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Being Able to Keep Your Money Matters: How Tax Policy and Limited Liability Laws Affect Entrepreneurship

Tianning Li
Hood College

Abstract
Entrepreneurs' outside wealth is positively related to their firm-level financial leverage. Entrepreneurs have more incentive to use financial leverage when they can accumulate wealth and not risk their personal assets when seeking business loans. My results indicate that wealth tax cuts on entrepreneurs will encourage self-employment and give entrepreneurs the ability to use more financial leverage.

JEL Codes: G32, G38, L26
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I. Introduction

Small businesses play a vital role in the economy. According to Kobe (2007), small firms account for approximately 50 percent of nonfarm real GDP and 50 percent of the job growth in the period from 1998 to 2004. Most small businesses owners pay personal income taxes on their profits rather than corporate taxes. As of May 2013, four years since the economic "recovery" began in June 2009, the national unemployment rate has remained high, in the mid-7 percent range. Many economists suggest tax cuts and less regulation as policies to boost economic growth and create jobs. In addition to calling for cuts in corporate income taxes, a growing number of proposals have been calling for cuts in personal income taxes.

Certain authors have found that higher income tax rates (federal and state) have either little or positive effects on self-employment (Long 1982; Blau 1987; Parker 1996; Cowling and Mitchell 1997; Robson 1998; Bruce and Deskins 2010). Opponents of tax cuts therefore use these findings to argue against any types of tax cut. Evidence suggests, however, that property, inheritance, and gift tax cuts can help entrepreneurship (Bartick 1989; Kreft and Sobel 2003; Bruce and Deskins 2012). Wealth is an important factor responsible

for self-employment. Therefore, by reducing wealth taxes, entrepreneurs will feel more financially secure and have more incentives to invest. Income tax cuts should help wealth accumulation.

This paper contributes to the literature by studying the effect of business owners' outside wealth on their usage of financial leverage. It shows that entrepreneurs with limited liability protection tend to use more financial leverage because they have more wealth outside of their firms. This result remains unchanged after adjusting the measure of outside wealth by the amount of loans that owners obtain by using personal guarantees or out-of-firm personal assets as collateral. I find that economic freedom matters for small business. Specially, I find that property tax cuts, inheritance tax cuts, and limited liability allow small business owners to finance more projects.

II. Literature Review

Robson (1998) examines the determinants of the increase in self-employment in the United Kingdom and finds that rises in personal sector liquid wealth and housing wealth have significant effects on the growth of self-employment. Therefore, it seems logical that tax cuts, which are positive to wealth accumulation, should encourage entrepreneurship.

However, extant literature seemingly does not support proposals for using income tax cuts to encourage self-employment.[1] On one hand, one explanation of these findings is that potential entrepreneurs have less incentive to move out of wages jobs and avoid income taxes when these taxes are reduced. This offsets the positive effects of wealth accumulation on self-employment due to income tax cuts. On the other hand, research also finds that self-employment can be encouraged by wealth tax cuts.[2]

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[1] Some researchers have found that self-employment is positively related to federal income or payroll tax rates (Long 1982; Blau 1987; Parker 1996; Cowling and Mitchell 1997; Robson 1998), which supports the tax avoidance hypothesis. Georgellis and Wall (2006) find a U-shaped relationship between marginal individual income tax rates (federal plus state) and the proportion of working-age population as nonfarm proprietors. Bruce and Deskins (2012) suggest that state income taxes generally have no significant effects on entrepreneurial activities.

[2] Bartick (1989) suggests that property taxes are negatively related to small business start-ups. Kreft and Sobel (2003) show that growth rates in the number of sole proprietors are negatively related to the existence of inheritance taxes levied by states beyond the federal rate. Bruce and Deskins (2010) also find that the existence of a state-level estate, inheritance, or gift tax reduces a state's share of the national

III. Data

I use data from the Survey of Small Business Finances 2003 (SSBF 2003) conducted by the Board of Governors of the Federal Reserve System on businesses with fewer than 500 employees.[3] My main analysis excludes firms with unlimited liability because there is no clear distinction between entrepreneurs' firm wealth and out-of-firm wealth without the protection of limited liability. Section V studies a sample that includes these unlimited liability firms and show that limited liability is an important factor that determines the relationship between outside wealth and financial leverage.

IV. Methodology

I hypothesize that entrepreneurs with more outside wealth use more leverage because they can absorb more risk of losing their firm investments. Therefore, I expect leverage to be positively related to *DIV*.

