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Innovative entrepreneurship as a way to meet professional dissatisfactions

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1. INTRODUCTION

The creation of an innovative firm as a way to remedy the professional dissatisfactions of salaried people has been evoked early in the literature (Shapero 1975, 1977).

Many studies, either in a microeconomic (Cromie 1987, Van Uxem and Bais 1996, Baker and Nelson, 2005, Greenbank 2006) or more scarcely in a macroeconomic point of views (Noorderhaven, Thurik, Wennekers and Van Stel 2004) have been developed. Nevertheless they mainly give prominence to professional dissatisfactions of rather global order and without taking into account the ladder of professional value¹s of the individual. We consider that it is important to take into account professional values to weight dissatisfactions in the same fields. Boussougou-Moussavou (2003) has already evoked these variables for satisfactions at work.

This interest for the innovative firm is then in line with the goal to meet the noticed deficit of the setting up of innovative firms in Europe in comparison with the United-States which produces what Audretsch (2007) terms the *European Paradox* that is to say a high level of investment in knowledge and learning for a low result in terms of growth and reduction of unemployment. The transition from an economy of knowledge to an economy of innovation is thus critical at the national level (Bonnet and Cussy, 2010) but also at the regional one, and especially so for the regions where these studies took place.

In this paper, while covering the « elementary components » of global dissatisfactions we focus on eight specific fields: “creativity”, “intellectual stimulation” and “variety” related to the expression of intellectual capacities, “management”, “independence”, “prestige” characterizing the attachment to executive job², “altruism” and “tangible work” related to the purpose of work (helping others and getting concrete results of one’s labor).

Second we consider the “positive occurrences” of setting up an innovative firm as a mean to fulfill in these fields. Third we integrate a category of variables relatively seldom studied in entrepreneurship: professional values.

This chapter is organized as follows. In section 2, we explain the sample, methodology and variables used in the empirical application. Specifically we define the fields and also the categorization of synthetic variables resulted from the relationships between dissatisfaction, positive occurrences and professional values. In section 3, we report the main results, and section 4 concludes the chapter.

¹A professional value in a field measures the degree of importance of this field for the individual in his/her professional life. Remark: the term value does not mean here a financial or monetary term.

²This classification in two families of the professional dissatisfaction, “the expression of intellectual capacities” and “attachment to executive job” is inspiring by the classification of Super (1991).

2. THE SAMPLE, THE METHODOLOGY AND THE VARIABLES

2.1 The sample

The sample used in the analysis is composed by 55 people who were previously salaried and who created 45 firms. Each entrepreneur was interviewed individually, most often on his/her work place, answering a psychology questionnaire which makes possible to assess all the psychological variables studied and among them the three types which are the aim of this work (professional dissatisfactions, positives occurrences of the setting-up of an innovative firm and professional values in the same fields). Through a semi-structure personal interview additional variables were collected, allowing a description of the sample and integrating other variables to the statistical treatments.

The survey was mainly conducted in Normandy and Paris district during the period mid 2004-mid 2006. The firms belong to the population of hosted firms of public and private supports institutions like incubators, technopoles etc.... These institutions usually accompany most of the new innovative firms. To reinforce the selected process of the innovative firms it has been checked that their projects, products or processes are considered innovative by professionals (reviews, specialized websites, conferences attendees etc.).

Table 1. Description of the sample

<i>Entrepreneurs</i>		
Age	Average	44,7
Educational Level	PhD	25
	Engineer	12
	Other Level	18
Field of Degree	Physics or chemistry	14
	Computer science	17
	Life sciences	8
	Others	16
Past experience in the salaried career	Length in years (average)	15,71
	Average number of positions held♦	2,85
	Average number of jobs relative to management held	1,35
	Average number of innovative jobs held	1,16
	Average number of commercial jobs held	0,82
<i>Firms</i>		
Age	Average at 1/1/2007	4,75
Branches of activity	NTIC	18
	Engineering technical studies	14
	Research and development	13
Number of employees	Average	12,4

♦ Each position can belong to the several categories of jobs described (management, innovative, commercial) or another category not recorded here.

As shown in Table 1, the average age is quite high (it is actually quite evenly distributed between 30 and 60 years old and thus it appears to be weakly discriminating in the sample). The educational level is high (PhD-Engineer – four of them are also graduates from “Très Grandes Écoles”³–). For the 18 people who are not classified as PhD holders or engineers, 3 hold a degree from “Très Grandes Écoles”, 7 a Master or post-master type degree, 6 hold A-levels + 2 to + 4 years diplomas and 2 hold diplomas lower than the A-levels.

