

WORKING PAPER SERIES

Enrico Colombatto, Arie Melnik

THE FORMATION OF FIRMS AND THE PRIOR EXPERIENCE OF NEW ENTREPRENEURSHIP

Working Paper No. 32/2006

The Formation of Firms and the Prior Experience Of New Entrepreneurs

Enrico Colombatto and Arie Melnik*

November 2006

Abstract

We use a simple model to analyze the founding stage of new firms. Our goal is to characterize the directional causality between the expected rewards from entrepreneurship and the length of prior labor market experience that entrepreneurs possess. We test predictions about the timing of the formation of new firms on a sample of Italian entrepreneurs who founded new firms in the period 1992-2004. We obtain three main results. First, the timing of the foundation of new firms is determined primarily by the expectation of higher income and not so much by the perception of risk. Second, earlier experience of entrepreneurs in full time employment has a positive impact on the size of newly founded firms. Third, when we separate founders who work alone from founders who work with family partners, we find that the latter establish and control larger firms.

*Enrico Colombatto is Professor of Economics at the University of Turin (Italy), Director of ICER and Fellow at the Collegio Carlo Alberto (Turin). Arie Melnik is Professor of Economics at the University of Haifa (Israel) and a Senior Fellow at ICER.

We are indebted to Lino Agrosi, Marcello Camagni, Andrea Pininfarina and Mario Santoro for providing us with a 'roadmap' on what it takes to switch from the status of an employee to the status of an owner of business. This paper has benefited from several interviews conducted with owner-managers of family firms in Italy. We are particularly grateful to Paola Celentano, Marco Lucarelli, Giuseppe Pesenti, Mauro Rossi, Adriana Zanchi, and Massimo Zanetti for sharing their experience with us.

Simona Scuratti, Nicola Melone, Stefano Lazar, Fabio Bottero and Alessandro Moroni provided valuable help in data collection; our colleagues Bruno Contini, Marco Da Rin, Alessandro Nova and Pietro Terna were kind enough to let us have their insightful comments and suggestions. Chiara Monticone was an outstanding research assistant. We are responsible for the remaining errors.

The Formation of Firms and the Prior Experience of New Entrepreneurs

1. Introduction

It is widely recognized that entrepreneurs who found new firms contribute significantly to long-term economic growth. They also expand employment opportunities in the short run. Therefore, the impact of entrepreneurs (and of the start-up firms which they establish) has been a topic of interest to economic researchers for a number of years. Most of the research has focused on the stage when new firms try to grow by raising capital from financial investors in general and venture capitalists in particular. Indeed, the later stages of the growth of existing small firms have been covered extensively in both the theoretical and empirical literature. In contrast, there is relatively little systematic knowledge about the emergence of new firms. So, questions such as “who are the individuals that are most likely to found new firms?”, “what types of work experience do they possess?” and “when do they leave the status of employees?” justify more research effort.

Evans and Leighton (1989) noted that experience in the labor market has a positive influence on the probability of becoming owners of businesses that employ other people. Put differently, experience in the labor market, usually in the same industry, is a pre-requisite for entrepreneurship. This article tries to shed some light on the issue of conversion. That is, on when an employee decides to become an entrepreneur. To this effect, we use a simple model to analyze the founding stage of small firms with a positive number of employees¹. We then test the prediction of the

¹ Self-employed workers are here ignored following Lazear (2002, 2004), who emphasizes that a unique feature of an entrepreneur is the ability to direct, motivate and manage other workers in the firm.

model on a sample of 178 entrepreneurs who founded new firms in the period 1992-2004.

The model we use considers an employee contemplating to start a new business. He will then weigh the costs and benefits of such a step, i.e. the expected increased earnings due to entrepreneurship in case of success, as well as the probabilities and consequences of failure. All these he/she must evaluate and weigh against the alternative of keeping the status of an employee².

The two main questions that we address are the length of the previous work experience of new entrepreneurs and the factors that motivate them to establish new firms. Our main results can be summarized as follows: First, the timing of the foundation of new firms is determined primarily by the expectations of higher income and not so much by the perception of risk. Second, the entrepreneurs' previous personal experience as owners-managers has a statistically significant impact on the size of the firms which they found. Third, when we differentiate founders that work alone from founders that work with family partners we find that the latter establish and control larger firms.

The remainder of the paper is organized as follows. In the next section we provide a review of the literature on the establishment and growth of new firms and the conditions they need in order to flourish. In section 3 we use a simple model to investigate the determinants of the level of prior experience that entrepreneurs build up before they open a new business. The model is tested using a sample of recently established new businesses in Italy; Section 4 contains a detailed description of the data. In section 5 we present the results. Section 6 adds information about the size of newly founded firms. Section 7 concludes.

