

The social dimension of entrepreneurship: the role of regional social effects.

di

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1. Introduction

The main question of this paper is why entrepreneurship flourish in some regions and not in others. The theory of entrepreneurship therefore will typically explain the number of firms operating in a given area or their ability to innovate and grow. To explain such facts economic, social and other factors may be resorted to. This paper deals with the so-called social dimension of entrepreneurship, that is with those elements of social capital which can be relevant for explaining local entrepreneurship. Characteristics of a specific area may alter the incentive structure individuals face when deciding how to spend their time. Awareness of the benefits that an entrepreneurial initiative may produce on local development will change the relative revenue structure and induce more individuals to embark upon an entrepreneurial career rather than remain or become employed.

Traditionally, economies of scale and scope and the resulting reduction in transaction costs are identified as the main reasons for these agglomerations (Baum and Singh, 1994; Fujita and Thisse, 2002; Wade, 1995). In these models, the causes of regional concentration are attributed to knowledge spill-overs, to vertical linkages associated with large concentrated market, to transportation costs, and the economies of scope in the market for specialized labour.

The theory of the firm is primarily concerned with the conditions under which, and with the extent to which, profit opportunities are actually pursued. However, those profit opportunities must be known and readily available. When those profit opportunities are not known we can resort on entrepreneurship theory to find out whether those profit opportunities will be eventually exploited. For entrepreneurship theory is concerned with the ability on the part of individual people or organizations to search for, identify and pursue profit opportunities. Economic analysis of entrepreneurship is therefore possible, with search and organizational costs being obviously at the heart of it and with its purpose being the explanation of the extent to which individual people or organizations venture onto new businesses or new lines of business.

An interesting survey on some classic views on entrepreneurship can be found in Van Praag (1999) where the views of Cantillon, Say, Marshall, Schumpeter, Knight and Kirzner are illustrated. In more recent times, William Baumol has offered interesting contributions to the theory of entrepreneurship. In Baumol (1968), he notes that in neoclassical models of the firm 'one hears of no clever ruses, ingenious schemes, brilliant innovations, of no charisma or of any of the other stuff of which outstanding

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entrepreneurship is made'. There is a wide scope, therefore, for an theory of entrepreneurship. Baumol believes that a lot can be said by other social sciences, like sociology and psychology, but that economics has something interesting to say as well. It is by examining the determinants of the payoff to entrepreneurial activity that the most fruitful developments can be achieved. In particular, while the total supply of entrepreneurial talent varies through time and space, with various forces, economic and non-economic, explaining this variation, one aspect is more amenable to economic analysis, that is the allocation of entrepreneurial talent among productive, unproductive and destructive activities (Baumol 1990).

Other economists have accepted this challenge and produced models of entrepreneurship. In Blanchflower and Oswald (1998), for example, the revenue function for entrepreneurs is based on profit from self-employment and on non-pecuniary utility from independence. In the market for entrepreneurs equilibrium is reached when the revenue from running a business is driven down to that of wage work. Changes in the parameters of the model and, in particular, of the revenue function, will change the number of the entrepreneurs active in the economy. An interesting analysis of the career reasons of nascent entrepreneurs is offered in Carter *et al.* (2003) where self-realization, financial success, roles, innovation, recognition and independence are singled out as the main factors determining the decision to embark upon a business career.¹

In spite of everything, economic variables have been shown to account for only a portion of the variance in entrepreneurial activity across regions. To understand entrepreneurial decisions one must also look at the importance of the local social environment.

Thus, pecuniary and non-pecuniary rewards may be combined to produce an overall reward function. In some cases rewards are exogenously given; in other cases, the actual distribution of entrepreneurial efforts and talent may affect both the pecuniary and the non-pecuniary rewards. In all cases reward functions can be manipulated to produce better allocations of entrepreneurial resources. The crucial question to address at this stage is what determines the reward structure to entrepreneurship for the non-pecuniary elements.

The structure of the paper is as follows. Section 2 will illustrate the role of social capital in entrepreneurship. Section 3 will suggest a coordination rule of behaviour. Section 4 will discuss the model framework. Section 5 will introduce the evolutionary dynamic. Section 6 we will conclude the paper.