The average career length is around 15 years. Considering the average of the total number of positions held (2,85), a change of position around each 5 years has been occurred. Nevertheless academics (16 were registered in the data base) stay on average longer in the same position which contributes to diminishing in the sample the number of previously held positions. For the non academics professional experience is thus in comparison more diversified. As regards the nature of positions held, they tend to be of a managerial type, then an innovative type and finally a commercial type.

In this sample, we have to highlight the prominence of computer sciences diplomas in comparison to physics and chemistry because this sector of the new technologies of information and communication (NTIC) is important in accordance with the development of this innovative sector. The relatively low age of the firms⁴ allows for a good assessment of professional dissatisfactions thanks to the proximity of the past professional career. The average number of employees is 7,6 for 43 firms (the average for the 45 firms is 12,40 since two slightly older firms have over 100 salaried employees).

2.2 Methodology

Each psychological variable has been estimated by a determined number of items (Table 2). For each of these items entrepreneurs were asked to give their degree of agreement by marking their position over a continuous axis (or line) that measure 100 millimeters. The

³A true “Grande École” is independent from university, selects on entry via post-baccalauréat or post-preparatory school exams and delivers a diploma (master) of a A level +5 acknowledged by the State. “Grandes Écoles” train engineers, managers and executives, researchers-teachers, high civil servants. Among them are found the “Très Grandes Écoles”, the ones which train the future senior executives of the State and the big firms. They come in particular from “École nationale d’administration (Ena), Hautes études commerciales (HEC), École normale supérieure de la rue d’Ulm (ENS Ulm), Ecole polytechnique (X)”... Courses preparatory to “Grandes Écoles” are the corner stone of selective education in France. They are organized within secondary schools and had in 2007-2008, 77 600 pupils (Lebègue and Walter, 2008).

⁴This average age is calculated in relation to the 1st of January 2007 (the end of the survey on the field) and most of the firms were visited between mid 2004 and mid 2006; thus they had at the time of the interview a lower average age (for nearly 1,5 year) than the one which appears in table n°1.

answer goes from « does not agree at all » to « totally agrees ». For a variable compounded of several items the value of this variable is obtained by making the average of the values of each of the items. The axis is only marked at the middle. This kind of scale is usually used by psychologists; one of the main advantages is to allow building quantitative variables.

The questionnaire is made up of three series of items related to professional dissatisfactions, positive occurrences and professional values. The fields in which these series are measured are eight: creativity, variety, management, prestige, independence, tangible work, intellectual stimulation and altruism (see below for references).

2.3 Variables

2.3.1 The three basic variables: Professional Dissatisfactions, Positive Occurrences and Professional Values

The approach consists of asking each entrepreneur to assess the extent of his/her professional dissatisfactions in his/her past salaried jobs considering the eight fields. In a second series of items, the evaluation of professional values for each field gives the importance the individual puts on each field. In a third series of items, 8 occurrences are measured independently, allowing the individual to evaluate the positive impact of the setting up of his/her innovative firm in the same fields⁵.

The characterization of these cases is established through a « simple » statistical treatment which enables one to construct synthetic variables, in particular the DFIP (**D**issatisfaction **F**ulfilled in an **I**important field for the **P**erson) which characterize for a person the existence in a field of a high level of professional dissatisfaction in the past salaried jobs, combined with high positive occurrence and high professional value in this field. The synthesis of the whole results makes it possible to have a clear diagnosis on the capacity of innovative firms to solve the professional dissatisfactions of entrepreneurs.

2.3.2 The eight fields of professional dissatisfactions

Four of the eight specific fields used in the chapter are justified by Shapero (1977) who considered professional dissatisfaction as an engine to entrepreneurship.

Within the frame of a survey conducted in the United-Kingdom, Shapero (1977) quoted the « technological frustration » as one of the main sources of engineering firms' creation.

⁵Between the two first series of items, professional dissatisfactions and professional values, two other series of items are introduced concerning other psychological variables that are not presented here. For the third series of items, positive occurrences, questions are also mixed between fields and some other variables are also recorded. This configuration allows avoiding any bias from the respondent that otherwise could have recognized some relationships between the three families of variables.

This dissatisfaction is generated by a refusal of the hierarchy of a company to integrate into the production the new ideas proposed by one or some of its engineers. So as to carry out their idea, all or part of this group of engineers will leave their job to set up their own firm.

One remark it is possible to make about the professional dissatisfaction underlined by Shapero is that it is « factual », without discriminating specific psychological facts. Starting from the Shapero's work, dissatisfaction of a creative nature was retained as potentially relevant, as well as dissatisfactions of a variety, management, and prestige nature.