² In a multi-period model the individual should consider not only the benefits accruing directly from switching to the status of an owner of business. He/she should also consider the value of the option of expanding the size of the firm by taking on new partners. The benefits of continuing to expand the firm and of going public are not considered here.

2. Literature review

In the traditional theoretical literature about the formation of new firms the entrepreneur is assumed to exist and to be endowed with a good business sense. He conceives an idea for a new product or holds the key to a newly discovered market and looks for funding that is provided by outside investors. This setup has been described in the pioneering articles of Kihlstrom and Laffont (1979), Rosen (1982) and Rajan and Zingales (1998). The theoretical literature, such as Aghion and Tirole (1994), also considers how new ventures should grow and how innovations should be managed. Rajan and Zingales (2001) even discuss the optimal organization format of firms where the founding owner controls some “critical resources” and the environment features imperfect property rights. The relationship between the entrepreneur and the outside investor, who is the focus of most of these models, is characterized by asymmetric information and moral hazard problems. The sources of the inside knowledge of the entrepreneur who runs the firm are generally ignored.

Additional traits of the entrepreneurs have been investigated in the empirical literature on family firms, where the importance of family control is well documented. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) noted that family control is more common in countries with lower shareholders’ protection rights. Faccio and Lang (2002) added that 44 percent of Western European firms are family controlled³. Most of the research on family business focused on problems related to existing firms. For example, Zingales (1995) predicts that families will either keep control or sell their controlling stakes and exit. Similarly, Bhattacharya and Ravikumar (2001) claim that market imperfections are important drivers in the decision of family owners to bequeath their shares to the next generation or to sell their controlling stake and bequeath the proceeds.

In analyzing the long-term consequences of family ownership, the concentration of wealth is also an issue. Specifically, the question is what motivates families to concentrate most of their wealth in one firm? The impact of family

³ Of course, this is an average figure around which there is a significant variation. For example, Faccio and Lang (2002) report that in France and in Germany 65 percent of the firms are family-controlled. In Italy 60 percent of the firms are controlled by family. In contrast, the comparable number in the UK is 24 percent.

ownership on the performance of publicly registered companies also received considerable attention⁴.

Another strand of the literature that deals with the origins of entrepreneurship provides insights about the desirable qualities and constraints. Dunn and Holtz-Eakin (2000) find that individuals build human capital by learning from their self-employed parents. Intergenerational links provide not only physical capital but also human capital to new owners of new firms. Evans and Leighton (1989) show that the availability and type of financial contracts affect the individual decision on whether to become an entrepreneur.

The aspirations of entrepreneurs, their personalities and psychological backgrounds are well documented by a number of experiments and surveys⁵. This literature also investigates the effect of pressure, of the perceived stigma of failure and the sense of optimism that entrepreneurs are expected to possess. Recently some authors also began to examine the process by which the entrepreneur gains the necessary qualifications needed to create a start-up firm. Lazear (2002) finds that successful entrepreneurs possess knowledge in a portfolio of activities, that they are generalists rather than specialists, and that those endowed with a more balanced human capital enjoy a distinct advantage⁶. In short, the prior background of the entrepreneur is indeed important. Our paper complements Lazear's findings by focusing on the determinants of the length of experience prior to opening a business for the first time.

⁴ For example, McConaughy, Matthews and Fialco (2001), find that traded family firms have greater market value and carry less debt than non-family firms in the US. However, family firms become less profitable than other firms when controlled by the second and third generations. In contrast, Anderson and Reeb (2003) find that family firms in the US do create value when the founder or the next descendants are active as CEOs.

⁵ See for example Davidsson and Honig (2003), Reynolds (1997), Shane (2000), De Meza and Southey (1996), Blau (1987).

⁶ The idea that the entrepreneurs possess several skills was already noted by Baumol (1990). He shows that entrepreneurs can play several roles – productive and unproductive. He does not consider, however, the ways of acquiring the capabilities that a person needs in order to become a practicing entrepreneur.

3. The Best Time to Start a New Firm

In order to evaluate whether to found a new firm one compares the possibility of starting a new venture with the alternative of remaining an employee, say, in an existing family firm⁷. Suppose that an individual spends n years as an employee and that $N > n$ is his time horizon, such as the working life. n is determined by risk aversion, expected income and expenditure flows from present and future occupations. Environmental factors – say support by the family and the community, government policy towards business ownership – are also likely to play a role.

Variable n is the decision variable in the present analysis. It may be influenced also by the age of the individual, by the nature of the industry and by the cyclical nature of the economy. Personal income from business ownership is X_t per period, while P_t defines the probability of success in any given year and $(1 - P_t)$ the probability of business failure. As noted, the alternative to the act of founding a new business is to remain an employee and earn R_t per period. The present value from remaining as an employee is then

$$\sum_{t=1}^N \frac{R_t}{(1+r)^{t-1}}$$

where r is the discount factor in the economy.

