Discussion of "Bankruptcy, Incorporation, and the Nature of Entrepreneurial Risk"

by Andy Glover and Jacob Short

Sebastian Dyrda

University of Toronto

33rd Annual Meeting of the CMSG
November 1, 2019

Summary reaction

- Why do some entrepreneurs choose to incorporate their business? What drives the heterogeneity between incorporated and unincorporated entrepreneurs? Does it matter for macro?

- Very interesting and understudied topic in quantitative macro.

- Glover and Short (2019) offer new insights on this issue: (i) evidence from the micro data (ii) quantitative theory of incorporation.

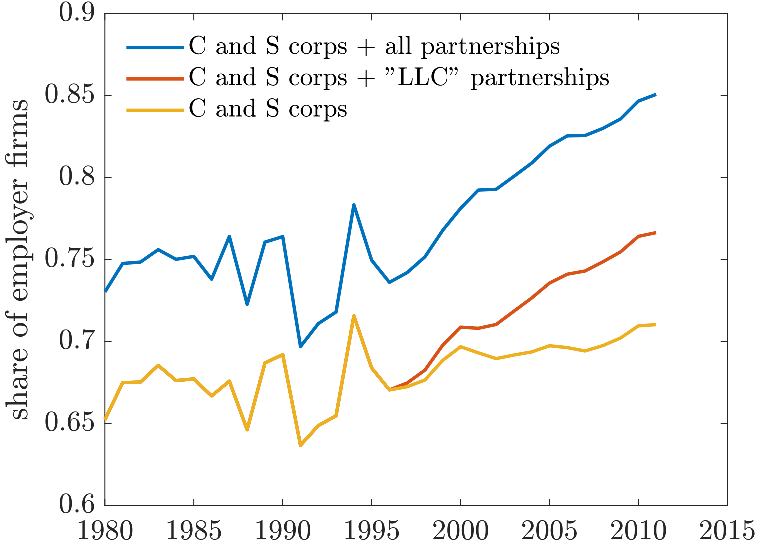
- Still, room for improvement on both fronts.

Background

	Liability Protection	Ownership	Taxation of Profits
Sole Properietorship	No	individual or family	Pass-through
General Partnership	No	general partners	Pass-through
Limited Partnership	No for partners Yes for limited part.	general and limited partners	Pass-through
Limited liability company	Yes	single or multiple members	Pass-through
S Corporation	Yes	one class of 1-100 domestic shareholders	Pass-through
C Corporation	Yes	no limit on number and type	Entity level

Limited liability: Glover, Short (2019)
Taxation: Chen, Qi, Schlagenhauf (2018), Bhandari, McGratten (2018), Dyrda, Pugsley (2018), (2019)

Limited liability firms gain importance



Source: Own calculations based on the LBD data.

Findings: static framework and data

$$\frac{zk^{\alpha} - rk}{zk^{\alpha}} = \underbrace{\left[1 + \frac{p'(k)\,k}{1-p(k)}\right]}_{>1}(1-\alpha) + \underbrace{\frac{p'(k)}{1-p(k)}x}_{\text{Unincorporated only}} > \underbrace{(1-\alpha)}_{\text{Efficient scale}}$$

- Wedge in **income-to-sales** ratios between incorporated and unincorporated entrepreneurs due to limited liability.
- Incorporated entrepreneurs closer to the efficient scale.

Findings: static framework and data

$$\frac{zk^{\alpha} - rk}{zk^{\alpha}} = \underbrace{\left[1 + \frac{p'(k)\,k}{1 - p(k)}\right]}_{>1}(1-\alpha) + \underbrace{\frac{p'(k)}{1 - p(k)}x}_{\text{Unincorporated only}} > \underbrace{(1-\alpha)}_{\text{Efficient scale}}$$

- Wedge in **income-to-sales** ratios between incorporated and unincorporated entrepreneurs due to limited liability.
- Incorporated entrepreneurs closer to the efficient scale.

Key findings from the Survey of Consumer Finances (SCF):

1. Incorporated entrepreneurs make more sales and profits and accumulate more wealth.
2. Incorporated entrepreneurs report paying lower interest rates on debt.
3. Share of business income to sales is smaller for incorporated entrepreneurs.