The need for independence among entrepreneurs have been underlined on several occasions (McClelland 1965, Watkins 1976, Sexton and Bowman 1986). We retain dissatisfaction in this field even so setting-up one's own firm turns actually out to be a mere illusory way of achieving independence (Rindova, Barry and Ketchen, 2009). Another feature of entrepreneurs has to do with a learning method which tends to be pragmatic, that is to say that they prefer learning and acting through concrete action rather than through theory (Thorpe and Dyson, 1988), which leads to consider tangible work also as a relevant professional dissatisfaction.

To select the last two professional dissatisfactions we looked for what may characterize an innovative firm. The professional dissatisfaction related to intellectual stimulation was thus retained because of the commitment to setting-up an innovative firm obviously requires solving complex and highly specialized problems ; the person going for that type of project is likely to be looking for it or, at least, not to be resistant to it. A professional dissatisfaction pertaining to altruism may also account for the setting-up of an innovative firm since an innovative firm also generates usually better life conditions for the community (Sweeney, 1982). The altruistic dimension retained as an element of the decision to set up a firm may come across as a « naive » explanatory factor – or relevant only in very specific cases-. Conversely, this variable appears to be another relevant element when looking at variables operating in the decision-making process. For Simon (1993) looking for an altruistic behaviour is as relevant as « looking for economical gain ». For Acs, Audretsch, Phillips and Desai (2007), altruism and « pursuing one's own interest » - although being two very different fields to account for human activity – actually are crucial human features for the vitality of the economy.

We assess the degree of contribution for each field in the creation of the company, and consider the impact of professional values as a moderator of the previous relation.

Table 2. Definitions of the basic variables

Basic Variables	Variables (number of items used)	Definitions
Professional dissatisfaction in salaried job	Dissatisfaction creativity (1+1) ⁶ (0,68)	Degree of dissatisfaction on creative activities
	Dissatisfaction variety (1+1) (0,69)	Degree of dissatisfaction on various activities
	Dissatisfaction management (1+1) (0,54)	Degree of dissatisfaction on the managerial activities
	Dissatisfaction prestige (1+1) (0,77)	Degree of dissatisfaction concerning activities prestigious
	Dissatisfaction independence(1+1) (0,87)	Degree of dissatisfaction on the activities to have autonomy
	Dissatisfaction tangible work (1+1) (0,65)	Degree of dissatisfaction relating to activities that have tangible results
	Dissatisfaction intellectual stimulation (1+1) (0,63)	Degree of dissatisfaction on intellectually stimulating activities
	Dissatisfaction altruism (1+1) (0,65)	Degree of dissatisfaction on altruistic activities
Positive occurrences of company creation	Occurrence creativity (1)	Degree of contribution in creativity by the creation of the company
	Occurrence variety (1)	Degree of contribution in diversity by the creation of the company
	Occurrence management (1)	Degree of contribution in management by the creation of the company
	Occurrence prestige (1)	Degree of contribution in prestige by the creation of the company
	Occurrence independence (1)	Degree of contribution in independence by the creation of the company
	Occurrence tangible work (1)	Degree of contribution in tangible work by the creation of the company
	Occurrence intellectual stimulation ⁷ (1)	Degree of contribution in intellectual stimulation by the creation of the company
	Occurrence altruism (1)	Degree of contribution in altruism by the creation of the company
Professional Values	Value creativity (3) (0,78)	Degree of importance of creativity in a professional activity
	Value variety (3) (0,59)	Degree of importance of diversity in a professional activity
	Value management (3) (0,72)	Degree of importance of management in a professional activity
	Value prestige (3) (0,72)	Degree of importance of prestige in a professional activity
	Value independence (3) (0,55)	Degree of importance of independence in a professional activity
	Value tangible work (3) (0,57)	Degree of importance of tangible work in a professional activity

⁶ For the number of items we have written "1 +1" even if the items are related to the same field because the items are considered separately (Cf infra). They do not necessarily take into account exactly the same perimeter in order to have a wide field of detection of the dissatisfactions. For example the first item in the field of creativity applies to "listen for new ideas from colleagues or employers", and the second item applies to the "integration of these new ideas in production". Although items are independently used in the statistical treatment the second figure in brackets measures the "Cronbach's alpha".

⁷On the place of the evaluation of the positive occurrence of the "intellectual stimulation" it was preferred to estimate an occurrence relatively less desirable which corresponds to the evaluation of the importance of the concerns of the creator relatively to his/her company during his/her moments of relaxation.