The value of being an employee is compared with the value of business ownership. Thus, the present value of an entrepreneurial career is

$$\sum_{t=n+1}^N \frac{P_t X_t - (1 - P_t) F_t}{(1+r)^{t-1}}$$

where F is the cost of closure that has to be paid if an event of business failure occurs.

The business owner (entrepreneur) wants to maximize the difference between the two possibilities. So technically he should choose a value for n so as to maximise

$$\max \sum_{t=n+1}^N \frac{[P_t X_t - (1 - P_t) F_t] - R_t}{(1+r)^{t-1}}$$

⁷ This is similar to the classical question of the literature about the formation of new households: when do children leave their parents' home and go on to found a new household? On this issue wide variation is observed across countries and Italy is different from most other countries.

where F is the penalty cost of closure and N is the exogenous time limit (e.g. time to mandatory retirement).

We can assume some reasonable values for the parameters and try to calculate some possible trade-offs. The first trade-off to be considered is $\frac{\partial n}{\partial(X/R)} < 0$ or

$\frac{\partial n}{\partial(X-R)} < 0$: as the X/R ratio (or the $X-R$ difference) increases, n becomes smaller.

Put differently, higher income from ownership relative to income from the present employment encourages the potential entrepreneur to stay a shorter time as an employee and switch faster to ownership status.

The second trade-off we consider is $\frac{\partial n}{\partial(F/R)} > 0$. This is a positive monotonic function: as the ratio F/R increases, the cost of failure relative to the salary of an employee is larger. As a result we would expect him/her to stay longer as an employee.

The third trade-off is $\frac{\partial n}{\partial P} < 0$ and it means that as the probability of success increases, n becomes smaller. Correspondingly, $\frac{\partial n}{\partial(1-P)} > 0$ means that as the probability of failure increases, the person would like to stay longer as an employee.

In short, we expect that

- as the ratio of income from entrepreneurship increases relative to that from being an employee, the worker spends less time as an employee.
- if the individual is not too much of a risk lover, as the probability of failure increases, the attractiveness of entrepreneurship declines and the individual will spend more time as an employee.
- as the cost of business failure increases, the individual will stay longer as an employee.

4. Description of the data

General

We plan to test these propositions by using a detailed sample based on a 2005 survey of newly formed firms in Northern Italy. Compared to other countries, Italy exhibits the largest share of working population that is categorized as self-employed or as business owners. In addition, the number of newly formed small businesses stays stable over time⁸. The dataset on entrepreneurs we use has two advantages compared to other datasets. First, it contains information about the number of years of work both before and after becoming an entrepreneur. Second, it includes an easy to understand, and to quantify, measure of monetary payoff. Therefore, we can compare personal earnings of entrepreneurs just before they left their last job with their present earnings as owner-managers.

Our survey was conducted by using the major existing source of information on the demography of Italian firms – the Business Register known as “Registro delle Imprese”. The Register is maintained by the provincial Chambers of Commerce. It lists all existing firms by legal form and includes some information about the owners. During the second half of 2005 we gathered information about a sample of small registered firms born in the regions of Lombardia, Piemonte and Veneto. The sample was selected using the following procedure. First, we considered 828 new firms that entered the registration rosters between 1992 and 2004⁹. Second, a sample of 286 firms was selected from the group of firms that had at least 5 employees in 2004 if

⁸ Earlier researchers offered some explanations to this unique Italian phenomenon. For example, Sestito (1989) mentioned the diminishing role of scale economies (and the increasing role of non-standardized production). A second reason is the advantages in tax reduction (not to mention even outright evasion) that accrue to autonomous workers and entrepreneurs. Rapiti (1997) added the relative advantage of small firms in managing turbulent industrial relations. Surely, all the above may not be reasons that are strictly unique to Italy. However, reasons that exist in other countries are likely to operate in a stronger way in Italy.

⁹ We use a simple definition of birth. Each new firm is assumed to register and when its name is added to the list we call it a new firm. Closures and suspensions of activities have to be declared within a specified period and then such firms are de-listed. In some cases, delisting occurs due to bankruptcy or liquidation. In some other cases delisting may occur because of legal transformation of ownership. When so, the legal “death” of the firm does not mean that it stopped operations in the economic sense as it will be re-entered as a new firm or be integrated into another already active company.

they belonged to the service or construction sectors and at least 10 employees if they were industrial firms. Third, the firms were contacted and the owner-manager was asked to answer a few questions about his/her “conversion” from an employee to a business owner. The questions (English translation) that are of particular interest here are listed in Appendix 1. The survey covers 178 entrepreneurs, whose main characteristics are reported in Table 1.