To estimate the effects of entrepreneurs' outside wealth on their firm-level financial leverage usage, my estimation model is:

$$Leverage_i = a + \beta * DIV_i + \gamma * CV_i + \varepsilon_i \qquad (1)$$

in which $Leverage_i$ is the ratio of total loans to total assets for firm *i*. DIV_i is the ratio of entrepreneur *i*'s out-of-firm wealth to his total net worth. CV_i is a vector of control variables.[4] ε_i is the error term.[5]

When some entrepreneurs use out-of-firm personal assets as collateral to obtain loans for their firms, that part of their personal assets is subject to the claims of the firms' creditors and is tied to their firms. I adjust out-of-firm assets by subtracting the amount of collateralized loans from the out-of-firm assets. *DIV2* is the ratio of the adjusted out-of-firm assets to entrepreneurs' total net worth.

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entrepreneurial stock. These findings, along with the work of Robson (1998), provide evidence that wealth accumulation plays an important role in encouraging self-employment.

[3] This paper's main analysis uses SSBF 2003 data, and it uses SSBF 1998 data as a robustness check.

[4] The control variables include firm *i*'s financial statement variables (log of total assets, return on assets, liquidity, tangible assets, etc.), number of financial service providers, entrepreneurs' demographic information (experience, gender, and founder status), and firms' and entrepreneurs' personal creditworthiness. Table 1 defines the variables of regression 1.

[5] I assume heteroskedasticity and use robust standard errors in my regression.

Table 1. Definitions of Variables

Variable	Definition
Leverage	Total loans divided by total assets
Outside Wealth (*DIV*)	The entrepreneur's out-of-firm wealth divided by his total net worth
Outside Wealth 2 (*DIV2*)	The entrepreneur's out-of-firm wealth adjusted for collateral divided by his total net worth
Size	Log of total assets
Growth Options (Employment)	Dummy variable for firms with positive employment growth during fiscal year 2003
Profitability	Net income divided by total assets
Tangible Assets	Sum of inventory and book value of land divided by total assets
Liquidity	Cash divided by total assets
Firm Age	Log of firm age
Financial Service Provider	The number of the firm's financial service providers
Gender	1 if the entrepreneur is female, 0 otherwise
Founder	1 if the entrepreneur is the original founder, 0 otherwise
Owner Bankruptcy	1 if the entrepreneur declared personal bankruptcy in the previous 7 years, 0 otherwise
Firm Bankruptcy	1 if the firm declared bankruptcy in the previous 7 years, 0 otherwise
Experience	Log of the entrepreneur's experience in his current business (in years)

V. Results

Table 2 presents the mean, median, standard deviation, minimum, and maximum of key variables. The average *DIV* is 0.79, suggesting that, on average, 79 percent of owners' wealth is outside of their firms.

Table 3, Column 1 shows that the coefficient for *DIV* is approximately 0.830 at better than the 1 percent significance level, suggesting that the ratio of total loans to total assets increases by 0.830 percentage points when *DIV* increases by 1 percentage point.

Table 2. Summary Statistics

Variable	Mean	Median	Std. Dev.	Min.	Max.
Leverage	0.44	0.20	0.81	0.00	9.49
Outside wealth (*DIV*)	0.79	0.88	0.23	0.00	1.00
Outside wealth 2 (*DIV2*)	0.71	0.84	0.34	0.00	1.00
Size	13.14	13.25	2.12	6.40	17.32
Growth Options	0.25	0.00	0.43	0.00	1.00
Profitability	0.73	0.14	2.26	-4.40	24.55
Tangible Assets	0.19	0.08	0.24	0.00	1.00
Liquidity	0.21	0.11	0.25	0.00	1.00
Firm Age	2.58	2.77	0.88	0.00	4.63

Table 3. Multivariate Results

	1	2	3	4	5
	SSBF 2003	**SSBF 2003**	**SSBF 1998**	**SSBF 2003, No Partial Numbers**	**SSBF 2003, Winsorized**
Outside Wealth (*DIV*)	0.830		0.783	0.834	0.743
	(13.84)***		(8.76)***	(13.85)***	(11.62)***
Outside Wealth 2 (*DIV2*)		0.425			
		(12.44)***			
Constant	0.643	1.279	0.315	0.657	1.060
	(2.58)***	(5.75)***	(0.93)	(2.58)***	(4.07)***
Observations	2,091	2,091	1,319	2,055	2,233
R-squared	0.11	0.10	0.08	0.11	0.109

Column 1 presents the regression 1 result, with Leverage as our dependent variable, on the sample excluding credit-constrained firms and outliers in SSBF 2003. Column 2 uses Outside Wealth 2 (*DIV2*), which is the outside wealth to total wealth after adjusting for collateral, as the alternative variable of interest. Column 3 shows the regression 1 result using data from SSBF 1998. Column 4 shows the regression 1 result excluding companies that report only partial year financial information. Columns 5 shows the results of regressing Leverage on Outside Wealth (*DIV*) by using the winsorized data.

* Significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics are in parentheses.

This finding is consistent with the hypothesis that entrepreneurs who have more wealth outside their firms tend to use more leverage.[6]

Column 2 presents the estimation result of regression 1 using *DIV2*, the alternative measure of outside wealth. Column 2 shows that the coefficient of *DIV2* is positive and significant at better than the 1 percent level, which is consistent with my prediction that entrepreneurs who have more personal wealth outside of their firms

[6] It is arguable that *DIV* might be endogenous. I run a Hausman test by using entrepreneurs' education as an instrumental variable. The test result suggests that endogeneity does not bias the regression result significantly. OLS (or WLS) is a more efficient approach than the two-state-least-square approach.

tend to use more debt financing. Using *DIV2*, I find that leverage increases by 0.425 percentage points as *DIV2* increases by 1 percentage point. This result shows that the effect of outside wealth on leverage is reduced after adjusting for personal guarantees and out-of-firm assets as collateral because entrepreneurs actually tie more wealth to their firms than they seemingly do when using *DIV*.

I argue that limited liability is important because it allows risk taking without putting all of one's personal assets on the table. I use the generalized dummy variable technique developed by Gujarati (1970a, 1970b) to examine whether *DIV* has a different effect on leverage in firms with limited liability than in firms with unlimited liability. The modified model is:

$$Leverage_i = a + \beta 1 * DIV_i + \beta 2 * LL_i + \beta 3 * Interaction_i + \gamma * CV_i + \varepsilon_i, \quad (2)$$

where LL_i is a dummy variable that is equal to 1 if firms are limited liability firms and 0 otherwise and $Interaction_i$ is the interaction term of DIV_i and LL_i.[7]

In Table 4, column 1 presents the estimation result of regression 2 that includes both limited and unlimited liability firms. The coefficient of *DIV* is not statistically different from zero, which suggests that outside wealth does not affect financial leverage in unlimited liability firms ($LL_i = 0$) as expected. However, the coefficient of the interaction term is positive and statistically significant at better than the 1 percent level, which suggests that financial leverage is positively related to outside wealth for limited liability firms ($LL_i = 1$).[8]

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[7] The null hypothesis is that β_2 and β_3 are not statistically different from zero, which means the coefficients of DIV_i and the intercepts are the same across limited and unlimited liability firms. This null hypothesis is consistent with the economic intuition that outside wealth affects entrepreneurs' willingness to use financial leverage only in limited liability firms; entrepreneurs' wealth is 100 percent tied to their firms in unlimited liability firms and thus does not affect the financial leverage on the firm level.

[8] As robustness checks, I exclude 85 firms that report partial year financial information and entrepreneurs that do not own more than 50 percent of the total shares. I also winsorize key variables at the 1st and 99th percentiles. Column 5, 6, and 7 show that the signs and magnitudes of *DIV* are comparable to those in my main analysis.

Table 4. Regression 2 (Test on Unlimited Liability Firms)

	1	**2**
	Pooled	**Unlimited**
Outside Wealth (*DIV*)	0.150	0.168
	(0.67)	(0.63)
Limited Liability Dummy (*LL*)	-0.415	
	(2.53)**	
Interaction	0 .700	
	(3.33)***	
Constant	0.964	0.906
	(3.19)***	(1.88)*
Observations	3206	1115
R-squared	0.08	0.06

Column 1 shows the estimation result of regression 2 using the data set of both limited and unlimited liability firms. The coefficient of Interaction is positive and significant, suggesting that outside wealth affects financial leverage only in limited liability firms (Limited Liability Dummy = 1). The coefficient of Outside Wealth (*DIV*) is not statistically different from zero, suggesting that outside wealth does not affect financial leverage in unlimited liability firms. Column 2 shows the estimation result of regression 1 using a subset of data that contains only unlimited liability firms. The coefficient of Outside Wealth (*DIV*) is not statistically different from zero, suggesting that outside wealth does not affect financial leverage in unlimited liability firms. This is consistent with the result in Column 1.

* Significant at 10%; ** significant at 5%; *** significant at 1%. Robust t statistics are in parentheses

VI. Conclusion

Being able to keep your money matters. An entrepreneur's outside wealth affects his or her firm-level financial leverage. Limited liability also matters. While some authors argue that only taxes on wages matter for entrepreneurship, I find that outside wealth plays an important role in encouraging entrepreneurs' risk-taking, and wealth tax cuts enable more entrepreneurship.

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