	Value intellectual stimulation (3) (0,69)	Degree of importance of intellectual stimulation in a professional activity
	Value altruism (3) (0,89)	Degree of importance of altruism in a professional activity

2.3.3 The synthetic variables constructed from professional dissatisfactions, positive occurrences and professional values

For each field and each level of professional dissatisfactions, positives occurrences and professional values we build six synthetic variables:

- DFIP (**D**issatisfaction **F**ulfilled in an **I**important field for the **P**erson)
- DF (**D**issatisfaction **F**ulfilled)
- Close DF
- « Dissatisfaction alone»
- « Occurrence alone»
- « Neither dissatisfaction nor occurrence »

« *DF* » and « *DFIP* »

A Dissatisfaction Fulfilled (DF) corresponds with the existence of a high professional dissatisfaction in a field, and this dissatisfaction is met by setting-up a business (positives occurrences in the same field).

Example: In the case of an entrepreneur who was very unsatisfied in the prestige field in his/her previous jobs and who indicates that the firm he/she set up generated a high positive prestige occurrence, one will conclude that the firm brought an answer (or a fulfillment) of the prestige dissatisfaction present in the salaried positions occupied previous to the setting-up; a prestige DF is thus underlined.

This category enables us to show what the firm brought to the past of the entrepreneur. When a DF is detected in a field, it becomes then necessary to check if this field is an important value for the person; this amounts to observe whether this DF concerning a field is associated with a high level score of professional value in the same field. In this case a “**D**issatisfaction **F**ulfilled in an **I**important field for the **P**erson” (DFIP) is underlined. Within this framework, a DFIP constitutes a superior form of DF for the entrepreneur. Taking into account fields which are acknowledged to be important for the entrepreneur makes it possible

to determine the ones accounting for his/her investment in time and energy (Brännback, Carsrud, Elfving and Krueger, 2006, Murnieks, 2007)

Reference scores

To categorize an item as DF or DFIP it is important to define what is judged to be a « high level » score for a dissatisfaction, value or positive occurrence.

A dissatisfaction will be deemed « *high level* » when at least one of the two items is superior or equal to a score of 70/100. In a similar manner a positive occurrence will be judged as a high level when it gets a score superior or equal to 70/100. We have no reference population that allows us to rank the score between low and high. We can notice that it would be also difficult to have this kind of population because this population might have the same diploma, the same profile of career, the same company experience etc. Moreover by adopting this kind of ad hoc method we can measure that some fields show are more or less important for the sample.

For professional values it was noticed that the score levels are markedly higher compared with dissatisfactions, as a consequence, the decision was made to raise the score characterizing a « *high level* » of professional value by setting a score superior or equal to 85/100. The questionnaire on professional values from Super (1991) that uses a liker scale ranks at a high level for these 8 fields for score around 13/15 that corresponds approximatively to 85/100.

« Close DF »

The variable entitled « *close DF* » characterizes cases when a DF was not recorded due to scores being slightly inferior for professional dissatisfaction and/or positive occurrence (score between 60 to 70) to the ones leading to retain it as a DF, for example a score of 67 for a dissatisfaction may have prevented it from qualification as a DF when it could not be objectively justified. In such conditions these observations will be qualified as « *close DF* ».

« Occurrence alone » and « Dissatisfaction alone »

The « *occurrence alone* » is characterized by the presence of an occurrence of *high level* in a field but with an absence of dissatisfaction of *high level* in this same field.

Contrary to the « *occurrence alone* » instance, « *dissatisfaction alone* » concerns the presence of a high level dissatisfaction but without any positive occurrence significantly high in the same field. In this case, dissatisfaction did not get any answer or fulfillment through the

setting-up of the firm in other words dissatisfaction in this field is persistent. This nature of observation is a rather negative result of the setting-up of the firm in the satisfaction in this field.

« Neither dissatisfaction nor occurrence »

The sixth kind of observation entitled *«neither dissatisfaction nor occurrence»* concerns the absence of dissatisfactions and positive occurrences of a high level in a same field. This may be interpreted as the fact that this field did not pose any problem in the salaried past and is not present for the moment within the frame of the firm. This dimension will be termed *« irrelevant»* for the person when associated with a low level professional value (less than 70 score) since in this configuration whether for the entrepreneur himself/herself or the firm this field is not very present and does not seem to be looked for.