A few notes of explanation are needed before we move on. The survey data does cover more than adequately the question which is of interest in this paper. At the same time, however, they suffer from a few disadvantages. First, we cannot be sure that the respondents understood all the questions and if they did, that they answered all of them truthfully. Second, we cannot eliminate the traditional non-response bias. The answers of those who responded may not be representative of the views of the general population. Finally the information that we have is prone to the survivorship bias, since we use only information regarding the firms that existed in 2005. Firms that opened in the 1992-2004 period but closed before 2005 were ignored.

Measurement of the variables

The definition of income in our sample merits attention. As is customary in Italy, income includes only the gross salary subject to income tax. It excludes payments that are transferred directly from the company to the social security administration. Generally speaking, the order of magnitude of the gross wage (as well as the earnings of entrepreneurs) that we encounter in the sample is very different from what reported in the national statistics (see Istat 2000, table 3.13). The difference is probably due to the difference in the original subgroups. Entrepreneurs tend to be successful individuals even at the time when they were employees. As a result, their income was higher than the average income of the population.

For the risk variable we use the actual rate of failure (in the given industry) of firms with five or more workers. The presumption here is that the average failure rate is known to those who plan to found new firms and thus is a good proxy for risk.

The next variable is effort, which we approximate by the number of weekly hours of work. It is not entirely clear, however, that longer hours always reduce

personal utility. Many entrepreneurs emphasize with pride that they work more hours than they used to.

We have two variables that measure experience. The first is the number of years during which the person has been working full time as an employee before switching. The numbers were rounded up or down in the usual way. A second variable is the number of years since the company was registered and started to operate.

In addition we record information about the size of the firm by considering the number of employees. Reports on the number of employees are deemed to be more accurate than financial measures such as sales or size of assets (as defined in the financial statements). We also have partial information about the level of education of our respondents. Education is a 0-1 variable. If the person had a university degree it was recorded as one and zero otherwise. Unfortunately, many of the respondents did not answer this question.

Our definition of industry is somewhat different from the one used by Istat (the Italian Central Statistical Office). Manufacturing and construction are generally defined in the same way, but subgroups of the service sector were defined differently because the number of entries into each cell was too low. For example, shipping, packaging and transportation were grouped together. Similarly, all personal services to families such as educational services, health and beauty were also grouped together. As a result, we ended with eight different industry groups: Manufacturing; Construction (including real estate); Business services (such as maintenance, cleaning etc.); Hospitality (e.g. lodging, catering and restaurants); Commerce (retail trades in products such as furniture, clothing, durable goods and electronics); Personal services (gardening, education, health beauty, house repairs); Transportation (shipping, packing and storage) and Miscellaneous services.

Descriptive statistics

As noted, an individual entrepreneur is included in the sample if he satisfies four criteria: (1) his annual income data are reported from both the present occupation as manager-owner, and also from the last job as an employee; (2) he founded a new firm, registered in Northern Italy, in the period 1992–2004; (3) this is the first start-up firm

he founded; (4) the size of the firm is reported. In the service sector a minimum size of five workers or more (in addition to the owner) is required; for the other industries the minimum size is ten employees.

Table 1 reports the characteristics of the surveyed entrepreneurs. On average the respondents had experienced eight years as full time employees before they started their own business¹⁰ and had gone through some seven years as entrepreneurs. Their mean present income was 57,570 €, while mean income in their last year as employees was close to 39,500 €

It is worth noting that many entrepreneurs struggle in the first few years of their venture. Owners as other individuals usually have other sources of income such as interest, dividends or rents. We do not have information about such components. We also do not have information on perks related to the use of company car for private purposes. In terms of reported income we noted that for the first two or three years following the establishment of the new firm their income was not much higher than the income as employees. As expected the surveyed entrepreneurs worked considerably more hours than the prescribed average of 36 hours per week that is common for employees in Italy.

5. Empirical results

We start by investigating the determinants of the length of previous work experience of our respondents (variable **n**). Following the prediction of the choice model described in section 3., we represent the length of experience prior to becoming an entrepreneur as a function of the income in the two competing occupations. An alternative specification maintains that **n** is a function of the difference between the two income streams and a third one uses the ratio of present to past income as an explanatory variable¹¹. The results are presented in the first rows of Table 2, where

¹⁰ This finding is consistent with other studies such as Blau (1987) and Hamilton (2000).

