Entrepreneurs: Jacks of all trades and masters of one?

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Research questions

Entrepreneurship is an important concept but one that can be difficult to instrumentalize. What separates self-employment from innovation?

Many recent experimental interventions in developing economies have focused on providing training or capital to small-scale businesses. For the most part, the business skill interventions have produced small, insignificant or contradictory results. Nonetheless, we believe that the owner's skills matter in the success of a new or small firm. Self-employment in developing economies is a hybrid of at least two phenomena - subsistence employment and entrepreneurship - and this might contribute to the fuzzy results obtained (La Porta and Shleifer, 2008, Brookings Paper). In developed economies, there is somewhat clearer evidence on what makes an entrepreneur. The tendency to be self-employed seems to be heritable, though this might be a comment on tastes, abilities and skills, or finance, and associated with a particular personality type.[1] Access to finance affects the growth of a firm, but not necessarily its start-up.[2]

There is also evidence, in a very selected sample of potential entrepreneurs, that realized entrepreneurs are more inclined to acquire a wide range of skills than to specialize in one area. This idea was formalized in a model of skill complementarities by Lazear (Lazear, 2005, J. Labor Economics) and tested on a dataset of Stanford MBA students. Those who took a varied selection of courses and who, after graduating, worked in more varied job roles were significantly more likely to start a business. However, MBAs are not representative of the general population, nor of the average new business owner.

I aim to document some of the relationships between self-employment and long-run human capital acquisition. Human capital acquired through formal schooling and through the labor market may have significantly different impacts, and larger impacts than human capital gained from short courses or consultant-run training seminars. Detailed information on the skills required for particular jobs can be used to construct measures of skills acquired or honed through labor market activities. This, paired with traditional information on formal education and labor market activities, will allow me to examine the relationships between skills self-employment. Specifically:

1. Does varied work experience affect the probability of starting a business?
2. Does varied work experience affect the probability of starting a successful business, defined as one that grows or that survives a certain number of years?

[1] Blanchflower and Oswald, 1998, J. Labor Economics; Dunn and Holtz-Eakin, 2000, J. Labor Economics; Fairlie, 2002, J. Labor Economics; Djankov, Qian, Roland, Zhuravskaya, 2006, American Economic Review; Buera, Kaboski, Shin, 2009,American Economic Review

[2] Dunn and Holtz-Eakin, 2000, Blanchflower and Oswald, 1998

3. Does formal schooling affect either of these probability?

4. Do formal schooling and work experience have different effects?

Underlying model

Model

I want to examine the links between human capital, returns to human capital, and occupation choice, rather than the acquisition mechanisms of human capital. As such, my measures of human capital acquired from work experience will be relatively crude and rely mostly on time spent in particular occupations.

The central idea of the model that Lazear advanced in his 2005 paper was that entrepreneurs have to know how to do a lot of things. Running a firm requires an understanding of different tasks, at least sufficient to tell whether or not your employees are competent. In contrast, an employee only needs to know how to do her particular job. Thus, labour market returns for employees depend on their skills in their current jobs, while labor market returns for entrepreneurs depend on their skills in many jobs.

$$\begin{aligned} EU_E &= EU[f(\mathbf{Q_i}, k_i^*, \epsilon) + r(A_i + \psi A_i^P - k_i^*); Z_i] \\ EU_W &= EU[w_{ij}(q_{ij}) + r(A_i + \psi A_i^P); Z_i] \\ \mathbf{Q_i} &= (q_{i1}, q_{i2}, ..., q_{iJ}) \end{aligned}$$

For any individual, utility depends on income and a set of personal characteristics and preferences, Z_{it}. Income comes from two sources - labor market earnings and returns on assets. Returns on assets are straightforward, with the proviso that entrepreneurial investment must be subtracted from current assets. Based on the findings in Dunn and Holtz-Eakin (2000), parental assets affect returns in self-employment, but to a lesser extent that personal assets, which is indicated by $phi \leq 1$ above.