Findings: quantitative model

Framework:

Standard model of entrepreneurship
+
Standard endogenous default with debt pricing
+
Exogenous default via scale dependent disaster shocks
+
Choice of the legal form: corporate vs. non-corporate. Incorporation costly.

Key trade-off:

- Personal assets protected in case of exogenous default vs. incorporation costs.

Not much findings so far from the model.

Comments

1. Business Income measurement.

2. Inference based on the static framework.

3. Modeling choices.

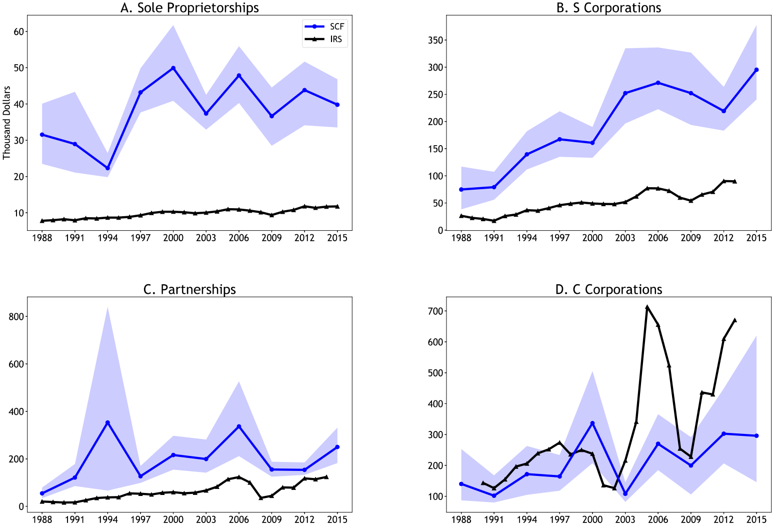
(1) Business Income is mismeasured in the SCF

Bhandari, Birinci, McGratten, See (2019) compare SCF and IRS data and document:

- SCF vastly overstates the business income per tax return for all business types - **230 to 568 percent** for pass-throughs.
- Aggregate business incomes are overstated of the number of tax returns across most business forms is understated.
- These discrepancies vary in the cross-section and year-by-year.
- Sources: (i) owners with little income are underrepresented (ii) misreport of business losses (iii) measurement error.

Concern: Key SCF-based findings in the empirical section affected by these errors. Need for validation of the facts using IRS data.

(1) Business Income per Return, SCF vs. IRS



Source: Bhandari, Birinci, McGratten, See (2019)

(2) Limited liability or other wedge?

Income to sales ratio:

$$\frac{zk^{\alpha} - rk}{zk^{\alpha}} = (1 + \tau(z))\,(1 - \alpha) > (1 - \alpha)$$

- Any wedge $\tau(z)$ that correlates negatively with limited liability would move corporations closer to the efficient scale.
- Potential dependence of $\tau(z)$ on z disturbs the identification.

Examples:

- Easier access to external equity for C corporations than pass-throughs (legal restrictions).
- Differences in marginal tax rates across legal forms.

(3) Why do you need endogenous default?

- Debt pricing equation:

$$q^n(x, k, D, z) = \frac{1 - p(k)}{1 + r}\left(1 - (1 - \phi)\frac{e^{\sigma_d^{-1}\left(\hat{V}_r^n(S,z) - \mu_d\right)}}{e^{\sigma_d^{-1}\hat{V}_r^n(S,z)} + e^{\sigma_d^{-1}\left(\hat{V}_r^n(S,z) - \mu_d\right)}}\right)$$

  $\hat{V}_r^n$, depend on n only via q^n. Hence price q^n is **independent** on the incorporation status!

- Difference in the price of debt only via selection margin. Does the model deliver on this front? Are model predictions consistent with the evidence on leverage in the cross-section? We do not know.

Conjecture: own equity financing + disaster shocks would suffice to deliver positive selection and differences in distance to optimal size across legal forms.

Conclusions

- I like the topic and the approach a lot.
- I am convinced that the limited liability margin is relevant and matters for macro.
- More work on data evidence and modelling choices needed.
- Selection margin is key for the success of the quantitative model.