¹¹ Income from entrepreneurship refers to the last year of activity as entrepreneurs, which is likely to be higher than the income earned at the time of switching. Indeed, some studies including Hamilton (2000) and Lazear (2002) show that earnings at the switching year entrepreneurs are lower than those before the switch. This is due to switching costs and the need to begin operations at an output that is below minimum average cost. Our respondents may have experienced the same phenomenon, for the data show that in the first two years after switching income from entrepreneurship is rather low.

the income variables always appear to be highly significant (and with the signs suggested in section 3.) in determining the length of experience prior to switching. That is, as the difference between income from entrepreneurship and income as an employee increases there is a tendency to reduce the number of 'waiting years'.

As regards risk, the coefficient of that variable turns out to be negative, but not significant. There are two possible explanations for this. First, the willingness to assume risk is a major trait of entrepreneurs. In fact, the tendency to take on risk affects the decision to become an entrepreneur in the first place, so that the elements of the sample we are consider are by definition selected by discarding those who do not like taking risks¹². Furthermore, the so-called 'competence' effect¹³ may be at work: When people feel that they are particularly knowledgeable in a given subject they tend to rely on their own judgement rather than on statistically generated evidence. The competence effect is particularly relevant to the behaviour of would-be entrepreneurs. By and large these are people with years of experience in business. They have vast knowledge of the industry in which they operate. In particular, their long training makes them feel more competent than others and more inclined to rely on their own subjective probabilities¹⁴. Hence, they are more willing to act on their own interpretation of reality¹⁵. Our empirical results are consistent with this hypothesis.

Effort is measured by the variable named 'Hours', i.e. the average number of hours worked by owners of new firms each week. Its positive coefficient suggests that the prospect of working long hours might keep individuals longer in the status of employees (the coefficients in equations 1, 3 and 5 are not significantly different from

¹² Kihlstrom and Laffont (1979) noted that entrepreneurs are usually less risk averse than the general working population.

¹³ See Heath and Tversky (1991) and Camerer and Weber (1992)

¹⁴ The feeling of competence relies on a self-perceived expertise (or skill) and not necessarily on the true level of skill. The behavioral finance literature on the frequency of trading in the stock market recognized this. Accordingly, it defines overconfidence as an overestimation of the personal ability to process financial information (about the value of financial assets). See Odean (1998) and Gervais and Odean (2001).

¹⁵ A similar view is also maintained by Mahajan (1992), who attributed failures to the overconfidence that developers of new products bring to their decision. And by Schnaars (1988), who argued that developers of new products tend to discount information that does not support their view about the possible success of their efforts.

zero). Perhaps “hours of work” is a poor proxy, or the expected effort associated with ownership is not a major determinant of the decision to open a new business.

It could be argued that since entrepreneurs work longer hours each week, their income should be scaled down to reflect this fact. In Table 3 we rerun the same equations as in table 2 with the income measure adjusted to reflect the hours of work. Not surprisingly, the main results do not change much. The numerical values of the income coefficients change somewhat, but the directions of influence on the decision to become an owner stay the same. However, after scaling the coefficient on ‘Hours’ becomes significant.

6. Determinants of size

Of course, when considering to start a new business, prospective entrepreneurs face a number of decisions, apart from choosing whether to abandon their employee status. A major question regards company size. Our data may help to shed some light on this choice.

In particular, personal experience as an entrepreneur and the potential to run large-size companies¹⁶ have been taken into account. We also include the number of owners in each firm, which *de facto* describes family involvement. It is very common for families, in business, to help a younger family member to strike it on his/her own. In that case it is a routine practice to record another family member (and sometimes two members) as a co-owner.

Table 4 reports the OLS estimates, where size is measured by the number of employees. The results indicate that the quality of personal experience as an employee matters (see variable R), that size also depends on the entrepreneur’s experience as such, and that family support plays a relevant role should owners-managers opt to expand their operations.

¹⁶ We measure such potential by referring to the last salary as an employee (i.e. before becoming an owner). It enters the regressions in logarithmic form. Two lines of reasoning may justify to salary as an employee as a proxy for potential. People with higher wage rates when employed are usually people with higher organizational skills, and therefore with a comparative advantage in running large-size companies after switching. Italy presents unusually low social mobility, so that relatively high-paid jobs tend to go children originating from relatively affluent families. When these highly-paid ‘children’ become entrepreneurs, their families are better positioned to support large family companies.

7. Summary and conclusions

Understanding the determinants of entrepreneurship is important because of the key roles entrepreneurs play in any economy. This paper started from the observation that entrepreneurs are experienced workers who take advantage of start-up opportunities. Indeed, on average it takes the entrepreneurs considered in our sample some 8 years to abandon their status as an employee. This length of time seems to depend on a number of variables that affect each case in non systematic ways (family and environmental features, individual psychological factors). That explains the relatively poor explanatory power of the regression presented here. Rather surprisingly, the only variable that seems to have a small but regular influence on the decision to switch is the income gap, i.e. the difference between what the individual made as an employee and what he expects to make as an entrepreneur. For instance, the average owner in our sample declares an income gap of some €18,000: a 10% increase in such a gap would lead to anticipating the switch by about a month. On the other hand, the risk of failure does not seem to deter potential entrepreneurs from starting their own company; nor does the prospect of harder work.

