880	10.5
Bonds	40.7	1000	2.2	3.7	27.4	1000	5.2
Equity	32.9	14000	3.3	5.7	17.7	8000	6.3
Retirement	52.0	18000	3.1	5.3	34.0	10000	6.7
Other Fin.	63.8	10000	3.1	5.2	44.0	3000	6.1
Home	85.0	85000	12.6	21.5	61.9	70000	41.1
Real Estate	42.7	100000	17.7	30.2	18.1	40000	15.1
Act Bus	100.0	107000	41.5	N/A	1.4	2000	0.01
Pass Bus	36.4	40000	7.4	12.6	2.1	15000	1.7
Other Non-financial	96.0	16000	4.1	6.9	83.4	7000	7.3
Mortgage	59.7	43000	3.8	6.4	37.5	32000	10.8
Other Debt	79.3	15000	8.1	13.8	65.4	5000	6.3
All Debt	87.0	56000	11.9	20.3	71.2	14000	17.1
Mortgage to Value		0.48	30.1	N/A		0.41	26.2

Note: The second portfolio share column for entrepreneurs excludes the value of active business assets in total assets in order to measure the allocation of non-business assets.
Source: Gentry and Hubbard (1997b).

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NOTES

1. In that discussion and analysis, I draw heavily on Gentry and Hubbard (1997b).

2. The notion that entrepreneurial shares in income and wealth outweigh entrepreneurs' proportion in the population is not new (see, for example, Klein, Straus, and Vendome 1956; Friend and Kravis 1957; Klein 1960). Friedman (1957) also highlights a role for economic rents in entrepreneurial investment decisions, arguing that business owners may obtain a higher rate of return from their own business than from the capital market.

3. The choice of any precise figure is somewhat arbitrary. The data description and empirical results which follow do not differ qualitatively if one uses a cutoff value of $1,000 instead of $5,000.

4. The more recent (1992 or 1995) surveys of Consumer Finances because those surveys did not collect data on assets invested in active bu sinesses. Other definitions and datasets are possible, of course. Gentry and I (1997b) did not use reported "self-employment" status in the Survey of Consumer Finances because we did not know whether such households had made active business investments. Alternatively, one could use Schedule C filings for federal income tax purposes as an indicator of business ownership (as in Holtz-Eakin, Joulfaian, and Rosen 1994). Such data have clear strengths, including rich longitudinal information and (presumably) minimal reporting error. We did not use these data because: (1) Schedule C status does not necessarily mesh well with our definition of business ownership; (2) tax return data contain little information related to wealth; and (3) shifts in organizational form for tax purposes (that is, between unincorporated and incorporated businesses) may spuriously change the entrepreneurial status of households. Finally, we chose to use Survey of Consumer Finances instead of the Panel Study of Income Dynamics because the former oversampled higher-income households.

5. For the lowest income group and for the overall calculation, our definition's requiring business assets of at least $5,000 creates some concentration of assets among entrepreneurs because some households have less than $5,000 in total assets and do not satisfy our definition of being an "entrepreneur."

6. Using current income to rank households raises the issue of transitory income for entrepreneurs. The entrepreneurs in the bottom income quintile may have temporarily low income (e.g., a startup company), but have high permanent income. It is worth noting, however, that in the top quintile, the 20 percent of the population that is entrepreneurs owns about half the wealth.

7. One possible explanation for a difference in saving rates between entrepreneurs and nonentrepreneurs is that some nonentrepreneurs may be covered by defined-benefit pension plans, while entrepreneurs must save for their retirement in their personal assets. The differences in saving rates documented in Table 5A are quite large, however, relative to reasonable estimates of contribution rates for pensions.

8. There are many potential explanations linking business ownership and greater household accumulation. Financing constraints on capital investment by entrepreneurs offers perhaps the most consistent explanation of observed heterogeneity in wealth accumulation and in portfolio allocation between entrepreneurs and nonentrepreneurs. Other explanations are considered by Gentry and Hubbard (1997b).

9. Gentry and I (1997b) argue that this capital-gains-tax-induced lock-in effect for entrepreneurs may be one explanation for observed slow rates of dissaving in old age by business households.

10. In so doing, I am putting aside for simplicity some proposals for tax reform including a national retail sales tax (for a description of alternative proposals, see Gentry and Hubbard 1997a).

11. If household and business tax rates differ, then tax-planning opportunities arise from recharacterizing income as wage or capital income. This form of tax planning is especially relevant for closely held businesses, which have more leeway for substituting a lightly taxed form of income for a more heavily taxed form of income. This type of tax planning is probably less relevant for publicly held corporations; however, it could create some forms of tax arbitrage for financial intermediaries.

12. In the aggregate, the tax base under the Flat Tax is a measure of consumption because sales between businesses induce offsetting inclusions and deductions for the seller and the buyer: The seller's tax base increases by the purchase price, but the buyer's tax base decreases by the purchase price. If the buyer and seller face the same tax rate, then the transaction generates no revenue for the government. For business sales to households, in contrast, the aggregate tax base increases by the value of the sale.

13. Related issues arise in the discussion of other tax reform proposals (see, for example, Gentry and Hubbard 1997a, 1998).

14. Here I am abstracting asymmetries created by imperfect tax-loss offsets.

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