2. Social effects and the market for entrepreneurs

That economic relations are embedded in a network of social relations and that such social relations influence economic behaviour is generally agreed upon.² It is through the emergence of a complex set of social norms that social relations become established. Observance of these social norms will make economic action different from what it would be if they did not exist. The particular question to address here is whether the existing set of social norms and relations, which may be called social capital, affect the occupational reward structure and, as a result, entrepreneurial choice. If this were the case, entrepreneurship could be stimulated by influencing institutions and social norms as

¹ In actual fact the analysis shows that the same factors are taken into consideration when evaluating a different career. However, this does not make the definition of an appropriate entrepreneurial reward function less necessary.

² For the notion of embeddedness see the classic Granovetter (1985).

such changes would, in due course, produce effects both on pecuniary and non-pecuniary rewards.³

An interesting empirical analysis of the role of social prestige in entrepreneurship is conducted in Giannetti and Simonov (2003), and Minniti (2005). Individuals are supposed to derive their utility from income and the social status enjoyed in society. This means that entrepreneurial profits may be low if social norms matter. When entrepreneurs enjoy a high social status relative to other occupations, even with low profits from running a business, individuals will prefer to become entrepreneurs. The results suggest that individuals are more likely to become entrepreneurs in areas where entrepreneurship is more widespread.

In our paper, the social effects of occupational choices are not the planned outcome of the decisions of purposeful actors; rather it emerges as a unintended consequence of a sequence of decisions taken by individuals and serves as a conduit for information. The social effects are endogenously determined; in other words there is a mechanism describing how information may reinforce certain types of behaviours. To some extent, the social effects concept used in this paper is related to that of “social norms”. Specifically, it describes how individuals observe someone else’s behaviour and adapt itself.

3. A coordination rule of behaviour

The social effects of occupational choice can be analyzed like as a collective rule of behaviour resulting from a spontaneous interaction among individuals, requiring each of them to react differently to local network. A process is also required: it is designed to coordinate the different individuals plans so that an equilibrium can be attained. In the case in which an individual is to make a decision whether to become an entrepreneur or to become employed, her choice will depend also on the decisions taken by all other individuals in the same area. Positive and negative externalities are generated through the interdependence of individual decisions in a given area. The final effect of such interaction is the generation of local social norms which affect individual decisions and create areas with a high entrepreneurial density. To put it differently, we posit that there are non-pecuniary benefits from entrepreneurial activity that vary systematically across social groups because of social interactions. How do we explain the emergence of such a rule of behaviour? Is it possible to explain this rule by resorting to the theory of rational choice?

These types of interaction are commonly considered by game theory and usually grouped under the heading of *coordination games*. The main feature of these games is that of possessing multiple Nash equilibria with a not necessarily clear Pareto-ordering. In such circumstances and, also, when players cannot communicate, the assumptions of individual rationality and common knowledge do not necessarily allow any prediction of which equilibrium will be selected.

Which equilibrium will be chosen is determined by the social and cultural context of the interaction, i.e. by its past history. In this line equilibrium can be considered a stable social norm resulting from a dynamic process which through time coordinates individual behaviour (Sugden, 1989). A social norm, by its very nature, is not unique, but represents

³ For a more general account of the social dimensions of entrepreneurship see, for example, Ulhoi (2005)

only one among many solutions of a game. It is the outcome of an evolutionary process which builds upon the interaction of many individuals in a long-term dynamics. (Binmore and Samuelson, 2002). A social norm is an equilibrium in which each agent is playing the strategy which she is expected to choose. But how are expectations formed in case of multiple equilibria?

The evolutionary approach offers a plausible explanation of the dynamics of the process through which expectations and strategies converge towards a specific equilibrium. Peyton Young (1998) has emphasized the merits of evolutionary analysis and the reasons why it should be preferred to classical analysis in the explanation of the emergence of equilibria. A distinguishing feature of evolutionary analysis is the notion of rationality assigned to individual agents. Agents look around, acquire information and adapt their behaviour according to a trial and error mechanism.

The purpose of this paper is to show how, by means of a process of coordination of the plans of individuals, an equilibrium can be reached where agents play the same strategy. If this equilibrium prevailed the above mentioned containment effect would be produced. To show all this a model where agents interact with one another is required. The particular game used, given the nature of the interaction, is a coordination game.