Furthermore, 'potential', experience and family assistance are all elements that help to understand the size of new businesses. Much works in this direction deserves to be done, though. In fact, far from being conclusive, this study aims at opening a number of promising research prospects. Choosing to switch and become a small entrepreneur is a complex process. Not surprisingly, it depends on expected income flows; still, this study has shown that income gaps play a relatively small role, and that neither risk, nor expected working efforts are likely to be very relevant. Other elements need to be investigated, possibly by means of cross country analysis, so as to capture the role of effective and institutional variables – tax incentives and loopholes, the rule of law, the ethics of capitalism. This paper does not have the ambition to provide clear insights in this direction. Still, it shows that the explanatory power of the variables that are traditionally taken into account by mainstream economics might turn out to be rather disappointing, and that other, possibly interdisciplinary approaches could be more encouraging.

Table 1 – Descriptive statistics

	N valid obs	Mean	Median	Std. Deviation	Min	Max
# owners	171	1.47	1	0.75	1	4
Starting income (euro)	39	22696.97	22000	5721.32	11689	40000
Last income as employee (R)	170	39507.30	38550	9222.97	19600	68000
New income as employer (X)	175	57569.52	49000	25851.02	13400	153000
Years as an employee (y1)	173	8.35	8	3.47	1	16
Years as an entrepreneur (y2)	178	6.66	6	3.72	1	20
Education (dummy)	84	0.54	1	0.50	0	1
Hours (weekly)	161	52.24	52	7.82	30	70
Number of employees	177	14.38	10	12.29	5	75
Age	175	45.67	49.5	11.53	29.5	69.5
Income stability (dummy)	86	0.58	1	0.50	0	1

Starting Income is the income from the first job (paid employment) following entry into the labour force. Earlier lira data were converted into euro at the conversion exchange rate of 1936.27 lire/euro.

Last income as an employee (R) is the annual gross personal income as an employee expressed in euro. Earlier lira data were converted into euro at the conversion exchange rate of 1936.27 lire/euro.

New income as an employer (X) is the recent, 2004, annual income from ownership of the business. Ownership income includes management compensation.

Years as an employee (Y1) are the number of years that the manager/owner spent as an employee (in the public or in the private sector) before establishing the present firm.

Years as an entrepreneur (Y2) are the number of years of ownership/operation of the present firm.

Education is a dummy variable which takes on 1 if the founder holds a university degree and 0 otherwise.

Hours is the number of hours worked per week by the owner/manager.

Number of employees is the number of salaried (non family) employees in the firm at the beginning of 2005.

Age is the present age of the owner/manager.

Income stability is a dummy variable. It answers to the question “How stable is your annual income over time”. The answer was recorded as a dichotomous variable: 1 for stable income and zero for unstable.

Table 2 – Determinants of previous experience (n, measured in years)

	1	2	3	4	5	6	7
Constant	8.450 (0.76)	1.874 (0.18)	31.282 (10.88)	29.721 (9.58)	15.176 (7.18)	16.325 (13.22)	16.176 (8.63)
Log R	7.586 (5.94)	6.583 (4.98)					
Log X	-7.500 (-7.56)	-5.566 (-5.46)					
Log (X – R)			-2.629 (-8.66)	-2.040 (-5.74)			
X/R					-4.653 (-7.34)	-3.509 (-5.04)	-3.113 (-2.96)
Risk	-0.235 (-1.13)	-0.234 (-1.23)	-0.230 (-1.17)	-0.280 (-1.53)	-0.290 (-1.4)	-0.285 (-1.5)	-0.260 (-0.88)
Hours	0.052 (1.26)		0.060 (1.5)		0.029 (0.74)		
Years entrepr		-0.193 (-1.87)		-0.109 (-1.03)		-0.218 (-2.08)	-0.320 (-2.01)
Education							0.305 (0.45)
R ²	0.387	0.415	0.434	0.408	0.365	0.391	0.394
Adjusted R ²	0.369	0.400	0.419	0.394	0.351	0.379	0.359
Obs	144	159	120	132	144	159	74

Note: the numbers in parenthesis, below the coefficient are the t values

R is the last annual gross personal income as an employee in euro. Earlier lire data were converted into euro at the conversion exchange rate of 1936,27 lire/euro.