A wage worker's earnings depend on her skills in her current job j, q_{ijt}. A firm owner's earnings are her profits, which depend on her overall skill profile $\mathbf{Q_{it}}$, her capital k_{it}^* and an exogenous iid shock ϵ_{it}.

There are two sets of outcomes of interest in this model: entry into and exit from self-employment; and labor market returns. Returns are easily defined but potentially hard to measure, as many self-employed people do not pay themselves a wage or plow significant shares of profits back into their firm. It is easier to measure the entry and exit decisions.

Based on prior research, the financial environment must include credit constraints, and parents' assets are relevant components of an individual's collateral. If optimal capital k_{it}^* is greater than assets, then the difference $A_i + \psi A_i^P - k_{it}^*$ must be financed by borrowing. The amount that an individual can borrow depends on his or her collateral. Assume this amount is a fraction of total assets: $k_{it} \leq l_k(A_i + \psi A_i^P)$, with $l_k'(A_i^T) > 0$. Optimal capital is thus a function both of expected ability and assets: $k_{it}^* = g(Q_i, A_i, A_i^P)$.

If there are liquidity constraints, capital will respond to changes in assets: $\frac{dk_{it}^*}{dA_i} = l_k'(A_i) > 0$ and $\frac{dk_{it}^*}{dA_i^P} = \psi l_k'(A_i^P) > 0$. If there is some minimum amount of capital exists below which it is unprofitable to enter entrepreneurship, then the $Pr[i \text{ chooses } E] = P_i$ is increasing in total assets: $\frac{\partial P_i}{\partial A_i} > 0$ and $\frac{\partial P_i}{\partial A_i^P} > 0$.

Testable implications

Entry into self-employment depends on expected returns, which depend on capital invested and on skills. This simple fact gives rise to several testable implications.

1. Entrepreneurs should acquire more 'general' human capital
   (a) They should switch occupations more often.
   (b) They should acquire less task-specialized formal education and training.
   (c) There is not a clear implication for sectoral switching - deep knowledge of one sector may be particularly useful for an entrepreneur, but acquiring it might hinder learning varied skills.
2. Having parents who are entrepreneurs should increase entry into entrepreneurship, either through transfer of skills, Q_i, or through preferences, Z_1.
   (a) If the effect comes through skills, it should be stronger on average for children of more successful entrepreneurs.
   (b) If the effect comes through tastes, it should be stronger on average for children whose parents spent more time in self-employment, or whose entry into self-employment was not prompted by a negative labor market shock.
3. Wealthier parents should increase entry into entrepreneurship
4. Own assets should increase entry into entrepreneurship

Empirical approach

My central innovation will be to pair labor market information - job histories and tenures, as well as entry and tenure in self-employment - with O*net data on skill profiles of jobs.

The labor market panel will allow me to measure job tenure, types of activities, and remuneration, as well as formal training and demographic characteristics. O*net's skill profiles provide a weighting of tasks associated with each job. Assuming that time spent on a task builds skills in that task, this means that the information provided on a labor market survey - job title and tenure - can be translated into a human capital gain. Many surveys do not have detailed information on tasks performed for a given job, so O*net will allow me to fill in information.

I will use two sets of labor market panels: the NLSY79; and the Survey of Doctorate Recipients. Self-employment typically starts quite late in a worker's career, so using an older survey such as the NLSY79 is necessary. It has another major advantage - high school AFQT[3] scores for many respondents. This provides a measure of individuals' initial human capital. Formal education is well measured, and job histories and durations will be paired with O*net data to create on-the-job human capital measures. The second dataset, the Survey of Doctorate Recipients, will be used for supplementary analysis of entrepreneurial behavior by more highly skilled and specialized individuals, who, *a priori*, are more likely to be involved in truly innovative entrepreneurship.

In combination, the two data sources will form a panel of labor market information and detailed skill profiles. I will use this to estimate hazard models of entry into self-employment and, for the set who enter self-employment, of exit from self-employment. Entrepreneurial success will be measured from business survival and growth, where the latter is available.

[3] Armed Forces Qualification Test