4. A simple framework

In this section, we sketch a simple model of occupational choice and illustrate how differences in local conditions (social norms) affect the decision to become an entrepreneur. We model the idea that in some regional area being an entrepreneur is profitable if other agents choose to be entrepreneurs themselves and the utility function of each individual is increasing not only in entrepreneurial profits, but also in the external effects resulting from collective choice. In other words, the extent to which entrepreneurial occupational choice is weighted in the utility function depends on the social rule prevailing in that individual's peer group. This aims to capture any non-pecuniary benefits of entrepreneurial activity.

Consider a community of agents where income is obtained by being an entrepreneur or by working as a wage earner. Each agent compares the expected net revenues from entrepreneurship with that of non-entrepreneurial work.

Formally, the utility of an individual, i , who gets involved in an entrepreneurial activity is:

$$U_i^E = (1 + \theta_j)Y_i - I_i$$

Here, Y_i is the output from the entrepreneurial activity of individual i ; I_i is the entrepreneurial investment of individual i ; θ_j is the social effect of the investment's choice. In other words, θ_j is the value capturing social effects.

Formally, the utility of an individual i , who gets involved in wage work is:

$$U_i^W = (1 + \theta_j)W_i$$

Here, W_i is the wage. The utility may differ across locations according to θ_j value that represents the social effect of this choice. Individuals make their occupational choices by comparing the utility from being entrepreneur with the utility of being employed. We assume that there isn't any pecuniary advantage to being an entrepreneur as opposed to wage work, so that: $Y_i - I_i = W_i$.

Unlike previous models (Giannetti and Simonov 2005), when the parameter θ_j is given thus taking as exogenous the social effects of occupational choice, we on the contrary determine θ_j endogenously by means of a coordination game.

The following game (fig. 1) is a pure coordination game, symmetrical in payoffs. The available pure strategies for each agent are **E** (entrepreneur) and **W** (worker); with $\theta_1 > \theta_2 > \theta_3 > \theta_4$.

The game has two strict Nash equilibria (**E, E**), (**W, W**) and one equilibrium in mixed strategies where each agent plays **E** with probability x and **W** with probability $1-x$.

	E	W
E	θ_1, θ_1	θ_4, θ_3
W	θ_3, θ_4	θ_2, θ_2

Fig. 1

This game represents the situations in which each agent has a social benefit when one chooses the entrepreneurial activity and the other agent chooses the same strategy.

In such a context the only asymptotically stable equilibria (a concept defined later) are those where players play the same strategy. In the following section an evolutionary analysis will be presented with populations of individuals, set of strategies, adaptation functions, evolutionary dynamics and evolutionary equilibria.

5. Evolutionary Dynamic

Based on the previous game an evolutionary dynamics involving a population of individuals interacting through time will be considered. In any period each individual will face a state of the game that identifies the distribution of the strategies employed by population and the corresponding (for each strategy) expected payoff functions. The main purpose of evolutionary game theory is modelling repeated and anonymous interactions among players belonging to populations. In time, through the interactions, the strategies associated to the higher payoffs will replace the less fit ones. The evolutionary process will take the system to a stable equilibrium where each agent will find no reason to change its strategy.

For simplicity we deal here only with the *symmetric case* with a single population ($K=1$) and two pure strategies ($N=2$), so the state space $S = \{(p, 1-p) : p \in [0,1]\}$ can be parametrized by a point p in the unit interval $[0,1]$ representing the fraction of agents currently employing the first (**E**) pure strategy. The fitness function $f(r, s)$ specifies the expected payoff to any agent choosing mixed strategy $r = (x, 1-x)$, i.e. taking the first strategy with probability x and the second strategy with probability $1-x$. If f is linear in $s = (p, 1-p)$ as well as in r , then for (fig. 1) the 2×2 matrix $A = (a_{ij})$ it can be written as:

$$F(r,s) = r^T A s = xp\theta_1 + x(1-p)\theta_4 + (1-x)p\theta_3 + (1-x)(1-p)\theta_2$$

Where r^T is the transpose of A : all vectors are column vectors. For one-dimensional evolutionary game, all reduce to saying that the strategy with the higher current payoff

will tend over time to displace the strategy with the lower payoff. That is, the direction of change in $s = (p, 1-p)$ is entirely determined by the sign of the payoff difference⁴: $d(s) = f(n_1, s) - f(n_2, s)$, between the first pure strategy $n_1 = (1, 0)$ and the second pure strategy $n_2 = (0, 1)$. If $d(s) > 0$ then p increases and s moves towards $(1, 0)$, while if $d(s) < 0$ then p decreases and s moves towards $(0, 1)$.