X is the most recent year (usually 2004) annual income from ownership of the business. Earlier lira data were converted into euro at the conversion exchange rate of 1936,27 lire/euro.

Risk denotes the actual failure rate of new businesses in Piemonte, Lombardia and Veneto with more than 5 employees that failed in the year preceding the establishment of the new firm.

Hours is the number of weekly hours worked as an entrepreneur

Years as an entrepreneur is the number of years of ownership/operation of present firm.

Education is a dummy variable: 1 if he/she holds a university degree, 0 if not.

Table 3 – Determinants of previous experience, income variables are weighted by the number of hours of work per week (dependent variable: years as employee)

	1	2	3	4	5	6	7
Constant	4.461 (0.56)	15.510 (2.07)	23.246 (8.71)	22.832 (8.39)	10.013 (4.12)	15.222 (11.89)	15.012 (7.49)
Log R	7.354 (5.8)	2.981 (2.86)					
Log X	-7.483 (-7.47)	-3.233 (-3.66)					
Log (X – R)			-2.985 (-7.02)	-1.724 (-3.87)			
X/R					-3.141 (-6.89)	-1.545 (-3.76)	-1.560 (-2.35)
Risk	-0.228 (-1.09)	-0.369 (-1.76)	-0.328 (-1.52)	-0.404 (-1.91)	-0.362 (-1.72)	-0.402 (-1.92)	-0.348 (-1.05)
Hours	0.198 (3.59)		0.103 (2.02)		0.123 (2.44)		
Years entrepr		-0.268 (-2.33)		-0.256 (-2.15)		-0.276 (-2.36)	-0.304 (-1.64)
Education							0.119 (0.16)
R ²	0.381	0.349	0.340	0.343	0.343	0.341	0.325
Adjust R ²	0.363	0.330	0.324	0.327	0.329	0.327	0.280
Obs	144	144	127	127	144	144	65

Note: the numbers in parenthesis, below the coefficient, are the t values

R is the last annual gross personal income as an employee in euro. Earlier lira data were converted to euro at the conversion exchange rate of 1936,27 lire/euro.

X is the most recent year (usually 2004) annual income from ownership of the business. Earlier lire data was converted to euro at the conversion exchange rate of 1936,27 lire/euro.

Risk denotes the actual failure rate of new businesses in Piemonte, Lombardia and Veneto with more than 5 employees that failed in the year preceding the establishment of the new firm.

Hours is the number of weekly hours worked as an entrepreneur

Years as an entrepreneur is the number of years of ownership/operation of present firm.

Education is a dummy variable : 1 if he/she holds university degree, 0 if not.

Table 4 – Determinants of size**Panel A – Dependent variable: number of employees**

	Equation			
	1	2	3	4
Constant	-200.727 (-6.18)	-173.777 (-5.54)	-188.121 (-5.69)	-160.191 (-5.04)
Log R	19.276 (6.27)	16.177 (5.4)	18.613 (5.94)	15.336 (5.05)
Years entrepreneur	1.795 (8.66)	1.632 (7.98)		
Years entrep squared			0.112 (8.14)	0.102 (7.55)
# owners		4.777 (4.9)		5.022 (5.1)
R ²	0.415	0.506	0.394	0.491
Adjusted R ²	0.408	0.496	0.386	0.481
Obs	168	161	168	161

Panel B – Dependent variable: logarithm of number of employees

	Equation			
	1	2	3	4
Constant	-7.120 (-4.3)	-5.122 (-3.37)	-6.383 (-3.68)	-4.323 (-2.72)
Log R	0.839 (5.35)	0.614 (4.24)	0.803 (4.88)	0.565 (3.73)
Years entrepreneur	0.108 (10.19)	0.095 (9.62)		
Years entrepr squared			0.006 (8.95)	0.006 (8.39)
# owners		0.316 (6.71)		0.335 (6.82)
R ²	0.451	0.580	0.397	0.539
Adjusted R ²	0.444	0.572	0.390	0.530
Obs	168	161	168	161

Note: the numbers in parenthesis, below the coefficient, are the t values

R is the last annual gross personal income as an employee in euro. Earlier lira data were converted into euro at the conversion exchange rate of 1936, 27 lire/euro.

Years as an entrepreneur are the number of years of ownership/operation of present firm.

Owners is the number of firm owners as registered in the documents of incorporation.

References

Aghion P and J Tirole, (1994), “The Management of Innovation”, Quarterly Journal of Economics, 114, pp 1185 - 1209.

Anderson R C and D M Reeb, (2003), “Founding Family Ownership and Firm Performance: Evidence form the S&P500”, Journal of Finance, 58, pp. 1301 – 1327.