Perfect complementary of the synthetic variables

The exclusive and complementary nature of the synthetic variables; *« DF »*, *« DFIP »*, *« close DF»*, *« occurrence alone »*, *« dissatisfaction alone »*, *« neither dissatisfaction nor occurrence »* means that a person being characterized in one of these categories by one of these variables cannot be so by another one. At the same time each entrepreneur for each field is classified in one of the previous categories

3. RESULTS

Table 3. Numbers of entrepreneurs in each category by field

FIELDS	CATEGORIES					
	DFIP	DF	Close DF	Occurrence alone	Dissatisfaction alone ⁶	Neither dissatisfaction nor occurrence
Creativity	22	4	5	17 (12)	3 (1)	4
Variety	7	14	6	18 (6)	6 (3)	4
Management	3	13	8	6 (0)	7 (1)	18
Prestige	0	8	4	10 (2)	5 (2)	28
Independence	14	13	3	13 (8)	4 (0)	8
Tangible work	6	15	3	20 (8)	3 (2)	8
Intellectual stimulation	5	9	14	13 (7)	5 (3)	9
Altruism	6	8	3	8 (4)	7 (0)	23

Table 3 shows that four fields represent a total number of DF and DFIP which is quite important: independence, creativity, variety, and tangible work. Among these fields the creativity can be distinguished as the predominant DFIP in the total dissatisfactions fulfilled. We can also notice the independence field as the second field in DFIP. 17 entrepreneurs in the sample have both DF and DFIP in the fields of creativity and independence. 10 others only have DF or DFIP in the independence field and 9 others exclusively in the field of creativity. In other words for 65 % of the sample one of these fields or both is present.

The weak representation of the prestige field shows that even if the setting-up of an innovative firm carries in itself a prestigious dimension it does not correspond tightly to the entrepreneur's aspirations.

When looking at the second category of variables « close DF » the results concerning DF and DFIP appear to be « robust » in the sense that the number of potentially biased cases in each field is quite small – from 3 to 5 (excepted for the intellectual stimulation and at a lower level the management field).

Levels of occurrences alone are significantly higher than the ones of dissatisfactions alone for the fields underlined within the frame of DF and DFIP (tangible work, variety,

creativity, and independence)⁸. Moreover the occurrence alone fields of creativity, tangible work and independence register jointly a certain number of cases where the score of professional value for the individual is also high (superior or equal to 85). For the management, prestige and altruism fields, the occurrences alone, important to the entrepreneur come in small numbers (0 for management). This last feature does not mean that these occurrences alone do not present any interest for the entrepreneur but that their importance is comparatively not as great. Through the analysis of overall results the number of dissatisfactions alone is small for each of the field. A low number of only “dissatisfactions alone” concerns fields that have a high importance in terms of professional values for the entrepreneur (see figures into brackets). This result shows the efficacy of company creation to fulfill that it is important to the entrepreneur.

As regards the variable neither dissatisfaction nor occurrence, it appears to be characterizing especially the fields of prestige (28) and altruism (23). Respectively for 19 and 17 of the cases they are associated with a low level of professional value (inferior to a score of 70), thus making these fields are « irrelevant » for respectively 35 and 30 % of the sample. This result shows that even if the altruism field is an element of innovation, this field can be relevant only in few cases in the control of the professional environment of the entrepreneur through the setting-up of the firm.

4. CONCLUSIONS

Results show that the creation of innovative firms takes place as an effective way to solve in some fields « what was not going well » in the salaried work. These results make it possible to detect profiles of salaried people looking for professional change who might be interested by the wide possibilities offered by the innovative firm for their choice of new orientations. The simple mention of the fact that the creation of innovative firms may constitute a possible orientation may be enough to make this act credible, an act some of them might not have considered.

Setting-up innovative firms did answer the professional dissatisfactions of entrepreneurs (DF and DFIP) in some fields but also insured some professional continuity or brought secondary advantages (occurrences alone). By synthesizing these results one may conclude

⁸ This result shows that the setting-up of innovative firms are especially the source for positive secondary outfalls in these fields and conversely do not bring about many frustrations since a small number of possible cases of entrepreneurial frustrations is underlined here through a relative small number of dissatisfaction alone cases.

that the opportunities of innovative firms' setting-up were seized and used to the benefit of entrepreneurs for almost totally solving their dissatisfactions, which characterizes a «controlling environment» phenomenon (Sweeney, 1982). Even though this control gets here a posteriori established, one may easily notice that if the firm answered the professional dissatisfactions so well it is because the entrepreneur him/herself was a priori looking for it, since in otherwise there would have been a greater number of dissatisfactions alone compared with DF and DFIP and this at least in a few fields and yet this was not the case in any field. These results are in line with the work of Cardon, Wincent, Singh, and Drnovsek (2009), according to whom entrepreneurs carefully build their project so as to make them corresponding to their desires, dreams and identities and this in an interaction with their professional experience.

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