The analysis is completely transparent when the payoff differences $d(s)$ is written in terms of p and the corresponding elements of A , so:

$$\begin{aligned} D(p) = d(s(p)) &= p\theta_1 + (1-p)\theta_4 - p\theta_3 - (1-p)\theta_2 = \\ &= (1-p)(\theta_4 - \theta_2) - p(\theta_3 - \theta_1) \\ &= (1-p)\theta_a - p\theta_b \end{aligned}$$

where the reduced parameters are $\theta_a = \theta_4 - \theta_2$ and $\theta_b = \theta_3 - \theta_1$. Then compatible dynamics ensure that $\Delta p > 0$ when $D(p) > 0$, and $\Delta p < 0$ when $D(p) < 0$.

In our model $\theta_a, \theta_b < 0$, the root $p^* = \theta_a / (\theta_a + \theta_b)$ of $D(p) = 0$ is a NE of the game, and both pure strategies $n_1 = (1, 0)$ and $n_2 = (0, 1)$ are also NE. The pure strategies both are ESS, but p^* is not.

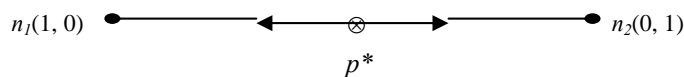
The original definition of evolutionary stable state or strategy (ESS), is for a single population linear model with fitness function $f(r, s) = r^T A s$ for some given $N \times N$ matrix A . It is as follows.

Definition. A state $s \in S$ is an ESS if for all other states $x \in S$ either

- (i) $f(s, s) > f(x, s)$, or
- (ii) $f(s, s) = f(x, s)$ and $f(s, x) > f(x, x)$.

The idea is that the ESS state s resists all possible “mutations” x either because (i) they are less fit or (ii) they are equally fit at the current state but less fit when they are prevalent.

As in figure 2 makes clear for $p < p^*$ ($p > p^*$), so p^* is an unstable “source” separating the basins of attraction of the two evolutionary equilibria (ESS) $p = 0$ and $p = 1$.



Key:

→
direction of flow

•

ESS

⊗

unstable fixed point.

6. Social norms and entrepreneurship

⁴ Where: $f(n_1, s) = xp\theta_1 + x(1-p)\theta_4$ and $f(n_2, s) = (1-x)p\theta_3 + (1-x)(1-p)\theta_2$

Empirical observations show that entrepreneurship tends to concentrate geographically and some regions exhibit high rates of entrepreneurial activity. We suggest that one important cause of such concentration is the existence of social norms that tend to self-reinforce the entrepreneurial occupational choice. If that were the case we should expect that the pecuniary reward to do the business is correspondingly modified.

Regional social norms could also be an instrument of collective optimization. By conforming to this kind of social norm individuals will save on transaction costs and reach a better allocation of resources than would be the case by conforming to some other norm. In that case individuals would have an interest in establishment this social norm as it would yield collective benefits for all of them. For local policy makers wanting to stimulate entrepreneurship the question becomes then how to foster the establishment of this social norm. This is not an easy task as the usual problem of coordination failure may arise.

To derive this result we use a simple evolutionary game theory model that shows how the social effects are locally determined and depend on a coordination between individuals. For each individual we have assumed the existence of only two choices, to become an entrepreneur or to become a worker.

When individuals belonging to a local community decide to follow the more common occupational choice (or social norm) it grants a non-pecuniary reward on their entrepreneurial career only if a considerable number of individuals does the same thing. Regional social effects of entrepreneurship choices, therefore, can be seen as a social norm that, if widely followed, produces considerable benefits for the local community at large, including local entrepreneurs. The benefits from launching a business initiative in an area with a high entrepreneurial rate are well known: the economies of agglomeration and clustering are widely studied in the literature on local development. Thus the norm of committing oneself to one's own territory turns out to be an instrument of collective optimization as individuals will see their net non-pecuniary revenues increased.

Finally, regional social norm might be a typical trait of local entrepreneurs not because they are maximizing individual or social welfare but because they have been selected through time as that trait has proved more successful than others. Entrepreneurs possess this propensity not because they are currently solving a maximization problem but because the population of entrepreneurs has evolved towards this equilibrium. This means that policy makers interested in preserving this propensity should look at the conditions sustaining that equilibrium.

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