Baumol W J, (1990), “Entrepreneurship: Productive, Unproductive and Destructive”, Journal of Political Economy, 98, pp. 893 – 921.

Bhattacharya U and B Ravikumar, (2001), “Capital Markets and the Evolution of Family Businesses”, Journal of Business, 74, pp. 187 – 220.

Blau D M (1987), “A Time-Series Analysis of Self-Employment in the United States”, Journal of Political Economy, 95 pp. 445 – 467.

Camerer C and M Weber, (1992), “Recent Developments in Modeling Preferences: Uncertainty and Ambiguity”, Journal of Risk and Uncertainty, 5, pp. 325 – 370.

Davidsson P and B Honig, (2003), “The Role of Social and Human Capital Among nascent Entrepreneurs”, Journal of Business Venturing, 18, pp. 301 - 331.

De Meza D and C Southey, (1996), “The Borrowers Curse: Optimism, Finance and Entrepreneurship”, Economic Journal, 106, pp. 375 – 386.

Dunn T and D Holtz-Eakin (2000), “Financial Capital, Human Capital and the Transition to Self-Employment: Evidence from Intergenerational Links”, Journal of Labor Economics, 18, pp. 282 – 300.

Evans D G and L Leighton (1989), “Some Empirical Aspects of Entrepreneurship”, American Economic Review, 79, pp. 519 – 535.

Faccio M L and H P Lang, (2002), “The Ultimate Ownership of Western European Corporations”, Journal of Financial Economics, 75, pp. 375 -395.

Gervais S and T Odean, (2001), “Learning to Be Overconfident”, Review of Financial Economics, 14, pp. 1 – 27.

Hamilton B H, (2000), “Does Entrepreneurship Pay? An Empirical Analysis of the Returns of Self-Employment”, Journal of Political Economy, 108, pp. 604 – 631.

Heath C and A Tversky, (1991), “Preferences and Beliefs; Ambiguity and the Competence in the Choice under Uncertainty”, Journal of Risk and Uncertainty, 4, pp. 5 – 28.

ISTAT (2000), Rilevazione sulla struttura del costo del lavoro, Rome.

Kihlstrom R and J J Laffont, (1979), “A General Equilibrium Entrepreneurial Theory of the Firm based on Risk Aversion”, Journal of Political Economy, 87, pp. 719 – 748.

La Porta R, F Lopez-de-Silanes, A Shleifer and R Vishny, (1999), “Corporate Ownership Around the World”, Journal of Finance, 54, pp. 1935 – 2000.

Lazear E P, (2002), “Entrepreneurship”, WP 9109, NBER, Cambridge, Mass.

Lazear E P, (2004), “Balanced Skills and Entrepreneurship”, American Economic Review, Papers and Proceedings, 94, pp. 208-211.

Mahajan J, (1992), “The Overconfidence Effect in Marketing Management Predictions”, Journal of Marketing Research, 24, pp. 329 – 342.

McConaughy D L, C H Matthews and A S Fialko, (2001), “Founding Family Controlled Firms, Efficiency, Risk and Value”, Journal of Small Business Management, 39, pp. 31 – 49.

Odean T, (1998), “Volume, Volatility and Profits When All Investors Are Above Average”, Journal of Finance, 53, pp. 1887 – 1934.

Rajan R G and L Zingales, (1998), “Power in the Theory of the Firm”, Quarterly Journal of Economics, 113, pp. 387 – 432.

Rajan R G and L Zingales, (2001), “The Firm as a Dedicated Hierarchy. A theory of the Origin and Growth of Firms”, Quarterly Journal of Economics, 116, pp. 805 – 860.

Rapiti F, (1997), “Lavoro Autonomo, Lavoro Dipendente e Mobilità: un Quadro Statistico” in S Bologna and A Fumagalli, “Il Lavoro Autonomo di Seconda Generazione”, Feltrinelli, Milano.

Reynolds P D, (1997), “Who Starts a New Firm? Preliminary Explorations of Firms-in-gestation”, Small Business Economics, 9, pp. 449 – 462.

Rosen S, (1982), “Authority, Control and the Distribution of Earnings”, Bell Journal of Economics, 13, pp. 311 – 323.

Schnaars S P, (1998), Mega-mistakes: Forecasting and the Myth of Rapid Technological Change, The Free Press, New York,

Sestito P, (1989), “Alcune Note sull’Occupazione Indipendente in Italia”, Economia e Lavoro, 13, pp. 3 – 13.

Shane S, (2000), “Prior Knowledge and the Discovery of Entrepreneurial Opportunities”, Organization Science, 11, pp. 448 – 469.

Zingales L, (1995), “Insider Ownership and the Decision to Go Public”, Review of Economic Studies, 52, pp 425 – 438.